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Preface

This information is about upgrading to CICS® Transaction Server for z/OS®, Version 4 Release 2. This information set provides the relevant information for users who are upgrading from CICS Transaction Server for z/OS, Version 3 Release 1.

Note: The oldest release for which information about upgrading is provided with CICS Transaction Server for z/OS, Version 4 Release 2 is CICS Transaction Server for z/OS, Version 3 Release 1. If you are upgrading from a release of CICS earlier than this, you are recommended to read the information about upgrading and about changes to functions that was provided in the documentation for any additional intervening releases.

In releases before CICS Transaction Server for z/OS, Version 4 Release 1, the information about upgrading from previous releases to the current release of CICS Transaction Server was called the Migration Guide. Although the term “migrate” was used in the CICS documentation to refer to the process of replacing an older release of CICS with a newer release, the industry-standard term for this process is “upgrade”, so the CICS documentation has been changed to use this term. “Migrate” is now used only to refer to the processes of moving data or applications to a different program or environment, or of moving from the use of one function or interface in CICS to the use of a different function or interface.

The information about upgrading is designed to tell you about:

- Any changes to the installation process for the product.
- New, changed and obsolete externals of the product, such as commands and messages.
- Tasks that you perform to upgrade from your previous release of the product, to the new release, so that the applications that ran under your previous release can continue to run under the new release at an equivalent level of function. Some tasks apply to all users, and some apply only if your applications use a particular function, such as support for Java™.
- Tasks that you perform if you want to enable new functions that are available in this release, or change your existing system settings or applications to use the new functions.

This information assumes that you are familiar with CICS and CICSPlex® System Manager, either as a systems administrator, or as a system or application programmer. You should also have read about the new function in this release of CICS Transaction Server as described in the CICS Transaction Server for z/OS What’s New.

Notes on terminology

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

CICS TS, unless stated otherwise, refers to the release of CICS Transaction Server for z/OS to which you are upgrading.

CICSPlex SM refers to the CICSPlex System Manager element of CICS Transaction Server for z/OS.
MVS™ is sometimes used for the operating system, the Base Control Program (BCP) element of z/OS.
Part 1. Changes to CICS externals

CICS externals, such as resource definitions and programming interfaces, have changed to support the changes in function for this CICS release. Read these topics to check which changes might affect your system.
Chapter 1. Changes to installation procedures

When you upgrade to CICS Transaction Server for z/OS, Version 4 Release 2, note these changes to the installation process.

You can install this release of CICS Transaction Server using the `SMP/E RECEIVE`, `APPLY`, and `ACCEPT` commands. Use the SMP/E dialogs to complete the SMP/E installation steps. The process meets IBM® Corporate Standards and might be familiar to you if you have installed other z/OS products.

The DFHISTAR process is still available if you prefer this method for installing CICS Transaction Server.

For information about all the processes for installing CICS Transaction Server, see [Installing overview in the Installation Guide](#).

**Generalized trace facility (GTF)**

To use CICS trace with GTF, you must have the PTF for APAR OA32611 applied to z/OS, Version 1 Release 11 or z/OS, Version 1 Release 12.

**CICS region user ID access to VSAM catalogs**

You must grant the CICS region user ID read access to each VSAM catalog for files for which CICS has file definitions installed and that are to be either opened during CICS startup or at any time after.

Include the VSAM catalog for the DFHCSD file for the CICS system definition data set (CSD).

**Authorization routines**

In z/OS, do not install SVCs or PC routines that return control to their caller in any authorized mode: that is, in supervisor state, system PSW key, or APF-authorized. Doing so is contrary to the z/OS Statement of Integrity.

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

**Integration of CICSPlex SM and CICS installation**

You can now edit the DFHISTAR job to modify both the CICS and CICSPlex SM installation parameters for your environment. EYUISTAR is no longer available as a job to modify CICSPlex SM installation parameters.

DFHISTAR produces customized JCL for CICS and CICSPlex SM. It now includes a combination of parameters that apply only for CICSPlex SM, parameters that apply only for CICS, and parameters that are common to CICS and CICSPlex SM.

For CICSPlex SM, DFHISTAR generates these sample JCL procedures:

- Create CMAS data sets
- Start a CMAS

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Create Web User Interface (WUI) data sets
Start a WUI
Create MAS data sets
Run a MAS
Move MAS modules to the link pack area (LPA)

With these procedures, you can create a CICSPlex SM configuration that consists of a CMAS, a WUI, and a managed CICS system (MAS). The CICSPlex SM Starter Set, which contained samples of JCL for this purpose, is no longer provided.

Requirement for unique CICS region APPLID

If your CICS regions are part of a z/OS sysplex, you must ensure that their APPLIDs (as specified on the APPLID system initialization parameter) are unique within the sysplex. If CICS is an XRF partner, its specific APPLID must be unique within the sysplex.

From CICS TS for z/OS, Version 3.2, if an APPLID is not unique (that is, it duplicates the specific or only APPLID of any other CICS region currently active in the sysplex), on startup CICS issues a message and fails to initialize.

This requirement supports IPIC connections, but it is required whether or not you plan to use that type of connection. It also allows multiple XCF groups to contain CICS regions.

Value for the JAVADIR parameter

The default location for Java has changed to support the 64-bit JVM.

The default value for the JAVADIR parameter in the installation procedures has changed to java/J6.0.1_64. You must download the IBM 64-bit SDK for z/OS, Java Technology Edition and configure CICS to point to the correct location in z/OS UNIX. For more information about upgrading the Java environment, see Chapter 28, “Upgrading the Java environment,” on page 207.

Value for the z/OS MEMLIMIT parameter

To provide sufficient 64-bit (above-the-bar) storage for a CICS TS for z/OS, Version 4.2 region, set the value for the z/OS MEMLIMIT parameter equal to or greater than 4 GB. The default value in z/OS for MEMLIMIT is 2 GB.

A CICS region requires at least 4 GB of 64-bit storage. You cannot start a CICS region with a MEMLIMIT value that is lower than 4 GB. If you attempt to do so, message DFHSM0602 is issued, a system dump with the dump code KERNDUMP is produced, and CICS terminates.

You cannot alter the MEMLIMIT value for the CICS region while CICS is running. You can specify a new MEMLIMIT value on the next start of the CICS region.

A suitable MEMLIMIT value for a CICS region must provide sufficient storage for the facilities that use 64-bit storage that you plan to use. For more information, see Estimating, checking, and setting MEMLIMIT in the Performance Guide.
Size of the auxiliary trace data sets

The default size of the auxiliary trace data sets has changed.

