First edition (March 2001)

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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” on page 3
- “Chapter 2. CICS-supplied transactions” on page 5
- “Chapter 3. Resource definition (online) changes” on page 9
- “Chapter 4. Resource definition (macro) changes” on page 17
- “Chapter 5. The application programming interface (API)” on page 19
- “Chapter 6. The system programming interface (SPI)” on page 21
- “Chapter 7. CICS-supplied utility programs” on page 25
- “Chapter 8. The global user-exit programming interface” on page 27
- “Chapter 9. User-replaceable modules” on page 29
- “Chapter 10. Monitoring and statistics” on page 33
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

<table>
<thead>
<tr>
<th>Obsolete keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEYFILE</td>
<td>This is replaced by the KEYRING system initialization parameter (see Table 3 on page 4).</td>
</tr>
<tr>
<td>DCT</td>
<td>The destination control table is no longer supported, and all transient data queues must be defined to CICS in the CSD using the TDQUEUE resource type. You can use the old DFHDCT macros for migration purposes only, to enable you to migrate your DCT entries to the CSD using the DFHCSDUP MIGRATE command.</td>
</tr>
</tbody>
</table>

Changed system initialization parameters

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

Table 2. Changed system initialization parameters

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPCTRxx</td>
<td>(Unchanged)</td>
<td>New domain codes are available for the xx codes in the keyword. The operands are unchanged. The new codes are: EJ Enterprise Java™ domain II IIOP domain OT Object transaction services domain RZ Request streams domain SJ JVM domain</td>
</tr>
<tr>
<td>STNTRxx</td>
<td>(Unchanged)</td>
<td>See SPCTRxx above for details of new domain codes.</td>
</tr>
</tbody>
</table>

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

Table 3 shows new system initialization parameters.

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

Table 3. New system initialization parameters

<table>
<thead>
<tr>
<th>Keywords</th>
<th>Operands</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>KEYRING</td>
<td>keyring_name</td>
<td>Specifies the name of the key ring defined in the security manager’s database (for example, as defined by the RACF® RACDCERT ADDRING command).</td>
</tr>
<tr>
<td>MAXSOCKETS</td>
<td>65535(number)</td>
<td>Specifies the maximum number of IP sockets that can be managed by the CICS sockets domain. Note that the default value, and any explicit value, is conditional upon the authorization of the CICS region user ID. If the user ID is not defined to UNIX® system services as a superuser, the default is restricted to the value specified on the MAXFILEPROC parameter in the BPXPRMxx of SYS1.PARMLIB.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE</td>
<td>OMGINTERFACE</td>
<td>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.</td>
</tr>
<tr>
<td>REQUESTMODEL</td>
<td>OMGMODULE OMGOPERATION</td>
<td></td>
</tr>
</tbody>
</table>

Changed CEMT commands

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

Table 5. Changed CEMT commands

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE PROGRAM</td>
<td>JVMPROFILE</td>
<td>This option added to display name of the JVM profile for a Java program.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>BEANNAME CORBASERVER INTERFACE INTFACETYPE MODULE OPERATION TYPE</td>
<td>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.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>ACTSOCKETS MAXSOCKETS</td>
<td>These options are added to return (1) the number of active sockets and (2) the maximum number of TCP/IP sockets that can be managed by the CICS region.</td>
</tr>
<tr>
<td>INQUIRE TCPIP</td>
<td>DNSGROUP DNSSTATUS GROUPCRITICAL</td>
<td>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.</td>
</tr>
<tr>
<td>INQUIRE TERMINAL</td>
<td>NQNAME</td>
<td>This option is added to display the 17-character network qualified name of the terminal.</td>
</tr>
<tr>
<td>INQUIRE TRANSACTION</td>
<td>OTSTIMEOUT</td>
<td>This option is added to display the time an OTS transaction in an EJB environment is allowed to run before the initiator takes a syncpoint (or rolls back the OTS transaction).</td>
</tr>
<tr>
<td>INQUIRE UOW</td>
<td>OTSTID(value)</td>
<td>This option is added to display the transaction identifier (TID) of the OTS transaction of which the UOW is part.</td>
</tr>
<tr>
<td>INQUIRE UOWLINK</td>
<td>HOST(name) TYPE(IIOIP)</td>
<td>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 IIOIP. IIOIP is a new value on the TYPE option.</td>
</tr>
</tbody>
</table>
Table 5. Changed CEMT commands (continued)

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Option</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PERFORM STATISTICS</td>
<td>CORBASERVER JVMPOOL</td>
<td>These options are added to enable you to write statistics for the CORBASERVER, JVMPOOL, REQUESTMODEL, and TCPIP resource types to the SMF data.</td>
</tr>
<tr>
<td></td>
<td>REQUESTMODEL TCPIP</td>
<td></td>
</tr>
<tr>
<td>SET TCPIP</td>
<td>MAXSOCKETS</td>
<td>This option is added to enable you to alter the maximum number of TCP/IP sockets allowed in the CICS region.</td>
</tr>
<tr>
<td>SET TCPIPSERVICE</td>
<td>DNSSSTATUS</td>
<td>This option is added to enable you to alter the CICS DNS registration status.</td>
</tr>
</tbody>
</table>

New CEMT commands

Table 6 shows new CICS transactions.

Table 6. New CEMT commands

<table>
<thead>
<tr>
<th>CEMT command</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISCARD CORBASERVER</td>
<td>Command added to discard installed CORBASERVER resource definitions.</td>
</tr>
<tr>
<td>DISCARD DJAR</td>
<td>Command added to discard installed DJAR resource definitions, together with any associated beans.</td>
</tr>
<tr>
<td>INQUIRE BEAN</td>
<td>Command added to display information about a specified bean.</td>
</tr>
<tr>
<td>INQUIRE CORBASERVER</td>
<td>Command added to display information about installed CORBASERVER resource definitions in the CICS region.</td>
</tr>
<tr>
<td>INQUIRE DJAR</td>
<td>Command added to display information about installed DJAR resource definitions in the CICS region.</td>
</tr>
<tr>
<td>INQUIRE JVMPOOL</td>
<td>Command added to display information about the pool of JVMs in the CICS region.</td>
</tr>
<tr>
<td>PERFORM CORBASERVER</td>
<td>Command added to perform a specified action on the beans in a CORBASERVER resource definition. The action can be either PUBLISH or RETRACT.</td>
</tr>
<tr>
<td>PERFORM DJAR</td>
<td>Command added to perform a specified action on an installed DJAR resource definition. The action can be either PUBLISH or RETRACT.</td>
</tr>
<tr>
<td>SET CORBASERVER</td>
<td>Command added to enable you to alter the time-out value of the session beans (SESSBEANTIME) in an installed CORBASERVER resource definition in the CICS region.</td>
</tr>
<tr>
<td>SET JVMPOOL</td>
<td>Command added to enable you to enable or disable the JVM pool, or terminate it altogether.</td>
</tr>
</tbody>
</table>

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>
<thead>
<tr>
<th>Resource type</th>
<th>Obsolete keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>REQUESTMODEL</td>
<td>OMGINTERFACE OMGMODULE OMGOPERATION</td>
<td>These keywords, which were restricted to 31-characters, 58-characters, and 31-characters respectively, have been replaced by INTERFACE, MODULE, and OPERATION.</td>
</tr>
</tbody>
</table>

Changed resource definition parameters

Table 8 shows changes to resource definition parameters.

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Affected keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROFILE</td>
<td>RTIMOUT</td>
<td>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.</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>JVM</td>
<td>The DEBUG option is removed, leaving YES or NO as the only options.</td>
</tr>
<tr>
<td>TCPIPSERVICE</td>
<td>PORTNUMBER</td>
<td>The description of the PORTNUMBER attribute has been extended, with information regarding the use of well-known IIOP port numbers and port sharing within an MVS™ image.</td>
</tr>
</tbody>
</table>

New resource definition types and new parameters

Table 9 shows new resource definition types and new parameters.