The supplied JCL in SDFHINST for DFHDEFDS, EYUCMSDS, and EYUCSYDS has changed. The default value of the auxiliary trace data sets has changed from 1 cylinder to 25 cylinders. The increased value ensures that data is not overwritten so quickly in a CICS region.

Release levels on INQUIRE SYSTEM command

You use the EXEC CICS INQUIRE SYSTEM CICSTSLEVEL command to determine the version and release number of CICS. Use the EXEC CICS INQUIRE SYSTEM OSLEVEL command to determine the level of z/OS.

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 in CICS TS 4.2 is 0670. This number is returned in the RELEASE parameter of the INQUIRE SYSTEM command.

The level number also appears in the alternative decimal form 6.7 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 DFHPD670.

Installing IPIC support

IP interconnectivity (IPIC) enables you to make CICS TS-to-CICS TS distributed program link (DPL) calls over TCP/IP connections. To enable support for this function, you need to activate CICS TCP/IP services, and define and install some resource definitions.

System initialization parameters

To activate IPIC at CICS startup, specify TCPIP=YES and ISC=YES as system initialization parameters. The default value of the TCPIP and ISC parameters is NO.

Defining IPIC connections

Before you can use IPIC, you must:

- Define and install IPCONNs with attributes appropriate to your CICS environment.
- Define and install a TCPIPSERVICE definition with the PROTOCOL attribute set to IPIC.
- Review your MAXSOCKETS system initialization parameter settings. Ensure that you allocate enough sockets to support IPIC connections and other traffic that requires IP sockets.
Chapter 2. Changes to system initialization parameters

In CICS Transaction Server for z/OS, Version 4 Release 2, new system initialization parameters are available, and you might find that some system initialization parameters that you used previously are now obsolete. Also, the scope, default, or range of possible values for some existing system initialization parameters has changed. You might need to make changes to your system initialization table or your CICS startup JCL because of these changes.

To upgrade with the changes to CICS system initialization parameters described in this section, follow these instructions.

Use the default system initialization table
The unsuffixed default system initialization table (DFHSIT) is supplied in the CICS SDFHAUTH library. You can use the default table to start a CICS region using the default values. CICS loads DFHSIT by default if your JCL does not contain a SIT parameter.

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 during testing by changing the data set member, 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 main exceptions are the FCT and CSD parameters.

Defining and installing the global catalog record key
Global catalogue keys have increased in length by 24 bytes. Define a 52-byte global catalog record key in the CLUSTER definition in DD statement for the global catalog.

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

System initialization parameters made obsolete in CICS Transaction Server for z/OS, Version 3 Release 2

MNSUBSYS
This parameter, used in earlier releases to specify the subsystem identification in monitoring SYSEVENT class records, is obsolete. If specified, it is rejected and a message is issued.

Changed system initialization parameters
For some system initialization parameters, the default is now changed, or the values that you can specify are changed, or the scope of the system initialization parameter is changed. You might need to modify your system initialization table (SIT) or CICS startup JCL because of these changes.
APAR PI27936 update

The default setting for the ENCRYPTION system initialization parameter, ENCRYPTION=STRONG, no longer allows the use of the SSL version 3.0 security protocol. The minimum security protocol allowed with ENCRYPTION=STRONG is now TLS version 1.0.

If you have clients that still require the SSL version 3.0 protocol, you can enable support for that protocol by specifying the system initialization parameter ENCRYPTION=SSLV3 for the CICS region. SSL 3.0 should only be used for a migration period while clients that still require this protocol are upgraded. Any connections that require encryption automatically use the TLS protocol, unless the client specifically requires SSL 3.0.

System initialization parameters changed in CICS Transaction Server for z/OS, Version 4 Release 2

CSDLRNO={1|number|NONE|NO}

Before CICS TS for z/OS, Version 4.2, you specified an LSR pool number in the range 1 - 8. In CICS TS for z/OS, Version 4.2 the number of LSR pools that can be defined has increased to 255.

EDSALIM={48M|number}

In CICS TS for z/OS, Version 4.2, the minimum value for the EDSALIM parameter has changed from 10 MB to 48 MB, and the default value has increased to 48 MB. If you created your SIT or CICS startup JCL using previously supplied defaults, or a value less than 48 MB, update them to use the new CICS-supplied defaults, or to an appropriate value.

The EDSALIM system initialization parameter specifies the upper limit of the total amount of storage within which CICS can allocate the individual extended dynamic storage areas (EDSAs) that reside in 31-bit (above-the-line) storage; that is, above 16 MB but below 2 GB.

FCQRONLY={YES|NO}

Before CICS TS for z/OS, Version 4.2, you specified FCQRONLY=YES to improve the performance of all file-owning regions. However, for file-owning regions in CICS TS for z/OS, Version 4.2, choose an appropriate setting for FCQRONLY:

- For FORs where the connections to that region are primarily MRO or ISC connections, these requests run on the QR TCB, and CICS runs the mirror program primarily on the QR TCB. Specify FCQRONLY=YES so that all file control requests are processed on the QR TCB. This setting improves performance by avoiding locking, which is unnecessary when all file control requests run on the same TCB.

- For FORs where the connections to that region are primarily IPIC connections, these requests run on open TCBs, and CICS runs the mirror program on an L8 open TCB whenever possible. Specify FCQRONLY=NO so that file control requests do not switch to the QR TCB to be processed. This setting improves performance by multi-threading file control requests.

TRTABSZ={4096|number-of-kilobytes}

Before CICS TS for z/OS, Version 4.2, the storage specified by TRTABSZ for the CICS internal trace table was always 31-bit (above-the-line) storage. In CICS TS for z/OS, Version 4.2, the internal trace table can be in 64-bit (above-the-bar) storage.
CICS can obtain 64-bit (above-the-bar) storage, rather than 31-bit (above-the-line) storage for the internal trace table, depending on the version of the z/OS operating system, and whether the CICS region operates with transaction isolation. See [CICS facilities that can use 64-bit storage in the](#) Performance Guide.

When the internal trace table is in 64-bit storage, check your current setting for the z/OS parameter `MEMLIMIT`. `MEMLIMIT` limits the amount of 64-bit storage that the CICS address space can use. Your setting for `TRTABSZ` must remain within `MEMLIMIT`, and you must also allow for other use of 64-bit storage in the CICS region.

When the internal trace table is in 64-bit storage, the `TRTABSZ` value no longer influences your setting for the `EDSALIM` system initialization parameter. If you previously set the EDSA limit for a CICS region so that there was enough 31-bit storage outside the CICS DSAs for a large internal trace table, you can now adjust the limit to provide more storage for the CICS extended dynamic storage areas.

**TRTRANSZ={16 | number-of-kilobytes}**

In CICS TS for z/OS, Version 4.2, CICS uses 64-bit (above-the-bar) storage for the transaction dump trace table.

Before CICS TS for z/OS, Version 4.2, the transaction dump trace table was in 31-bit (above-the-line) storage. If you specified a small size for the transaction dump trace table at that time because of concerns about the availability of 31-bit storage outside the CICS DSAs for a large internal trace table, you can now adjust the limit to provide a larger transaction dump trace table now that 64-bit storage is used.

Because the transaction dump trace table is in 64-bit storage, check your current setting for the z/OS parameter `MEMLIMIT` when you set the size of the trace table.

### System initialization parameters changed in CICS Transaction Server for z/OS, Version 4 Release 1

**INITPARM=(DFHMQPRM='SN=queue manager name,IQ=initiation queue name')**

You can no longer use the `INITPARM` system initialization parameter with a DFHMQPRM operand to specify a default WebSphere® MQ queue manager name and initiation queue name for the CICS-WebSphere MQ connection. Instead, set up an MQCONN resource definition for the CICS region to provide these defaults. If the DFHMQPRM or CSQCPARM operand is present on `INITPARM`, you must remove it. CICS issues a warning message if the DFHMQPRM operand is present on `INITPARM` when you start the CICS-WebSphere MQ connection, and defaults specified there are not applied to the CICS-WebSphere MQ connection. The `INITPARM` system initialization parameter itself is still valid with other operands.

**JVMPROFILEDIR={/usr/lpp/cicsts/cicsts42/JVMProfiles|directory}**

The default value for the `JVMPROFILEDIR` system initialization parameter now consists of the value of the new `USSHOME` system initialization parameter, followed by the subdirectory JVMProfiles. The default value for the `USSHOME` system initialization parameter is `/usr/lpp/cicsts/cicsts42`, so if that default value is used, the default value of `JVMPROFILEDIR` is `/usr/lpp/cicsts/cicsts42/JVMProfiles`.

**MQCONN={NO|YES}**

Specifying `MQCONN=YES` makes CICS start a connection to WebSphere MQ.
automatically during initialization. CICS no longer uses the INITPARM system initialization parameter to provide information for this process.

When you specify MQCONN=YES, the information that CICS needs to start the connection to WebSphere MQ, such as the name of a WebSphere MQ queue manager or queue-sharing group, is taken from the MQCONN resource definition for the CICS region.

An MQCONN resource definition must be installed before CICS can start the connection to WebSphere MQ. When you start the connection automatically at CICS initialization, for an initial or cold start, the MQCONN resource definition must be present in one of the groups named in the list or lists named by the GRPLIST system initialization parameter. For a warm or emergency start of CICS, the MQCONN resource definition must have been installed by the end of the previous CICS run.

PSTYPE={SNPS|MNPS|NOPS}

NOPS is a new option for this system initialization parameter.

If you do not require persistent sessions support, specify NOPS. A CICS region that is used only for development or testing might not require this support. Removing persistent sessions support where it is not required reduces resource consumption, and can enable you to increase the number of CICS regions in an LPAR. If you specify NOPS, a zero value is required for the PSDINT system initialization parameter.

USRDELAY={30|number}

If you specify a low value for the USRDELAY system initialization parameter to ensure that CICS quickly detects changes to RACF® profiles, you might want to increase this value if your system is z/OS 1.11 or above, because from z/OS 1.11, CICS is notified immediately if RACF profile changes occur. The primary impact of a high USRDELAY value is that the amount of storage used for RACF control blocks is increased.

System initialization parameters changed in CICS Transaction Server for z/OS, Version 3 Release 2

APPLID={DBDCCICS|applid}

If CICS is running in a sysplex, its APPLID must be unique within the sysplex.

This parameter can be used also as the application identifier of this CICS region on IPIC connections.

When you define this CICS region to another CICS region, in an MRO or ISC over SNA CONNECTION definition you specify the APPLID using the NETNAME attribute; in an IPIC IPCONN definition you specify the APPLID using the APPLID attribute.

CONFDATA={SHOW|HIDETC}

CONFDATA now applies to initial input data received on IPIC connections (IS data), as well as to initial input data received on VTAM® RECEIVE ANY operations, MRO connections, and FEPI screens and RPLAREAs. When you specify CONFDATA=HIDETC, IS data is handled as follows:

• IPIC: Trace points SO 0201 and SO 0202 suppress buffer data with the message "Trace data suppressed because it may contain sensitive data". Subsequent trace point SO 029D (buffer continuation) and buffer data from trace points WB 0700 and WB 0701 is suppressed.

If the transaction definition specifies CONFDATA(NO), IS trace entries are created with the user data, as normal.
If the transaction definition specifies CONFDATA=YES, user data from IS trace points IS 0602, IS 0702, and IS 0906 is replaced with "SUPPRESSED DUE TO CONFDATA=HIDETC IN SIT". Data from IS trace points IS 0603 and IS 0703 is not shown.

**Note:** VTAM is now the z/OS Communications Server.

**ICVTSD={500|number}**

ICVTSD, the terminal scan delay value that determines how quickly CICS deals with some terminal I/O requests made by applications, now applies also to IP interconnectivity input.

**MSGCASE={MIXED|UPPER}**

In previous releases, this parameter applied only to messages displayed by the CICS message domain. It now also applies to messages displayed by the CPSM message domain.

- **MIXED**
  MIXED is the default in the SIT. All messages displayed by the CICS message domain or the CPSM message domain remain in mixed case.

- **UPPER**
  The message domain displays all mixed case messages in uppercase only.

Mixed case output is not displayed correctly on Katakana display terminals and printers. Uppercase English characters appear correctly as uppercase English characters, but lowercase appears as Katakana symbols. If you have any Katakana terminals connected to your CICS region, specify MSGCASE=UPPER.

If you want to use uppercase English for your CICS Websphere MQ components, set MSGCASE=UPPER and ensure that ASSIGN NATLANGINUSE returns E (US English).

**TRTABSZ={4096|number-of-kilobytes}**

The default number of kilobytes for the internal trace table has increased to 4096.

**UOWNETQL=user_defined_value**

On VTAM=NO regions, UOWNETQL, or its default value, is now used as the default NETWORKID of this CICS region on the IPCONN definitions that define IPIP connections.

---

### New system initialization parameters

The default values for these parameters have minimal impact when you are upgrading from an earlier release of CICS. However, if your region uses a lot of main temporary storage queues, review whether the default **TSMAINLIMIT** value is sufficient.