<table>
<thead>
<tr>
<th>Resource type</th>
<th>New keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONNECTION</td>
<td>NETNAME</td>
<td>The description of the NETNAME option is extended to provide extra information if you are running CICS regions with VTAM dynamic LU alias in operation. Review this new information (see the CICS Resource Definition Guide) when you implement LU alias support.</td>
</tr>
</tbody>
</table>
Table 9. New resource definition parameters (continued)

<table>
<thead>
<tr>
<th>Resource type</th>
<th>New keywords</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CORBASERVER</td>
<td>CERTIFICATE</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>CORBASERVER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HOST</td>
<td></td>
</tr>
<tr>
<td></td>
<td>JNDIPREFIX</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PORT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SSLPORT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SESSBEANTIME</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SHELF</td>
<td></td>
</tr>
<tr>
<td>DJAR</td>
<td>CORBASERVER</td>
<td>DJAR is a new type of resource definition to enable you to define a deployed JAR file.</td>
</tr>
<tr>
<td></td>
<td>HFSFILE</td>
<td></td>
</tr>
<tr>
<td>PROGRAM</td>
<td>JVMPROFILE</td>
<td>This option enables you to specify the name of the JVM profile needed to start a JVM for the program.</td>
</tr>
<tr>
<td>REQUESTMODEL</td>
<td>BEANNAME</td>
<td>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 OMGxxxxxx equivalent keywords, and other changes, the new definition is incompatible with the REQUESTMODEL resource definition in CICS TS 1.3. See &quot;Incompatibility of REQUESTMODEL resource definitions&quot; on page 13 for details.</td>
</tr>
<tr>
<td></td>
<td>CORBASERVER</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERFACE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTFACETYPE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>MODULE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>OPERATION</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TYPE</td>
<td></td>
</tr>
<tr>
<td>TCPIPSERVICE</td>
<td>AUTHENTICATE</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>CERTIFICATE</td>
<td>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.</td>
</tr>
<tr>
<td></td>
<td>DNSGROUP</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GRPCRITICAL</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PROTOCOL</td>
<td></td>
</tr>
<tr>
<td>TERMINAL</td>
<td>NETNAME</td>
<td>The description of the NETNAME option is extended to provide extra information if you are running CICS regions with VTAM dynamic LU alias in operation. Review this new information (see the CICS Resource Definition Guide) when you implement LU alias support.</td>
</tr>
<tr>
<td>TRANSACTION</td>
<td>OTSTIMEOUT</td>
<td>This new attribute specifies the default time that an Object Transaction Services (OTS) transaction is allowed to execute without the initiator taking a syncpoint.</td>
</tr>
</tbody>
</table>