### New system initialization parameters added in CICS Transaction Server for z/OS, Version 4 Release 2

- The **TSMAINLIMIT** system initialization parameter specifies a limit for the storage that is available for main temporary storage queues to use. You can specify an amount of storage in the range 1 - 32768 MB (32 GB), but this amount must not be greater than 25% of the value of the z/OS parameter **MEMLIMIT**. The default is 64 MB.

  **TSMAINLIMIT={64M|nnnnnM|nnG}**
64M   The default setting in megabytes.

nnnnM
An amount of storage in megabytes. The allowed range is 1 - 32768 MB.

nnG   An amount of storage in gigabytes. The allowed range is 1 - 32 GB.
For example, TSMAINLIMIT=2G makes 2 GB of storage available to main temporary storage queues.

When you set this parameter, check your current setting for the z/OS parameter MEMLIMIT. MEMLIMIT limits the amount of 64-bit storage that the CICS address space can use. Your setting for TSMAINLIMIT must not be greater than 25% of the MEMLIMIT value.

In versions of CICS before CICS TS for z/OS, Version 4.2, the limit of storage available for main temporary storage queues to use was determined by the EDSALIM parameter. If your region uses a lot of main temporary storage queues, the current default TSMAINLIMIT value might not provide sufficient storage, compared with the limit determined by the previous EDSALIM value. Therefore consider whether you need to increase the TSMAINLIMIT value.

New system initialization parameters added in CICS Transaction Server for z/OS, Version 4 Release 1
• The USSHOME system initialization parameter specifies the name and path of the root directory for CICS Transaction Server files on z/OS UNIX.

USSHOME={/usr/lpp/cicsts/cicsts42 | directory | NONE}
The value for the USSHOME system initialization parameter must match the directory that you specified for CICS Transaction Server files on z/OS UNIX when you installed CICS using the DFHISTAR installation job. The default value for the USSHOME system initialization parameter is /usr/lpp/cicsts/cicsts42, which matches the default values for the DFHISTAR installation job. The maximum length of the USSHOME system initialization parameter is 255 characters.

If you changed any of the TINDEX, PATHPREFIX, or USSDIR parameters in the DFHISTAR installation job, you must specify a value for the USSHOME system initialization parameter to match the name and path that you specified for the root directory using those DFHISTAR parameters.

If you specify USSHOME=NONE instead of specifying a directory name, CICS does not use any default root directory in the UNIX System Services file system. In this case, some CICS functions that request data from this directory might produce unpredictable results.

• The MNIDN system initialization parameter specifies whether the monitoring identity class is to be made active during CICS initialization.

MNIDN={OFF|ON}
The monitoring identity class status is recorded in the CICS global catalog for use during warm and emergency restarts.
OFF Set identity monitoring class to not active.
ON  Set identity monitoring class to active.

New system initialization parameters added in CICS Transaction Server for z/OS, Version 3 Release 2
• The FCQRONLY system initialization parameter specifies whether you want CICS to force all file control requests to run under the CICS QR TCB. This parameter
applies to file control requests that access VSAM RLS files and local VSAM LSR files. Requests for all other file types always run on the QR TCB.

**FCQONLY={YES|NO}**

Valid values are as follows:

- **NO** File Control requests are treated as thread safe and are run on an open TCB to avoid unnecessary TCB switching. For CONCURRENCY(REQUIRED) programs the request runs on an open TCB. For CONCURRENCY(THREADSAFE) programs the request runs on whatever TCB is being used at the time of the request.

- **YES** File control requests are treated as non-thread safe. CICS forces all file control requests to run under the CICS QR TCB. With all file requests on the QR TCB, CICS can minimize the amount of locking required at the expense of additional TCB switches if requests are run on open TCBs. YES is the default.

For a program defined as CONCURRENCY(REQUIRED), if the file control request is run under the CICS QR TCB, CICS switches back to the open TCB before handing control back to the application program.

For file-owning regions (FORs), choose an appropriate setting for **FCQONLY**:

- For FORs where the connections to that region are primarily MRO or ISC connections, these requests run on the QR TCB, and CICS runs the mirror program primarily on the QR TCB. Specify **FCQONLY=YES** so that all file control requests are processed on the QR TCB. This setting improves performance by avoiding locking, which is unnecessary when all file control requests run on the same TCB.

- For FORs where the connections to that region are primarily IPIC connections, these requests run on open TCBs, and CICS runs the mirror program on an L8 open TCB whenever possible. Specify **FCQONLY=NO** so that file control requests do not switch to the QR TCB to be processed. This setting improves performance by multi-threading file control requests.

- The **NONRLSRECOV** system initialization parameter specifies whether CICS uses the recovery options of the VSAM catalog or the FILE resource for non-RLS files, including the CSD. This parameter was added by a PTF.

  **NONRLSRECOV={VSAMCAT|FILEDEF}**

  Recovery options do not apply to read-only files. Valid values are as follows:

  - **VSAMCAT** By default, CICS uses the recovery options that are specified on the VSAM catalog for non-RLS files. These recovery options include the LOG, LOGSTREAMID, and BWO options. If no recovery options are set, CICS uses the attributes on the FILE resource.

  - **FILEDEF** For non-RLS files, including the CSD, CICS ignores any recovery options on the catalog and uses the values specified in the FILE resource instead. The recovery attributes for the CSD are set by the appropriate system initialization parameters.

- The **XCFGROUP** system initialization parameter specifies the name of the cross-system coupling facility (XCF) group to be joined by this region.
**XCFGROUP=**{DFHIR000|name}

The group name must be eight characters long, padded on the right with blanks if necessary. The valid characters are A-Z 0-9 and the national characters $ # and @. To avoid using the names IBM uses for its XCF groups, do not begin group names with the letters A through C, E through I, or the character string “SYS”. Also, do not use the name “UNDESIG”, which is reserved for use by the system programmer in your installation.

It is recommended that you use a group name beginning with the letters “DFHIR”.

You can specify **XCFGROUP** on the SIT macro or as a SYSIN override. You cannot specify it as a console override.

Each CICS region can join only one XCF group, which happens when it signs on to CICS interregion communication (IRC). The default XCF group is DFHIR000.

XCF groups allow CICS regions in different MVS images within the same sysplex to communicate with each other across multi-region operation (MRO) connections.

**Note:** Regions in the same MVS image too, can communicate with each other using MRO, but this does not require a coupling facility. The only situation in which CICS regions in the same MVS image cannot communicate via MRO is when they are members of different XCF groups.