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 13 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:

```plaintext
//BAKUPCSD JOB (1,BELL),CLASS=A
//ALTERDEF EXEC PGM=IDCAMS,REGION=0M
//SYSPRINT DD SYSOUT=A
//AMSDUMP DD SYSOUT=A
//SYIN 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
//SYIN 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 DFHCOMPx 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

<table>
<thead>
<tr>
<th>CICS release the CSD is shared with</th>
<th>The CICS release level of the CSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS 2.1</td>
<td>CICS TS 1.3</td>
</tr>
<tr>
<td>CICS TS 1.3</td>
<td>DFHCOMP8</td>
</tr>
<tr>
<td>CICS TS 1.2</td>
<td>DFHCOMP8 DFHCOMP7</td>
</tr>
<tr>
<td>CICS TS 1.1</td>
<td>DFHCOMP8 DFHCOMP7 DFHCOMP6</td>
</tr>
<tr>
<td>4.1</td>
<td>DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5</td>
</tr>
<tr>
<td>3.3</td>
<td>DFHCOMP8 DFHCOMP7 DFHCOMP6 DFHCOMP5 DFHCOMP4</td>
</tr>
</tbody>
</table>
Incompatibility of REQUESTMODEL resource definitions
The REQUESTMODEL resource definition was introduced in CICS TS 1.3 to support inbound IIOP requests only. The REQUESTMODEL definition now supports both IIOP and EJB requests, and as a result is extended significantly, with many new attributes. At the same time, some of the old attributes are replaced, so that the keywords are meaningful for both EJB and IIOP, and to enable you to specify larger values.

The effect of all the changes is to make CICS TS 1.3 and CICS TS 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 OMGxxxxxxx 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$SOT**: The resource definitions removed from this group are:
There are also changes to resource definitions defined in the DFH$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 13 for details.

**Updating user-modified IBM-supplied definitions**

When you run the UPGRADE function of the CSD utility program (DFHCSUDP), 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 DFHCSUDP 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. DFHCSUDP 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 DFHCSUDP 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

<table>
<thead>
<tr>
<th>Control table</th>
<th>Macro</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCT</td>
<td>DFHDCT</td>
<td>CICS no longer supports the DCT macro as a means of defining transient data queues. These must be defined in the CSD using the TDQUEUE resource type.</td>
</tr>
</tbody>
</table>

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

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

The new PGMIDERR RESP2 value is:

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](http://www.ibm.com).
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

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>COLLECT STATISTICS</td>
<td>CORBASERVER JVMPOOL REQUESTMODEL TCPIP</td>
<td>Options added to retrieve statistics for these new resource types resources.</td>
</tr>
<tr>
<td>CREATE PROGRAM</td>
<td>JVMPROFILE</td>
<td>Option added to specify the name of the JVM profile to be associated with the program.</td>
</tr>
<tr>
<td>CREATE REQUESTMODEL</td>
<td>BEANNAME CORBASERVER INTERFACE INTERFACECTYPE MODULE OPERATION TYPE</td>
<td>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.</td>
</tr>
<tr>
<td>CREATE TRANSACTION</td>
<td>OTSTIMEOUT</td>
<td>Option added to specify the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint.</td>
</tr>
<tr>
<td>INQUIRE CONNECTION</td>
<td>NQNAME</td>
<td>Option added to return the 17-character network-qualified name for any connection that received an NQNAME from VTAM at bind time.</td>
</tr>
<tr>
<td>INQUIRE PROGRAM</td>
<td>JVMDEBUG JVMPROFILE</td>
<td>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.</td>
</tr>
</tbody>
</table>

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Table 12. Changed system programming commands (continued)

<table>
<thead>
<tr>
<th>Command</th>
<th>Option</th>
<th>Description of change</th>
</tr>
</thead>
<tbody>
<tr>
<td>INQUIRE NETNAME</td>
<td>NQNAME</td>
<td>Option added to return the 17-character network-qualified name for any terminal that received an NQNAME from VTAM at logon time.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>BEANNAME CORBASERVER</td>
<td>Options added to return information about the enhanced request model resource definition.</td>
</tr>
<tr>
<td>REQUESTMODEL</td>
<td>INTERFACE INTERFACETYPE MODULE OPERATION TYPE</td>
<td></td>
</tr>
<tr>
<td>INQUIRE TCPIP</td>
<td>MAXSOCKET ACTSOCKET</td>
<td>Options added to return (1) the maximum number of IP sockets permitted in the CICS region; and (2) the current number of active sockets.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>CERTIFICATE DNSGROUP DNSSTATUS GRPCRITICAL PROTOCOL</td>
<td>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.</td>
</tr>
<tr>
<td>TCPIPSERVICE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INQUIRE TERMINAL</td>
<td>NQNAME</td>
<td>Option added to return the 17-character network-qualified name for any terminal that received an NQNAME from VTAM at logon time.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>COMPID</td>
<td>New codes are added to the list of component ids that you can query:</td>
</tr>
<tr>
<td>TRACETYPE</td>
<td></td>
<td>EJ  Enterprise Java domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>II   IIOP domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>OT   Object transaction services domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>RZ   Request streams domain</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SJ   JVM domain</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>OTSTIMEOUT</td>
<td>Option added to obtain the default time that an OTS transaction is allowed to run without the initiator taking a syncpoint.</td>
</tr>
<tr>
<td>TRANSACTION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>INQUIRE UOW</td>
<td>OTSID</td>
<td>Option added to obtain the first 128 bytes of the transaction identifier (TID) of the OTS transaction of which the UOW is part.</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>HOST</td>
<td>Option added to obtain information about the partner in the OTS transaction associated with a distributed unit of work.</td>
</tr>
<tr>
<td>UOWLINK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PERFORM</td>
<td>CORBASERVER JVMPOOL REQUESTMODEL TCPIP</td>
<td>Options added to write statistics for these new resource types.</td>
</tr>
<tr>
<td>STATISTICS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SET PROGRAM</td>
<td>STATUS</td>
<td>The STATUS(ENABLED</td>
</tr>
</tbody>
</table>
Table 12. Changed system programming commands (continued)

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

New commands and options

Table 13 shows the commands and options that are new.

Table 13. New commands and options

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

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 61 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>
<thead>
<tr>
<th>Symbolic value</th>
<th>2-byte code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEPTQR</td>
<td>QR</td>
<td>The quasi-reentrant mode TCB</td>
</tr>
<tr>
<td>UEPTCO</td>
<td>CO</td>
<td>The concurrent mode TCB</td>
</tr>
<tr>
<td>UEPTFO</td>
<td>FO</td>
<td>The file-owning mode TCB</td>
</tr>
<tr>
<td>UEPTRO</td>
<td>RO</td>
<td>The resource-owning mode TCB</td>
</tr>
<tr>
<td>UEPTRP</td>
<td>RP</td>
<td>The ONC/RPC mode TCB</td>
</tr>
<tr>
<td>UEPTSZ</td>
<td>SZ</td>
<td>The FEPI mode TCB</td>
</tr>
<tr>
<td>UEPTJ8</td>
<td>J8</td>
<td>The JVM mode TCB</td>
</tr>
<tr>
<td>UEPTH8</td>
<td>H8</td>
<td>The Java hot-pooling TCB</td>
</tr>
<tr>
<td>UEPTL8</td>
<td>L8</td>
<td>An open mode TCB</td>
</tr>
<tr>
<td>UEPTSL</td>
<td>SL</td>
<td>The sockets listener mode TCB</td>
</tr>
<tr>
<td>UEPTSO</td>
<td>SO</td>
<td>The sockets mode TCB</td>
</tr>
<tr>
<td>UEPTS8</td>
<td>S8</td>
<td>The secure sockets layer mode TCB</td>
</tr>
<tr>
<td>UEPTJS</td>
<td>JS</td>
<td>The CICS job step TCB</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Exit name</th>
<th>Description of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>XRSINDI</td>
<td>Parameter list change</td>
</tr>
<tr>
<td></td>
<td><strong>UEPIDTYP</strong></td>
</tr>
<tr>
<td></td>
<td>The range of equated values in the 1-byte field addressed by UEPIDTYP is extended to cover the install and discard of the new resource types. The additions are:</td>
</tr>
<tr>
<td></td>
<td>UEIDCSRV EQU 32</td>
</tr>
<tr>
<td></td>
<td>UEIDDJAR EQU 33</td>
</tr>
<tr>
<td></td>
<td>UEIDBEAN EQU 34</td>
</tr>
</tbody>
</table>

| XICEREQ   | Two new exit-specific parameters are added to these interval control exit points (initially by APAR PQ26514, October 1999): |
| XICEREQC  | **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 (DFHZATDx 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 2426 2433 2444 2446 2448 2449
2452 2456 2457 2458 2464 2467 2468 2470 2471 2490
3040 3046 3047 3049 304a 304b 304c 304d 304e 3050 3051 3055
3056 306a 306b 306c 306d 306e 3070 3071 3074 3075 3076 3079
307A 307B 307C 307d 307E 3080 3081 3082 3083 3084 3085 3086
3087 3088 3089 308A 308B 308C 308D 308E 308F 3090 3091 3092
3093 3098 3099 309A 309B 309C 309D 309E 309F 30a0 30a1 30a2
30a3 30a4 30a5 30a6 30a7 30a8 30a9 30aa 30ab 30ac 30ad 30ae
30af 30b0 30b1 30b2 30b3 30b4 30b5 30b6 30b7 30b8 30b9 30ba
30bb 30bc 30bd 30be 30bf 30c0 30c1 30c2 30c3 30c4 30c5 30c6
30c7 30c8 30c9 30ca 30cb 30cc 30cd 30ce 30cf 30d0 30d1 30d2
30d3 30d4 30d5 30d6 30d7 30d8 30d9 30da 30db 30dc 30dd 30de
30df 30e0 30e1 30e2 30e3 30e4 30e5 30e6 30e7 30e8 30e9 30ea
30eb 30ec 30ed 30ee 30ef 30f0 30f1 30f2 30f3 30f4 30f5 30f6
30f7 30f8 30f9 30fa 30fb 30fc 30fd 30fe 30ff 3100 3101 3102
3103 3104 3105 3106 3107 3108 3109 310a 310b 310c 310d 310e
310f 3110 3111 3112 3113 3114 3115 3116 3117 3118 3119 311a
311b 311c 311d 311e 311f 3120 3121 3122 3123 3124 3125 3126
3127 3128 3129 312a 312b 312c 312d 312e 312f 3130 3131 3132
3133 3134 3135 3136 3137 3138 3139 313a 313b 313c 313d 313e
313f 3140 3141 3142 3143 3144 3145 3146 3147 3148 3149 314a
314b 314c 314d 314e 314f 3150 3151 3152 3153 3154 3155 3156
3157 3158 3159 315a 315b 315c 315d 315e 315f 3160 3161 3162
3163 3164 3165 3166 3167 3168 3169 316a 316b 316c 316d 316e
316f 3170 3171 3172 3173 3174 3175 3176 3177 3178 3179 317a
317b 317c 317d 317e 317f 3180 3181 3182 3183 3184 3185 3186
3187 3188 3189 318a 318b 318c 318d 318e 318f 3190 3191 3192
3193 3194 3195 3196 3197 3198 3199 319a 319b 319c 319d 319e
319f 31a0 31a1 31a2 31a3 31a4 31a5 31a6 31a7 31a8 31a9 31aa
31ab 31ac 31ad 31ae 31af 31b0 31b1 31b2 31b3 31b4 31b5 31b6
31b7 31b8 31b9 31ba 31bb 31bc 31bd 31be 31bf 31c0 31c1 31c2
31c3 31c4 31c5 31c6 31c7 31c8 31c9 31ca 31cb 31cc 31cd 31ce
31cf 31d0 31d1 31d2 31d3 31d4 31d5 31d6 31d7 31d8 31d9 31da
31db 31dc 31dd 31de 31df 31e0 31e1 31e2 31e3 31e4 31e5 31e6
31e7 31e8 31e9 31ea 31eb 31ec 31ed 31ee 31ef 31f0 31f1 31f2
31f3 31f4 31f5 31f6 31f7 31f8 31f9 31fa 31fb 31fc 31fd 31fe 31ff

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.

<table>
<thead>
<tr>
<th>STID</th>
<th>Symbolic name</th>
<th>Value</th>
<th>Copybook</th>
<th>Type of record</th>
</tr>
</thead>
<tbody>
<tr>
<td>STISMDA</td>
<td>Storage manager DSA ID</td>
<td>2</td>
<td>DFHSMDS</td>
<td></td>
</tr>
<tr>
<td>STISMD</td>
<td>Storage manager domain subpool ID</td>
<td>5</td>
<td>DFHSMDS</td>
<td></td>
</tr>
<tr>
<td>STISMT</td>
<td>Storage manager task subpool ID</td>
<td>6</td>
<td>DFHSMDS</td>
<td></td>
</tr>
<tr>
<td>STIXMG</td>
<td>Transaction manager (global) ID</td>
<td>10</td>
<td>DFHXMGDS</td>
<td></td>
</tr>
<tr>
<td>STIXMR</td>
<td>Transaction manager (trans) ID</td>
<td>11</td>
<td>DFHXMGDS</td>
<td></td>
</tr>
<tr>
<td>STIXMC</td>
<td>Transaction manager (tclass) ID</td>
<td>12</td>
<td>DFHXMGDS</td>
<td></td>
</tr>
<tr>
<td>STIFEPI</td>
<td>FEP pool ID</td>
<td>16</td>
<td>DFHA22DS</td>
<td></td>
</tr>
<tr>
<td>STIFEPI</td>
<td>FEP connection ID</td>
<td>17</td>
<td>DFHA23DS</td>
<td></td>
</tr>
<tr>
<td>STIFEPT</td>
<td>FEP target ID</td>
<td>18</td>
<td>DFHA24DS</td>
<td></td>
</tr>
<tr>
<td>STIVT</td>
<td>VTAM* statistics ID</td>
<td>21</td>
<td>DFHA03DS</td>
<td></td>
</tr>
<tr>
<td>STIPAUTO</td>
<td>Program autoinstall ID</td>
<td>23</td>
<td>DFHPGGDS</td>
<td></td>
</tr>
<tr>
<td>STIARMT</td>
<td>Terminal autoinstall statistics ID</td>
<td>24</td>
<td>DFHA04DS</td>
<td></td>
</tr>
<tr>
<td>STILDR</td>
<td>Loader (resid) ID</td>
<td>25</td>
<td>DFHLDRDS</td>
<td></td>
</tr>
<tr>
<td>STIBUSS</td>
<td>DBCTL USS ID</td>
<td>28</td>
<td>DFHDBUDS</td>
<td></td>
</tr>
<tr>
<td>STILDG</td>
<td>Loader (global) ID</td>
<td>30</td>
<td>DFHLDDG</td>
<td></td>
</tr>
<tr>
<td>STITCR</td>
<td>Terminal control (resid) ID</td>
<td>34</td>
<td>DFHA06DS</td>
<td></td>
</tr>
<tr>
<td>STILSR</td>
<td>LSRPOOL pool statistics (resid) ID</td>
<td>39</td>
<td>DFHA08DS</td>
<td></td>
</tr>
<tr>
<td>STILSRF</td>
<td>LSRPOOL file statistics (by file) ID</td>
<td>40</td>
<td>DFHA09DS</td>
<td></td>
</tr>
<tr>
<td>STITDQR</td>
<td>TOQUEUE (resid) ID</td>
<td>42</td>
<td>DFHTQGDS</td>
<td></td>
</tr>
<tr>
<td>STITDG</td>
<td>TOQUEUE (global) ID</td>
<td>45</td>
<td>DFHTQGDS</td>
<td></td>
</tr>
<tr>
<td>STITSQ</td>
<td>TSQUEUE statistics ID</td>
<td>48</td>
<td>DFHTSGDS</td>
<td></td>
</tr>
<tr>
<td>STICONSR</td>
<td>ISC/IRC system entry (resid) ID</td>
<td>52</td>
<td>DFHA14DS</td>
<td></td>
</tr>
<tr>
<td>STICONSS</td>
<td>ISC connection - system security</td>
<td>54</td>
<td>DFHA21DS</td>
<td></td>
</tr>
<tr>
<td>STIDS</td>
<td>Dispatcher statistics ID</td>
<td>59</td>
<td>DFHDGDS</td>
<td></td>
</tr>
<tr>
<td>STIUSG</td>
<td>User domain statistics ID</td>
<td>61</td>
<td>DFHUSGD</td>
<td></td>
</tr>
<tr>
<td>STITM</td>
<td>Table manager statistics ID</td>
<td>63</td>
<td>DFHA16DS</td>
<td></td>
</tr>
<tr>
<td>STIT</td>
<td>Statistics statistics ID</td>
<td>66</td>
<td>DFHSMSD</td>
<td></td>
</tr>
<tr>
<td>STIFCR</td>
<td>File control (resid) ID</td>
<td>67</td>
<td>DFHA17OS</td>
<td></td>
</tr>
<tr>
<td>STICONMR</td>
<td>ISC/IRC mode entry (resid) ID</td>
<td>76</td>
<td>DFHA20OS</td>
<td></td>
</tr>
<tr>
<td>STIM</td>
<td>Monitoring statistics (global) ID</td>
<td>81</td>
<td>DFHMNGOS</td>
<td></td>
</tr>
<tr>
<td>STIMMR</td>
<td>Monitoring statistics (resid) ID</td>
<td>82</td>
<td>DFHMNTDS</td>
<td></td>
</tr>
<tr>
<td>STITDR</td>
<td>Transaction dump (resid) ID</td>
<td>85</td>
<td>DFHTDROS</td>
<td></td>
</tr>
<tr>
<td>STITDG</td>
<td>Transaction dump (global) ID</td>
<td>87</td>
<td>DFHTDGS</td>
<td></td>
</tr>
<tr>
<td>STISDR</td>
<td>System dump (resid) ID</td>
<td>88</td>
<td>DFHSDDRS</td>
<td></td>
</tr>
<tr>
<td>STISDG</td>
<td>System dump (global) ID</td>
<td>90</td>
<td>DFHSDDG</td>
<td></td>
</tr>
<tr>
<td>STILGR</td>
<td>Logger statistics (resource) ID</td>
<td>93</td>
<td>DFHLGRDS</td>
<td></td>
</tr>
<tr>
<td>STILGS</td>
<td>Log stream statistics (resource) ID</td>
<td>94</td>
<td>DFHLGSOS</td>
<td></td>
</tr>
<tr>
<td>STINOG</td>
<td>ENQ manager statistics (global) ID</td>
<td>97</td>
<td>DFHNOGS</td>
<td></td>
</tr>
<tr>
<td>STIRMG</td>
<td>Recovery manager statistics (global) ID</td>
<td>99</td>
<td>DFHMRGOS</td>
<td></td>
</tr>
<tr>
<td>STIG2</td>
<td>DB2 connection statistics (global) ID</td>
<td>102</td>
<td>DFHDGDS</td>
<td></td>
</tr>
<tr>
<td>STISOR</td>
<td>DB2 entry statistics (resource) ID</td>
<td>103</td>
<td>DFHS2ROS</td>
<td></td>
</tr>
<tr>
<td>STISOG</td>
<td>TCP/IP (global) ID</td>
<td>107</td>
<td>DFHSOGDS</td>
<td></td>
</tr>
<tr>
<td>STISOR</td>
<td>TCP/IP services (resource) ID</td>
<td>108</td>
<td>DFHSORS</td>
<td></td>
</tr>
<tr>
<td>STIIIR</td>
<td>Request model (resource) ID</td>
<td>111</td>
<td>DFHIROS</td>
<td></td>
</tr>
<tr>
<td>STIEJR</td>
<td>Corbaserver (resource) ID</td>
<td>114</td>
<td>DFHEJR</td>
<td></td>
</tr>
<tr>
<td>STISJG</td>
<td>JVM pool statistics (global) ID</td>
<td>117</td>
<td>DFHSJGDS</td>
<td></td>
</tr>
</tbody>
</table>

*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](https://www.ibm.com).
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)" on page 37
- "Chapter 12. Migration planning for Java applications" on page 41
- "Chapter 13. Migration planning for the integrated translator" on page 45
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.appid profiles in the RACF FACILITY general resource class. When the profiles are ready for all the MRO regions, test the production regions again with the new SVC and DFHIRP, this time using the FACILITY class profiles for logon and bind-time security checking.

6. Cutover to production with the new IRP
   If the production MRO regions successfully log on to the new IRP with the new SVC, and bind-time security checking works successfully, use the new DFHIRP and SVC for the production regions.

7. Test MRO with CICS TS regions
   With the production regions running successfully under the CICS TS SVC and IRP, you can initialize and test some CICS Transaction Server regions using MRO. These test regions can coexist in the same MVS image as the production regions, all using the same SVC and IRP.

---

**Note:** All the CICS regions in SYSPLEX1 shown in Figure 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
- Migrating Java applications
- JVM initialization options on page 43
- Changes to the DFHJVMAT user-replaceable module on page 43

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,

  \[ PP(\text{CICS('opt1 opt2 optn ...')}) \]

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

  \[ \text{PARM='NODYNAM,LIB,OBJECT,RENT,MAP,XREF,CICS(''COBOL3,SP'')'} \]

**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" on page 49
- "Chapter 15. Monitor view changes" on page 51
- "Chapter 16. Business Application Services changes" on page 53
- "Chapter 17. The CICSPlex_SM API" on page 55
- "Chapter 18. Migrating to CICS TS 2.1 CICSPlex_SM" on page 57
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

<table>
<thead>
<tr>
<th>Operations view</th>
<th>What has changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMAS</td>
<td>FEEDBACK error codes</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>New attributes added: HOTPOOLING and JVMPROFILE</td>
</tr>
<tr>
<td>RQMODEL</td>
<td>New attributes added: CORBASERVER, RTYPE, INTFACTYPE, BEANNAME, MODULE, INTERFACE, and OPERATION</td>
</tr>
<tr>
<td>TCPIPS</td>
<td>New attributes added: AUTHENTICATE, CERTIFICATE, PROTOCOL, DNSGROUP, DNSSTATUS, and GRPCRITICAL</td>
</tr>
<tr>
<td>TERMINL</td>
<td>New attribute added: NQNAME</td>
</tr>
<tr>
<td>UOW</td>
<td>New attribute added: OTSTID</td>
</tr>
<tr>
<td>UOWLINK</td>
<td>New attributes added: RRMSURID and HOST</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Operations view</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJCOSE</td>
<td>A CICS resource that describes a CorbaServer object being managed by CICSPlex SM</td>
</tr>
<tr>
<td>EJDJAR</td>
<td>A CICS resource that describes a CICS-deployed JAR file object being managed by CICSPlex SM</td>
</tr>
<tr>
<td>EJCOBEAN</td>
<td>A CICS resource that describes an Enterprise Bean object in a CorbaServer being managed by CICSPlex SM</td>
</tr>
<tr>
<td>EJDJBEAN</td>
<td>A CICS resource that describes an Enterprise Bean object in a CICS-deployed JAR FILE being managed by CICSPlex SM</td>
</tr>
</tbody>
</table>
Chapter 15. Monitor view changes

This chapter summarizes the change to the CICSp lex SM MTERMNL monitor view.

Changed monitor view

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

Table 18. Changed monitor view

<table>
<thead>
<tr>
<th>Monitor view</th>
<th>What has changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>MTERMNL</td>
<td>New attribute added: ACQSTATUS</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>BAS object</th>
<th>What is it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJCINGRP</td>
<td>BAS definition that describes the membership of a CorbaServer definition (EJCODEF) in a resource group.</td>
</tr>
<tr>
<td>EJCODEF</td>
<td>CICS definition that describes a CorbaServer.</td>
</tr>
<tr>
<td>EJDINGRP</td>
<td>BAS definition that describes the membership of a CICS-deployed JAR file definition (EJDJDEF) in a resource group.</td>
</tr>
<tr>
<td>EJDJDEF</td>
<td>CICS definition that describes a CICS-deployed JAR file.</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>BAS object</th>
<th>What has changed</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQMDEF</td>
<td>New attributes added: CORBASERVER, RTYPE, INTFACETYPE, BEANNAME, MODULE, INTERFACE, and OPERATION</td>
</tr>
<tr>
<td>RESDESC</td>
<td>New attributes added: EJCDEFRG, EJCDEFTS, EJCDEFRS, EJDDEFRG, EJDDEFTS, and EJDDEFRS</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Resource table</th>
<th>What is it?</th>
</tr>
</thead>
<tbody>
<tr>
<td>EJCINGRP</td>
<td>EJCODEF in resource group</td>
</tr>
<tr>
<td>EJCOBEAN</td>
<td>Enterprise bean in CorbaServer</td>
</tr>
<tr>
<td>EJCODEF</td>
<td>CorbaServer definition</td>
</tr>
<tr>
<td>EJCOSE</td>
<td>CorbaServer</td>
</tr>
<tr>
<td>EJDINGRP</td>
<td>EJDJDEF in resource group</td>
</tr>
<tr>
<td>EJDJAR</td>
<td>CICS-deployed JAR file</td>
</tr>
<tr>
<td>EJDJBEAN</td>
<td>Enterprise bean in CICS-deployed JAR</td>
</tr>
<tr>
<td>EJDJDEF</td>
<td>CICS-deployed JAR file definition</td>
</tr>
</tbody>
</table>

Changed resource tables

The following resource tables have been changed. Review these resource tables for possible impact on any real-time analysis (RTA) evaluation definitions (EVALDEF) or application programming interface (API) programs you may be using.

- 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:
- "Running CICSPlex SM Version 2.1 and an earlier release concurrently" on page 58
- "Performing migration procedures" on page 59
- "A phased migration scenario" on page 65
- "Management of unsupported CICS regions" on page 75

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 CICSplox 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 CICSpex 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 CICSpex 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 CICSpex 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 CICSpex SM release levels cannot communicate directly.

Performing migration procedures

The migration from a previous release of CICSpex SM to CICS TS Version 2.1 CICSpex 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 CICSpex 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 CICSpex 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 CICSpex SM if you encounter problems during the migration to CICS TS Version 2.1 CICSpex 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 CICSpex SM to CICS TS Version 2.1 CICSpex 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 CICSpex 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 NSYSXLX and the ESSS, see the CICS Transaction Server for z/OS Installation Guide.)
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

<table>
<thead>
<tr>
<th>Environment</th>
<th>Release 2 Group</th>
<th>Release 3 Group</th>
<th>Release 4 Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local MAS – USELPACOPY(NO)</td>
<td>EYU120G1</td>
<td>EYU130G1</td>
<td>EYU140G1</td>
</tr>
<tr>
<td>Remote MAS – USELPACOPY(NO)</td>
<td>EYU120G2</td>
<td>EYU130G2</td>
<td>EYU140G2</td>
</tr>
<tr>
<td>Local MAS – USELPACOPY(YES)</td>
<td>EYU120GB</td>
<td>EYU130GB</td>
<td>EYU140GB</td>
</tr>
<tr>
<td>Remote MAS – USELPACOPY(YES)</td>
<td>EYU120GC</td>
<td>EYU130GC</td>
<td>EYU140GC</td>
</tr>
</tbody>
</table>

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 accidentally overwrite the new starter set definitions with starter set definitions exported from a previous release, you can re-import the new starter set definitions specifying the OVERWRITE option on the Duplicate Names field of the COVC panel.

For information about importing view set and menu definitions see the [CICSPlex System Manager Web User Interface Guide](#). For information about the starter set see the [CICSPlex System Manager Web User Interface Guide](#).

You do not need to make any changes to existing customized views and menus you may have created but you can consider modifying or creating view sets to take into account the new attributes and resources.

**Notes:**

1. You can import into a Version 2.1 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.