For introductory information about XCF/MRO, and instructions on how to set up XCF groups, see the **CICS Intercommunication Guide**.

For information on how resource security can provide a further level of security to transaction security, see [Resource security for transactions](#).

- The **XHFS** system initialization parameter specifies whether CICS is to check the transaction user's ability to access files in the z/OS UNIX System Services file system.

**XHFS={YES|NO}**

At present, this checking applies only to the user ID of the Web client when CICS Web support is returning z/OS UNIX file data as the static content identified by a URIMAP definition. The checking is performed only if you have specified YES for the SEC system initialization parameter. However, the RESSEC option on the transaction resource definition does not affect this security checking. For further information on how resource security can provide a further level of security to transaction security, see [Resource security for transactions](#).

**Note:** You can specify the **XHFS** parameter in the SIT, PARM, or SYSIN only.

**YES** CICS is to check whether the user identified as the Web client is authorized to access the file identified by the URIMAP that matches the incoming URL. This check is in addition to the check performed by z/OS UNIX System Services against the CICS region user ID. If access to the file is denied for either of these user IDs, the HTTP request is rejected with a 403 (Forbidden) response.

**NO** CICS is not to check the client user's access to z/OS UNIX files. Note that the CICS region user ID's access to these files is still checked by z/OS UNIX System Services.
• The **XRES** system initialization parameter specifies whether you want CICS to perform resource security checking for particular CICS resources and optionally specifies the general resource class name in which you have defined the resource security profiles.

**XRES={YES|name|NO}**

You can specify the **XRES** parameter in the SIT, PARM, or SYSIN only. If you specify YES, or a general resource class name, CICS calls the external security manager to verify that the user ID associated with a transaction is authorized to use the resource. This checking is performed every time a transaction tries to access a resource.

The actual profile name passed to the external security manager is the name of the resource to be checked, prefixed by its resource type; for example, for a document template whose resource definition is named “WELCOME”, the profile name passed to the external security manager is DOCTEMPLATE.WELCOME. Even if a command references the document template using its 48-character template name, the shorter name (up to 8 characters) of the DOCTEMPLATE resource definition is always used for security checking.

The checking is performed only if you have specified YES for the **SEC** system initialization parameter and specified the RESSEC(YES) option on the TRANSACTION resource definition. For further information on how resource security can provide a further level of security to transaction security, see Resource security for transactions.

**YES**  
CICS calls the external security manager, using the default CICS resource class name of RCICSRES, to check whether the user ID associated with a transaction is authorized to use the resource it is trying to access. The resource class name is RCICSRES and the grouping class name is WCICSRES.

**name**  
CICS calls the external security manager, using the specified resource class name prefixed by the letter R, to check whether the user ID associated with a transaction is authorized to use the resource it is trying to access. The resource class name is Rname and the grouping class name is Wname. The resource class name specified must be 1 through 7 characters.

**NO**  
CICS does not perform any security checks for resources, allowing access to any user.
Chapter 3. Changes to the application programming interface

CICS Transaction Server for z/OS, Version 4 Release 2 includes some new API commands to support new CICS functions, and some existing commands have changes to options and error conditions.

Program compatibility

CICS provides API compatibility from release to release. However, functional changes to some CICS components can affect some CICS API commands.

Except for the specific cases described in these topics, CICS Transaction Server provides compatibility with future releases, at source and object level, for all CICS application programs that are written to the CICS application programming interface and which run correctly under the previous release.

For information about CICS support for application programming languages, see the CICS Transaction Server for z/OS What’s New.

DFH3QSS program

If any of your applications call the DFH3QSS program to query the CICS environment and API capability, re-link those applications with the version of DFH3QSS supplied with CICS TS for z/OS, Version 4.2.

Client basic authentication on WEB SEND commands

EXEC CICS WEB SEND(CLIENT) commands that do not use the AUTHENTICATE option will send authentication information to an HTTP server if the following statements are both true:

- The AUTHENTICATE(BASIC) attribute has been set on the URIMAP resource.
- The XWBAUTH global user exit is enabled.

They will send authentication information because, if a web services client communicates with an HTTP server that requires authentication, the web services client provides the basic authentication information required by the HTTP server, by means of the URIMAP resource and the XWBAUTH global user exit.

IPIC override for default connections

When a START or CANCEL command is sent, an IPIC connection is used, if available. The following rules apply:

- The IPIC connection, which is defined in the IPCONN resource, overrides any default APPC or MRO connections with the same name, which are defined in the CONNECTION resource.
- If you have not configured an IPCONN resource or the IPCONN is not acquired but is in service, a CONNECTION resource with the same name is used.
- If an APPC or MRO connection is used and the CONNECTION resource is not configured, the command is not sent.
**Changed API commands**

Some API commands are extended with new options or RESP2 values. Also, the usage of certain options on existing API commands has changed; check the new descriptions to ensure that you are using these options in the best way.

**QUERY SECURITY**

The QUERY SECURITY command is changed to include a new resource type of EPADAPTER.

For more information, see [QUERY SECURITY](#).

**SIGNON**

The SIGNON command is changed to support password phrases as well as standard passwords.

For more information, see [SIGNON](#).

**WRITEQ TS**

The MAIN and AUXILIARY options on the WRITEQ TS command have been enhanced with IPIC support for function-shipped requests between CICS TS 4.2 regions or later. Previously, the MAIN and AUXILIARY options were supported only by using the multiregion operation (MRO) facility. APPC does not support the MAIN and AUXILIARY options. Temporary storage queues (TSQs) created as a result of function shipping WRITEQ TS using APPC are stored in auxiliary storage.

For more information, see [WRITEQ TS](#).

**Changes to API commands in CICS TS 4.1**

These API commands were extended or changed in CICS Transaction Server for z/OS, Version 4 Release 1.

**ASKTIME ABSTIME**

The ABSTIME value that is returned by the EXEC CICS ASKTIME command is no longer rounded to the nearest 1/100 second. For more information, see “Changes to rounding for ASKTIME, CONVERTTIME, and FORMATTIME commands” on page 29.

**CONVERTTIME**

A new time format RFC 3339 is available:

**RFC 3339 format**

The XML dateTime datatype, specified in [RFC 3339](#), which is taken from the ISO 8601 standard. An example of a date and time stamp in this format is "2003-04-01T10:01:02.498Z". Date and time stamps in this format are in UTC (Coordinated Universal Time, which differs only slightly from GMT), with the time zone offset (-12:00 to +12:00) indicated at the end of the date and time stamp, or the letter Z for a zero offset (+00:00). The decimal fraction of a second that is shown in the example is optional.
The command now converts all the supported time formats (not just RFC 1123 format) to local time for the ABSTIME that is returned. Also, the ABSTIME is no longer rounded to the nearest 1/100 second.