```
//CSUDP  EXEC PGM=DFHCSDUP
//STEPLIB DD DSN=cics.index.SDFHLOAD,DISP=SHR
//                 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

![Diagram showing a CICSPlex SM environment with MVS systems, CASs, CMASs, and MASs interconnected.]

*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
Objective 1: Convert MP 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
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

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.
  - From the CAS A CASDEF view, issue the INStall action to install the definition for B.
  - 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.
Objective 3: Convert 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 IEAAPFx 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 CICSpex may contain many MASs running unsupported releases of CICS and the resources required to migrate them all to a supported release may not yet be available to you), you may still manage it indirectly but you **must** use the end user interface (EUI), the application programming interface (API), business application services (BAS), and the real-time analysis (RTA) services provided in CICS TS Version 2.1 CICSpex SM to do so.

Failure to use the interfaces provided at this release to manage indirectly those MASs running unsupported releases of CICS may give rise to 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 CICSpex, situated on one continent but managed by you from another continent, may comprise many Release 3 CMASs managing many MASs running supported and unsupported releases of CICS. The resources required to migrate all Release 3 CMASs to this release may not yet be available to you at this site. You must, however, manage this CICSpex using the interfaces available at this release — you must, therefore, migrate the maintenance point CMAS and the CAS to which it connects to Version 2.1 (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 CICSpex. The example illustrated shows a Release 3 CMAS but this could equally be a Release 2 CMAS and the connected MAS might be running CICS Transaction Server for OS/390 Version 1 Release 1.