For more information about the change to rounding, see “Changes to rounding for ASKTIME, CONVERTTIME, and FORMATTIME commands” on page 29.

**EXTRACT TCPIP**

New client options, CLNTADDR6NU and CLNTIPFAMILY, and server options, SRVRADDR6NU and SRVRIPFAMILY, return IPv6 address information. Existing options CADDRLENGTH, CLIENTADDR, SADDRLENGTH, and SERVERADDR are updated to return IPv6 information.

**CADDRLENGTH**(data-area)
Returns the length of the buffer supplied on the CLIENTADDR option, and is set to the length of the data returned to the application. If the CLIENTADDR is an IPv6 address, you must set the buffer length of CADDRLENGTH to at least 39 characters. If the data exceeds the buffer length, a LENGERR condition is raised and the data is truncated.

**CLIENTADDR**(data-area)
Returns a buffer containing the IP address of the client. The IP address can be in IPv4 or IPv6 format. IPv4 addresses are returned as native IPv4 dotted decimal addresses; for example, 1.2.3.4 IPv6 addresses are returned as native IPv6 colon hexadecimal addresses; for example, ::a:b:c:d

For information on IP addresses, see the CICS Internet Guide.

**CLNTADDR6NU**(data-area)
Returns a 16-byte field containing the IPv6 address of the client in binary form. This option is returned only if the option CLNTIPFAMILY has a value of IPV6. If the address is in IPv4 format, the address is returned in the CLNTADDRNU option and zeros are returned to CLNTADDR6NU.

**CLNTIPFAMILY**(cvda)
Returns the format of the IP address of the client. CVDA values are as follows:

- **IPV4** CLIENTADDR returns a dotted decimal IPv4 address and CLIENTADDR6NU returns the IPv4 address in binary form.
- **IPV6** CLIENTADDR returns a colon hexadecimal IPv6 address and CLIENTADDR6NU returns the IPv6 address in binary form.

**NOTAPPLIC**
The source of the input has not been determined. 0.0.0.0 is returned.

**SADDRLENGTH**(data-area)
Returns the length of the buffer supplied on the SERVERADDR option, and is set to the length of the data returned to the application. If SERVERADDR is an IPv6 address, you must set the buffer length of SADDRLENGTH to at least 39 characters. If the data exceeds the buffer length, a LENGERR condition is raised and the data is truncated.

**SERVERADDR**(data-area)
Returns a buffer containing the IP address of the server. The IP address can be in IPv4 or IPv6 format. IPv4 addresses are returned as native IPv4 dotted decimal addresses, for example; 1.2.3.4. IPv6 addresses are returned as native IPv6 colon hexadecimal addresses; for example, ::a:b:c:d. If an error occurs, 0.0.0.0 is returned and the data is truncated.
SRVRADDR6NU *(data-area)*

Returns a 16-byte field containing the IPv6 address of the server in binary form. This option is returned only if the option SRVIPFAMILY has a value of IPV6. If the address is in IPv4 format, the address is returned in the SERVERADDRNU option and zeros are returned in SRVRADDR6NU.

SRVIPFAMILY *(cvda)*

Returns the format of the IP address of the server. CVDA values are as follows:

- **IPV4**
  - SERVERADDR returns a dotted decimal IPv4 address and
  - SERVERADDRNU returns the IPv4 address in binary form.

- **IPV6**
  - SERVERADDR returns a colon hexadecimal IPv6 address and
  - SERVERADDR6NU returns the IPv6 address in binary form.

**NOTAPPLIC**

The source of the input has not been determined. 0.0.0.0 is returned.

**FORMATTIME**

A new time format RFC 3339 and a new MILLISECONDS option are available:

MILLISECONDS *(data-area)*

Returns the number of milliseconds in the current second specified by ABSTIME, as a binary integer in the range 0 - 999.

STRINGFORMAT *(cvda)*

Specifies the format for the architected date and time stamp string returned in DATESTRING.

RFC3339

Specifies the RFC 3339 format, also known as the XML dateTime datatype. This format is an implementation of the ISO 8601 standard, and it is suitable for Atom feeds. An example of a date and time stamp in this format is "2003-04-01T10:01:02.498Z". Date and time stamps in this format are in UTC (Coordinated Universal Time, which differs only slightly from GMT). This date and time stamp string contains the date and the 24-hour clock time, including a decimal fraction of the second. The decimal fraction of a second is optional in the specification, but the EXEC CICS FORMATTIME command always includes it. The time zone offset (-12:00 to +12:00) is indicated at the end of the date and time stamp, with the letter Z used for a zero offset (+00:00). The EXEC CICS FORMATTIME command always returns the time with a zero offset from UTC.

A formatted time that is returned by the **EXEC CICS FORMATTIME** command is no longer rounded up if the number of milliseconds is greater than 500. The time is now truncated, and the milliseconds value is available separately. For more information, see “Changes to rounding for ASKTIME, CONVERTTIME, and FORMATTIME commands” on page 29.

**INVOKE WEBSERVICE**

This command is deprecated. For all new Web service requester applications, use the **INVOKE SERVICE** command. The **INVOKE WEBSERVICE** command continues to work for all existing requester applications.
WEB EXTRACT and EXTRACT WEB

The HOST option is extended to support IPv6 addresses. A new option, HOSTTYPE, returns the format of the HOST option.

HOST(data-area)

For CICS as an HTTP server, HOST specifies a buffer to contain the host component of the URL, as specified either in the Host header field for the request or in the request line (if an absolute URI was used for the request). The port number is presented separately using the PORTNUMBER option.

For CICS as an HTTP client, with the SESSTOKEN option, HOST specifies a buffer to contain the host name of the server in the connection identified by the SESSTOKEN option. The port number is presented separately using the PORTNUMBER option.

An IPv4 or IPv6 address can represent the host name. IPv4 addresses are returned as native IPv4 dotted decimal addresses; for example, 1.2.3.4. IPv6 addresses are returned as native IPv6 colon hexadecimal addresses; for example, ::a:b:c:d

For information on IP addresses, see the CICS Internet Guide.

HOSTTYPE(cvda)

Returns the address format of the HOST option. CVDA values are as follows:

HOSTNAME
The HOST option contains a character host name. The IP address that corresponds to the host name is looked up in the domain name server.

IPV4
The address is a dotted decimal IPv4 address.

IPV6
The address is a colon hexadecimal IPv6 address.

NOTAPPLIC
An incorrect host address was returned (HOST=0.0.0.0).

WEB OPEN

The HOST option is extended to support IPv6 addresses.

HOST(data-value)

Specifies the host name on the server to which you want to connect. You can extract this information from a known URL using the WEB PARSE URL command, or from an existing URIMAP definition using the WEB EXTRACT URIMAP command. You can specify the URIMAP option to use this information directly from an existing URIMAP definition, in which case the HOST option is not required. Client HTTP connections can only be pooled for reuse when you specify the URIMAP option; using the HOST option does not enable connection pooling, even if you extract the information from a URIMAP definition.

A character host name, IPv4 address, or IPv6 address can represent the host name. If you specify an IPv6 address (or a host name that resolves to an IPv6 address), ensure that you are operating in a dual-mode (IPv4 and IPv6) environment and that the client or server that you are communicating with is also operating in a dual-mode (IPv4 and IPv6) environment.

For more information on IPv6, see the CICS Internet Guide.

You can specify IPv4 and IPv6 addresses in a number of formats. For information on IP addresses, see the CICS Internet Guide.
If you require a port number, you must not include the port number as part of the HOST option. Use the PORTNUMBER option instead.

**WEB PARSE URL**

The HOST option is extended to support IPv6 addresses. A new option, HOSTTYPE, returns the format of the HOST option.

**HOST(data-area)**

Returns the host component of the URL. This value can be either a character host name or a numeric IP address. If a port number is specified explicitly in the URL, the port number is returned separately as the PORTNUMBER option.

An IPv4 or IPv6 address can represent the host name. IPv6 addresses are returned as native IPv6 colon hexadecimal addresses, for example, ::a:b:c:d. If you specify an IPv6 address in a URL, for example, http://[:a:b:c:d]:80, HOST returns the address without brackets.

Use the characters X’BA’ and X’BB’ (code page 37) to represent square brackets when you specify IPv6 addresses.

For information on IP addresses, see the CICS Internet Guide.

**HOSTTYPE(cvda)**

Returns the address format of the HOST option. CVDA values are as follows:

- HOSTNAME
  The HOST option contains a character host name. The IP address that corresponds to the host name is looked up in the domain name server.
- IPV4
  The address is a dotted decimal IPv4 address.
- IPV6
  The address is a colon hexadecimal IPv6 address.

**WSACONTEXT BUILD and WSACONTEXT GET**

The CICS translator now verifies that you have specified all of the required EPR options on the WSACONTEXT BUILD or WSACONTEXT GET command. If an application program specifies the EPRFROM, EPRSET, or EPRINTO option on a WSACONTEXT command but omits the EPRTYPE option, an empty WS-Addressing container is created. Alter, re-translate, and recompile any application programs that contain EXEC CICS WSACONTEXT commands with some, but not all, of the EPR options specified.

**Changes to API commands in CICS TS 3.2**

These API commands were extended or changed in CICS Transaction Server for z/OS, Version 3 Release 2.

**DOCUMENT CREATE and DOCUMENT SET**

A new error condition, NOTAUTH, might be received if resource security for document templates is active in the CICS region.

**GET CONTAINER CHANNEL**

A new INTOCODEPAGE option is added:

**INTOCODEPAGE(data-value)**

Specifies an IANA-registered alphanumeric charset name or a Coded Character Set Identifier (CCSID) for the code page into which the character data in the
container is to be converted, using up to 40 alphanumeric characters, including appropriate punctuation. Use this option instead of the CCSID option if you prefer to use an IANA-registered charset name, as specified in the Content-Type header for an HTTP request. CICS converts the IANA name into a CCSID, and the subsequent data conversion process is identical. Also use this option if you prefer to specify the CCSID in alphanumeric characters, rather than as a fullword binary number.

Where an IANA name exists for a code page and CICS supports its use, the name is listed with the CCSID. For more information, see the CICS Application Programming Guide.

The description of the INTOCCSID option on the GET CONTAINER CHANNEL command has changed, and a new error condition CODEPAGEERR contains new RESP2 values.

**PUT CONTAINER CHANNEL**

A new FROMCODEPAGE option is added:

FROMCODEPAGE(*data-value*)

Specifies an IANA-registered alphanumeric charset name or a Coded Character Set Identifier (CCSID) for the current code page of the character data to be put into the container, using up to 40 alphanumeric characters, including appropriate punctuation. Use this option instead of the CCSID option if you prefer to use an IANA-registered charset name, as specified in the Content-Type header for an HTTP request. CICS converts the IANA name into a CCSID, and the subsequent data conversion process is identical. Also use this option if you prefer to specify the CCSID in alphanumeric characters, rather than as a fullword binary number.

If the FROMCCSID option is specified, DATATYPE(DFHVALUE(CHAR)) is implied.

The description of the FROMCCSID option on the PUT CONTAINER CHANNEL command has changed, and a new error condition CODEPAGEERR contains new RESP2 values.

**QUERY SECURITY**

You can now use the QUERY SECURITY command to determine whether the user has access to the resource definitions for CICS document templates (DOCTEMPLATE).

**READ, READNEXT, READPREV, RESETBR, STARTBR, and WRITE**

A new option XRBA is added for the READ, READNEXT, READPREV, RESETBR, STARTBR, and WRITE commands:

XRBA

specifies that the record identification field specified in the RIDFLD option contains an extended relative byte address. Use this option when reading, browsing, or writing records in an extended ESDS.
If you specify XRBA on a STARTBR command, all other commands within the same browse must also specify XRBA.

The READ and STARTBR commands have a new RESP2 value of 59 for the INVREQ response. The READ, READNEXT, READPREV, RESETBR, and STARTBR commands have a new RESP2 value of 81 for the NOTFND response.

WEB EXTRACT

New options REALM and REALMLEN are added:

**REALM**(data-area)

Specifies, for CICS as an HTTP client, the realm or security environment that contains the data that you are requesting. If you are issuing a command in response to an HTTP 401 message, REALM is the realm value in the most recently received WWW-Authenticate header.

**REALMLEN**(data-area)

Specifies, for CICS as an HTTP client, the buffer length supplied for the REALM option, as a fullword binary variable. If you are issuing a command in response to an HTTP 401 message, REALMLEN is the length of the realm name in the most recently received WWW-Authenticate header.

The description of the HTTPVERSION option has changed.