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

---

Chapter 18. Migrating to CICS TS 2.1 CICSpex SM
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

<table>
<thead>
<tr>
<th>CICS system</th>
<th>CICSPlex SM component of CICS TS 2.1</th>
<th>CICSPlex SM component of CICS TS 1.3</th>
<th>CICSPlex SM 1.3</th>
<th>CICSPlex SM 1.2</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS 2.1</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CICS TS 1.3</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>CICS TS 1.2</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>CICS TS 1.1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for MVS/ESA 4.1</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for MVS/ESA 3.3</td>
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<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>CICS for MVS 2.1.2</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<td>CICS for OS/2™ 3.1</td>
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<td>No</td>
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<tr>
<td>CICS for OS/2 3.0</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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.

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

5. Perform a phased migration of the rest of the CICSpex. 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.
**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(0nnn) coded, where nnn is the latest version of CICSPlex SM. To avoid, however, the unpredictable problems that may occur in this environment, you should ensure that the application environment used by your programs is at the highest available level.

**Providing a Version 2.1 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-linked it, 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-linked 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" on page 85
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_sizeKB.

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 unresolved 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).
<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAD0328</td>
<td>Element <em>Element_name</em> contains an invalid trace value, <em>trace_value</em>.</td>
</tr>
<tr>
<td>DFHAD0329</td>
<td>A 'CorbaServer' with a 'CICSName' tag of 'CorbaServer'.name has been found, which is of an invalid size.</td>
</tr>
<tr>
<td>DFHAD0330</td>
<td>A non-numeric value (<em>value</em>) was specified for attribute <em>attribute_name</em> at element <em>element_name</em>, where a numeric value was expected.</td>
</tr>
<tr>
<td>DFHAD0331</td>
<td>An invalid value of <em>value</em> has been specified for attribute <em>attribute_name</em>.</td>
</tr>
<tr>
<td>DFHAD0332</td>
<td>Expected values were missing from the deployment configuration file and/or its DTD file.</td>
</tr>
<tr>
<td>DFHAD0333</td>
<td>The expected element name (<em>element_name</em>) is missing.</td>
</tr>
<tr>
<td>DFHAD0334</td>
<td>The attribute <em>attribute_name</em> is not present for element <em>element_name</em>.</td>
</tr>
<tr>
<td>DFHAD0335</td>
<td>A 'Userid' (*Userid'.value) specified in the deployment configuration file is not unique.</td>
</tr>
<tr>
<td>DFHAD0336</td>
<td>A 'LogicalName' (*LogicalName'.value) specified in 'Bindings' section of deployment configuration file is not unique.</td>
</tr>
<tr>
<td>DFHAD0337</td>
<td>Cannot open trace handler because 'TraceLogPath' specifies an existing directory: ('TraceLogPath'.value).</td>
</tr>
<tr>
<td>DFHAD0338</td>
<td>Cannot open trace handler because 'TraceLogPath' specifies an invalid file path: ('TraceLogPath'.value).</td>
</tr>
<tr>
<td>DFHAD0339</td>
<td>'LocalJarBase' specifies an invalid directory path: ('LocalJarBase'.value).</td>
</tr>
<tr>
<td>DFHAD0340</td>
<td>Empty values were supplied for attributes in the deployment configuration file.</td>
</tr>
<tr>
<td>DFHAD0341</td>
<td>The attribute <em>attribute_name</em> for element <em>element_name</em> has been supplied with an empty value.</td>
</tr>
<tr>
<td>DFHAD0342</td>
<td>A 'CorbaServer' 'FriendlyName' ('FriendlyName'.value) specified in 'CorbaServers' section of deployment configuration file is not unique.</td>
</tr>
<tr>
<td>DFHAD0400</td>
<td>Deployment information found in the JAR is invalid or incomplete.</td>
</tr>
<tr>
<td>DFHAD0401</td>
<td>An attempt was made to open a JAR that could not be found.</td>
</tr>
<tr>
<td>DFHAD0402</td>
<td>An unrecoverable error has occurred whilst working with the JAR.</td>
</tr>
<tr>
<td>DFHAD0403</td>
<td>The JAR you have selected is invalid.</td>
</tr>
<tr>
<td>DFHAD0404</td>
<td>The XMI version of the deployment descriptor found in the JAR is invalid or corrupt.</td>
</tr>
<tr>
<td>DFHAD0405</td>
<td>The JAR has no session beans defined in the deployment descriptor.</td>
</tr>
<tr>
<td>DFHAD0406</td>
<td>XMI runtime deployment data found in the JAR is either invalid or corrupt.</td>
</tr>
<tr>
<td>DFHAD0407</td>
<td>XMI CICS resource definition data found in the JAR is either invalid or corrupt.</td>
</tr>
<tr>
<td>DFHAD0408</td>
<td>The JAR contains a bean with a name longer than 240 characters. The name of the bean is <em>bean_name</em>.</td>
</tr>
<tr>
<td>DFHAD0409</td>
<td>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 reference pairs could not be resolved: <em>bean_and_reference_pairs</em></td>
</tr>
<tr>
<td>DFHAD0410</td>
<td>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 <em>bean_name</em> and the method causing the problem is <em>method</em>.</td>
</tr>
</tbody>
</table>
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 cnname 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 cnname 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 cnname 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 cnname 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.

DFHCA5153 W  date time applid netname tranid TO(groupname) contains too many non contiguous ‘*’.

DFHCA5156 E  length of ‘TO’ suffix must be equal to length of ‘GROUP’ suffix.

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

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

DFHC0121I Automatic restart support is not available because &SYSCLONE may not be unique within the sysplex.

DFHC0122 IXCARM REQUEST=reqtype failed, return code retcode, reason code rsncode.

DFHC0309 Parameter parm on CANCEL command is incorrect. The only valid parameters are Restart=YES or Restart=NO.

DFHC0310 Parameter parm on STOP command is incorrect. No parameters should be specified.

DFHC0481I Waiting for structure strname to become available.

DFHC0482I Retrying connection to structure strname.

DFHC0491 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.
This method failed because no storage area was provided by the caller to hold the requested system list.

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.

This method failed because it was passed an invalid ECI call_type of callType.

This method failed because the user ID passed in (userid) is not the same as the current user ID (userid).

This method failed because a call to CICS (cicscall) returned an abnormal response of resp and a reason of resp2.

This method failed because a call to the JNI function jnicall returned an abnormal return code of retcode.

The CICS Java Wrapper plugin plugin has thrown exception exception.

The CICS Java Wrapper plugin plugin has not been created.
<table>
<thead>
<tr>
<th>Code</th>
<th>Date Time</th>
<th>Applid</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHEJ0706</td>
<td>date time applid</td>
<td>The EJ Resolution Transaction transaction_name did not attach.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0711</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name has been deleted.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0723</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name has failed Resolution during Shelf creation.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0724</td>
<td>date time applid</td>
<td>Catalog read for update during Resolution processing for CorbaServer CorbaServer_name failed.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0725</td>
<td>date time applid</td>
<td>Catalog Resolution processing for CorbaServer CorbaServer_name returned bad data.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0726</td>
<td>date time applid</td>
<td>Catalog Resolution processing for CorbaServer CorbaServer_name returned an invalid CorbaServer.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0729</td>
<td>date time applid</td>
<td>State updating failed while creating the shelf during Resolution processing for CorbaServer CorbaServer_name.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0736</td>
<td>date time applid</td>
<td>Resolution for CorbaServer CorbaServer_name (related to Object Store operations on file file_name as store store_name ) failed.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0739</td>
<td>date time applid</td>
<td>State updating failed while opening the Object Store during Resolution processing for CorbaServer CorbaServer_name.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0751</td>
<td>date time applid</td>
<td>About to wait for the availability of CorbaServer CorbaServer_name.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0752</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name availability wait ended in error as the CorbaServer was not defined.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0753</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name availability wait ended successfully.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0754</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name availability wait ended in error because the CorbaServer was in the UNUSABLE state.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0755</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name availability wait ended in error because the CorbaServer was in the UNRESOLVED state.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0756</td>
<td>date time applid</td>
<td>CorbaServer CorbaServer_name availability wait ended in error because an error occurred during the wait.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0901</td>
<td>date time applid</td>
<td>DJar DJar_name within CorbaServer CorbaServer_name has been created.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0902</td>
<td>date time applid</td>
<td>DJar DJar_name within CorbaServer CorbaServer_name was not created.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0906</td>
<td>date time applid</td>
<td>The EJ Resolution Transaction transaction_name did not attach.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0921</td>
<td>date time applid</td>
<td>DJar DJar_name within CorbaServer CorbaServer_name was successfully deleted.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0934</td>
<td>date time applid</td>
<td>DJar DJar_name within CorbaServer CorbaServer_name has failed Resolution while it was being copied to the Shelf.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0935</td>
<td>date time applid</td>
<td>Catalog read for update during Resolution processing for DJar DJar_name failed.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0936</td>
<td>date time applid</td>
<td>Catalog Resolution processing returned bad data.</td>
<td></td>
</tr>
<tr>
<td>DFHEJ0937</td>
<td>date time applid</td>
<td>Catalog Resolution processing returned an invalid DJar.</td>
<td></td>
</tr>
</tbody>
</table>
State updating failed while copying the DJar to the shelf during Resolution processing for DJar DJar_name.

The Beans contained within DJar DJar_name within CorbaServer CorbaServer_name were not correctly confirmed during Bean Resolution.

Beans contained within DJar DJar_name within CorbaServer CorbaServer_name are invalid and unusable.

Deletion of Beans contained within DJar DJar_name within CorbaServer CorbaServer_name succeeded.

Deletion of Beans contained within DJar DJar_name within CorbaServer CorbaServer_name failed.

State updating failed while loading Beans from the DJar during Resolution processing for DJar DJar_name.

About to wait for the availability of all Beans contained within DJars associated with CorbaServer CorbaServer_name.

All Beans contained within DJars associated with CorbaServer CorbaServer_name are now available for use.

Bean wait for DJars associated with CorbaServer CorbaServer_name failed.

Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the CorbaServer is absent.

Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the CorbaServer is not in the correct state.

Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the DJar is absent.

Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the DJar is not in the correct state.

Bean Bean_name from DJar DJar_name within CorbaServer CorbaServer_name has not been created because the Bean is already present.

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 INITING 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.
Chapter 19. Messages and codes

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.

DFHEJ5022  date time applid Cannot activate bean class exception.

DFHEJ5023  date time applid Cannot passivate bean class exception.

DFHEJ5024  date time applid Unable to passivate enterprise bean bean class exception.

DFHEJ5025  date time applid Exception thrown by discard strategy element exception.

DFHEJ5026  date time applid Encountered a failure in the fireAlarm method exception.

DFHEJ5027  date time applid Failed to get the wrapper for home: exception.

DFHEJ5028  date time applid LRU thread was interrupted. Terminating. exception.

DFHEJ5029  date time applid Caught an exception during LRU sweep class exception.

DFHEJ5030  date time applid Coordinator was not available exception.

DFHEJ5031  date time applid The CICS EJB container plugin has thrown exception exception.


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'safesp',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 TCPIService 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.

DFHII0100 date time applid client_ip_addr tcpipservice The request receiver SOCB notify gate is unable to attach transaction transaction.

DFHII0200 date time applid client_ip_addr tcpipservice The request receiver received an invalid GIOP header.

DFHII0201 date time applid client_ip_addr tcpipservice The request receiver received a GIOP header for an unsupported version.

DFHII0202 date time applid client_ip_addr tcpipservice The request receiver was expecting to receive a fragment but did not.

DFHII0203 date time applid client_ip_addr tcpipservice The request receiver received a fragment when none was expected.

DFHII0204 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.
The request handler is unable to create or join a request stream because transaction tranid is not installed.

The request processor received a request with an invalid header.

A request processor request does not contain a valid cicsTaskTrackingContext.

The request processor received a reply with an invalid header.

The request processor received a reply fragment with an invalid header.

The request processor did not receive a reply fragment.

The request processor received a messageError reply.

The request processor received an invalid GIOPMessageType.

The request processor received an unknown GIOPMessageType.

The request processor received an unexpected GIOPFragment.

The request processor is unable to receive a reply from a target ORB. Reason: {ABEND. | Request Stream closed. | Timeout.}

The request processor may have been started invalidly.

The Request Processor received a reply which indicated that a fragment is expected. This is not supported for GIOP 1.1 and earlier.

The CICS ORB failed to find the requested plugin plugin.

The CICS ORB plugin plugin has thrown exception exception.

REQUESTMODEL rqmodelname has been installed.

REQUESTMODEL rqmodelname has been discarded.

className methodName internal error desc.

Severe error: desc, resulting from: th.

Failure e obtaining data for LogicalServer serverName.

LogicalServerPlugin load failure e for class className.

Exception e creating object of class javaClassName for OMG interface interfaceName.

Exception e creating object of class className.

Exception e writing IOR file fileName.

Unknown object adapter oa in object key.

Exception e creating UserKey.

Failure dr receiving request from IIRP.

Failure dr sending a reply to IIRP.

Failure dr receiving reply from IIRP.
Chapter 19. Messages and codes

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 written to the shelf as fileName.

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 not found at JNDI subcontext jndiPrefix.

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.

DFHNC0122I IXCARM REQUEST= reqtype failed, return code retcode, reason code rsn code.

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 aaaa/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 identified 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 INSTALL CORBASERVER(corbaserver-name)

DFHRD0122 INSTALL DJAR(djar-name)

DFHRM0128 Inter system 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 user userid network UOW netu owid local UOW X'localuowid'.

DFHRZ0001 applid An abend (code aaaa/bbbb) has occurred at offset X'offset' in module modname.

DFHRZ0002 applid A severe error (code X'code') has occurred in module module.

DFHRZ0201 INSTALL Corbasetransaction tranid failed.
<table>
<thead>
<tr>
<th>Message Code</th>
<th>Date Time Applid</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHRZ0202</td>
<td></td>
<td>The Distributed Routing Program, program, has returned a bad response. See following message DFHRZ0105.</td>
</tr>
<tr>
<td>DFHRZ0203</td>
<td></td>
<td>The call to invoke the Distributed Routing Program, program, has failed. The Distributed Routing Program has abnormally terminated with abend Code abcode.</td>
</tr>
<tr>
<td>DFHRZ0204</td>
<td></td>
<td>The call to invoke the Distributed Routing Program, program, has failed due to an invalid AMODE.</td>
</tr>
<tr>
<td>DFHSI8444</td>
<td></td>
<td>Unable to initiate the Enterprise Java Resolution transaction CEJR. EJ resolution will not occur.</td>
</tr>
<tr>
<td>DFHSJ0001</td>
<td></td>
<td>An abend (code aaa/bbbb) has occurred at offset X'offset' in module modname.</td>
</tr>
<tr>
<td>DFHSJ0002</td>
<td></td>
<td>A severe error (code X'code') has occurred in module module.</td>
</tr>
<tr>
<td>DFHSJ0201</td>
<td></td>
<td>A call to CEEPIPI with function code INIT_SUB_DP has failed. (Return code was - X'rc').</td>
</tr>
<tr>
<td>DFHSJ0202</td>
<td></td>
<td>A call to CEEPIPI with function code TERM has failed. (Return code was - X'rc').</td>
</tr>
<tr>
<td>DFHSJ0203</td>
<td></td>
<td>A call to CEEPIPI with function code CALL_SUB has failed. (Return code was - X'rc').</td>
</tr>
<tr>
<td>DFHSJ0204</td>
<td></td>
<td>A call to CEEPIPI with function code CALL_SUB has failed. (Return code was - X'rc').</td>
</tr>
<tr>
<td>DFHSJ0205</td>
<td></td>
<td>A call to CEEPIPI with function code CALL_SUB has failed. (Return code was - X'rc').</td>
</tr>
<tr>
<td>DFHSJ0501</td>
<td></td>
<td>An attempt to obtain the CICS Wrapper class wrapper_name using the JNI function 'FindClass' has failed.</td>
</tr>
<tr>
<td>DFHSJ0502</td>
<td></td>
<td>Attempt to change the HFS working directory to pathname has failed. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0503</td>
<td></td>
<td>Attempt to load DLL dllname has failed. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0504</td>
<td></td>
<td>Attempt to change the HFS working directory to pathname has failed. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0505</td>
<td></td>
<td>Attempt to open jvmpfile filename has failed. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0506</td>
<td></td>
<td>The environment variable env_var found in JVM Profile JVMprof is not recognized.</td>
</tr>
<tr>
<td>DFHSJ0507</td>
<td></td>
<td>The option option is not recognized, and has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0508</td>
<td></td>
<td>Option option in member JVMProf has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0509</td>
<td></td>
<td>Attempt to open JVM system properties file filename has failed. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0510</td>
<td></td>
<td>Attempt to fetch user-replaceable module DFHJVMAT has failed.</td>
</tr>
<tr>
<td>DFHSJ0511</td>
<td></td>
<td>Attempt to open filename in work directory dirname for output has failed. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0512</td>
<td></td>
<td>Unexpected end of file whilst concatenating lines in system properties file.</td>
</tr>
<tr>
<td>DFHSJ0513</td>
<td></td>
<td>Unable to build trusted middleware classpath: option.</td>
</tr>
<tr>
<td>DFHSJ0514</td>
<td></td>
<td>Problem encountered on line line_number of the JVM profile: reason.</td>
</tr>
</tbody>
</table>
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(tcpipservice) 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
Automatic restart support is not available because &SYSCLONE may not be unique within the sysplex.

IXCARM REQUEST=regtype failed, return code retcode, reason code rsnrcode.

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

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

Waiting for structure strname to become available.

Retrying connection to structure strname.

ENFREQ ACTION=action failed, return code retcode.

A client certificate has been successfully registered for user userid.

The CICS region userid userid is not authorized to access key ring keyring.

Install for connection tttt failed. A session with the same name already exists.

Autoinstall starting for netname netname. Network qualified name is netid.realnet.

CONSIDER IMPLICATIONS OF MIGRATING TYPE=SHARED ENTRIES.

RESOURCE NOT ALTERED. xxxxxxxx IS IBM-PROTECTED.

TO(groupname) CONTAINS TOO MANY NON CONTIGUOUS ""

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

COMMAND NOT EXECUTED. xxxxxxxx MUST BE SPECIFIED AS yyyyyyy BECAUSE A PREVIOUS VALUE IS GENERIC.

COMMAND NOT EXECUTED. xxxxxxxx IS NOT VALID AS A TYPE yyyyyyy PARAMETER.

COMMAND NOT EXECUTED. xxxxxxxx VALUE yyyyyyy IS INVALID.

COMMAND NOT EXECUTED. xxxxxxxx OPTION IS INVALID FOR A BACK LEVEL REQUESTMODEL.

COMMAND NOT EXECUTED. xxxxxxxx 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  DFHCM0233  DFHWB0730
DFHAM4901  DFHNC0203  DFHWB0732
DFHAM4904  DFHNC0307  DFHXXQ0203
DFHAM4906  DFHPA1907  DFHXXQ0307
DFHAM4907  DFHPA1908  DFHZC3444
DFHAP0705  DFHPA1909  DFHZC4900
DFHCF0203  DFHRM0129  DFHZC4932
DFHCF0307  DFHRP1907  DFHZC4933
DFHCF0221  DFHXXN1214  DFHZC4934
DFHCF0223  DFHSC0111  DFHZC4935
DFHCF0225  DFHSC0117  DFHZC4936
DFHCF0227  DFHTC2522  DFHZC4946
DFHCF0229  DFHTC2534  DFHZC4947

Deleted messages

The following is a list of the deleted messages:

DFHAM4904  DFHAP1407  DFHFC0105
DFHAM4906  DFHAP1408  DFHFD1212
DFHAM4907  DFHAP1409  DFH5171
DFHAP1401  DFHCA5171  DFH5172
DFHAP1402  DFHCA5172  DFH5173
DFHAP1403  DFHCA5173  DFH5267
DFHAP1404  DFHCA5267  DFH5268
DFHAP1405  DFHCA5268  DFH5269
DFHAP1406  DFHCA5269

New abend codes

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

AALV  AJHB  AJH9  ASJG
ACRN  AJHC  AJMC  ASJH
ADCV  AJHD  AJ10  ASJI
AIEA  AJHE  AJ11  ASOB
AIIA  AJHF  AJ12  ASOC
AIIT  AJH0  AOTA  ASOL
AII1  AJH1  AOTB  ASPD
AII2  AJH2  ASJC  ASQE
AII3  AJH3  ASJD  ATCM
AII4  AJH4  ASJE  ATNB
AII5  AJH5  ASJF  ATNC
AJHA  AJH8  ASJG  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" on page 109
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

<table>
<thead>
<tr>
<th>Product</th>
<th>Minimum Version and Release level.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OS/390</td>
<td>Version 2 Release 8</td>
</tr>
<tr>
<td></td>
<td><strong>Note:</strong> 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.</td>
</tr>
<tr>
<td>ACF/TCAM (DCB)</td>
<td>Version 2 Release 4</td>
</tr>
<tr>
<td></td>
<td>TCAM is required only if your terminal network includes TCAM devices.</td>
</tr>
<tr>
<td>CICSVR</td>
<td>Version 2 Release 3 if you use IBM CICS VSAM Recovery (CICSVR) as your VSAM forward recovery utility.</td>
</tr>
<tr>
<td>IBM Developer Kit for OS/390, Java 2 Technology Edition,</td>
<td>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.</td>
</tr>
<tr>
<td>IBM DATABASE 2™</td>
<td>Version 5 Release 1 if you have CICS-DB2 applications.</td>
</tr>
<tr>
<td>IMS/ESA® DM</td>
<td>Version 5 Release 1 DBCTL if you have CICS-DL/I applications.</td>
</tr>
</tbody>
</table>

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 MVS & VM (5688-197)
- VS COBOL II (5688-958 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)
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
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  
  GC34-5725
- CICS Customization Guide  
  GC34-5706
- CICS Resource Definition Guide  
  GC34-5722
- 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  
  SC33-5713
- CICS Messages and Codes  
  SC34-5716
- CICS Diagnosis Reference  
  Y33-6097
- CICS Data Areas  
  Y33-6096
- CICS Trace Entries  
  SC34-5727
- CICS Supplementary Data Areas  
  Y33-6098

**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  
  SC34-5703
- 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
CICSPlex SM books for CICS Transaction Server for z/OS

General
- CICSPlex SM Concepts and Planning
- CICSPlex SM User Interface Guide
- CICSPlex SM Commands Reference Summary
- CICSPlex SM Web User Interface Guide

Administration and Management
- CICSPlex SM Administration
- CICSPlex SM Operations Views Reference
- CICSPlex SM Monitor Views Reference
- CICSPlex SM Managing Workloads
- CICSPlex SM Managing Resource Usage
- CICSPlex SM Managing Business Applications

Programming
- CICSPlex SM Application Programming Guide
- CICSPlex SM Application Programming Reference

Diagnosis
- CICSPlex SM Resource Tables Reference
- CICSPlex SM Messages and Codes
- CICSPlex SM Problem Determination

Other CICS books
- Designing and Programming CICS Applications
- CICS Application Migration Aid Guide
- CICS Family: API Structure
- CICS Family: Client/Server Programming
- CICS Transaction Gateway for OS/390 Administration
- CICS Family: General Information
- CICS 4.1 Sample Applications Guide
- CICS/ESA 3.3 XRF Guide

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

Determining if a publication is current

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Subsequent updates will probably be available in softcopy before they are available in hardcopy. This means that at any time from the availability of a release, softcopy versions should be regarded as the most up-to-date.

For CICS Transaction Server books, these softcopy updates appear regularly on the Transaction Processing and Data Collection Kit CD-ROM, SK2T-0730-xx. Each reissue of the collection kit is indicated by an updated order number suffix (the -xx part). For example, collection kit SK2T-0730-06 is more up-to-date than SK2T-0730-05. The collection kit is also clearly dated on the cover.

Updates to the softcopy are clearly marked by revision codes (usually a “#” character) to the left of the changes.
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<td>VTAM</td>
<td>z/OS</td>
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