WEB SEND (Client)

New options are available for specifying authentication credentials:

**AUTHENTICATE**(cvda)

Specifies user authentication details, to control access to restricted data. The CVDA values that apply for CICS as an HTTP client are as follows:

**NONE**

Specifies that there are no restrictions on accessing this data, therefore no credentials are required. This is the default value for AUTHENTICATE.

**BASICAUTH**

Specifies that HTTP Basic Authentication credentials are required for this session. These details can be supplied within the command or by using the XWBAUTH global user exit.

**PASSWORDLEN**(data-value)

Specifies the buffer length supplied for the PASSWORD option as a fullword binary variable.

**PASSWORD**(data-value)

Specifies the password associated with the user ID or logon name that is allowed access to this data. The PASSWORD option is required only if the USERNAME option is used.

If you specify USERNAME and PASSWORD in the WEB SEND command and you also specify AUTHENTICATE in the URIMAP resource, the WEB SEND values are used. If the specified password is over 8 characters long, it is treated as a password phrase when sent to z/OS systems.
USERNAME *(data-value)*

Specifies the user ID or logon name that is allowed access to this data. If the USERNAME is specified, you must also use the PASSWORD option.

If you specify USERNAME and PASSWORD in the Web Send command and you also specify AUTHENTICATE in the URIMAP resource, the WEB SEND values are used.

USERNAMELEN *(data-value)*

Specifies the buffer length supplied for the USERNAME option as a fullword binary variable.

### WEB SEND (Server and Client) and WEB CONVERSE

A new option DOCSTATUS is added to these commands:

**DOCSTATUS(cvda)**

Indicates whether the document will be deleted or not deleted during processing of the WEB SEND command. The CVDA values are as follows:

- **DOCDELETE**: CICS deletes the document after the document contents are saved for sending. Storage allocated for the document is released immediately. If you make subsequent requests for the document, the requests generate a TOKENERR response.

- **NODOCDELETE**: CICS does not delete the document during processing of the WEB SEND command. This value is the default for DOCSTATUS.

### WEB OPEN

The descriptions of the HTTPRNUM and HTTPVNUM options have changed.

### WEB RETRIEVE

If a WEB SEND command specifies the option DOCSTATUS(DOCDELETE), the WEB RETRIEVE command cannot retrieve the document and a NOTFND response with a RESP2 value of 1 is returned.

### New API commands

CICS Transaction Server for z/OS, Version 4 Release 2 includes some new API commands that you can use to create application programs that use new CICS functions.

**New API commands added in CICS Transaction Server for z/OS, Version 4 Release 2**

**EXEC CICS CHANGE PHRASE**

Change the password or password phrase recorded by an external security manager (ESM) for a specified user ID.

**EXEC CICS VERIFY PHRASE**

Verify that a password or password phrase matches the password or password phrase recorded by an external security manager.
New API commands added in CICS Transaction Server for z/OS, Version 4 Release 1

EXEC CICS BIF DIGEST
Calculate the SHA-1 digest of a string of data.

EXEC CICS INVOKE SERVICE
Call a service from a CICS application. The command specifies the name of a service or the CICS resource, such as a WEBSERVICE resource, that contains information about the service to be called.

EXEC CICS SIGNAL EVENT
Identify a place in an application program where one or more events could be emitted.

EXEC CICS TRANSFORM DATATOXML
Use the TRANSFORM DATATOXML command to convert application data to XML.

EXEC CICS TRANSFORM XMLTODATA
Use the TRANSFORM XMLTODATA command to convert XML to application data.

EXEC CICS WEB READ QUERYPARM
Read name and value pairs from a query string in a URL.

EXEC CICS WEB STARTBROWSE QUERYPARM
Start browsing query string data in a URL.

EXEC CICS WEB READNEXT QUERYPARM
Retrieve next name and value pair in query string data in a URL.

EXEC CICS WEB ENDBROWSE QUERYPARM
Finish browsing query string data in a URL.

EXEC CICS WSACONTEXT BUILD
Use the WSACONTEXT BUILD command to insert or replace WS-Addressing message addressing properties (MAPs) in the addressing context.

EXEC CICS WSACONTEXT DELETE
Use the WSACONTEXT DELETE command to delete the addressing context.

EXEC CICS WSACONTEXT GET
Use the WSACONTEXT GET command in a service provider to get the message addressing properties (MAPs) sent by the service requestor. Use the WSACONTEXT GET command in a service requestor to get the MAPs of the reply message.

EXEC CICS WSAEPR CREATE
Use the WSAEPR CREATE command to create an endpoint reference (EPR) to represent a Web service or Web service resource.

New API commands added in CICS Transaction Server for z/OS, Version 3 Release 2

EXEC CICS DOCUMENT DELETE
Delete a document.
API commands that have been made threadsafe

These application programming interface commands were not threadsafe when they were first introduced in CICS, but they have now been made threadsafe.

API commands that were made threadsafe in CICS Transaction Server for z/OS, Version 4 Release 2

- BIF DEEDIT
- BIF DIGEST
- CHANGE PASSWORD
- DEFINE COUNTER and DEFINE DCOUNTER
- DELETE
- DELETE COUNTER and DELETE DCOUNTER
- DELETEQ TS
- DEFINE COUNTER and DEFINE DCOUNTER
- DELETEQ TS
- EXEC DL
- EXTRACT CER
- EXTRACT TCPIP
- GET COUNTER and GET DCOUNTER
- LINK
- LINK COUNTER and LINK DCOUNTER
- QUERY SECURITY
- READ
- READ NEXT
- READ PREV
- RESETBR
- REWRITE COUNTER and REWRITE DCOUNTER

Chapter 3. Changes to the application programming interface
in the same way as DELETE, this command is now threadsafe when it is function shipped to a remote CICS region over an IPIC connection only.

SIGNOFF
SIGNON
STARTBR
in the same way as DELETE, this command is now threadsafe when it is function shipped to a remote CICS region over an IPIC connection only.
SYNCPOINT
SYNCPONTP ROLLBACK
the Recovery Manager now processes this command on an open TCB wherever possible to minimize TCB switching.

UNLOCK
in the same way as DELETE, this command is now threadsafe when it is function shipped to a remote CICS region over an IPIC connection only.

UPDATE COUNTER and UPDATE D COUNTER

VERIFY PASSWORD
WRITE
in the same way as DELETE, this command is now threadsafe when it is function shipped to a remote CICS region over an IPIC connection only.
WRITEQ TS
in the same way as DELETEQ TS, this command is now threadsafe when it is function shipped to a remote CICS region over an IPIC connection only.

API commands that were made threadsafe in CICS Transaction Server for z/OS, Version 4 Release 1

No existing API commands were made threadsafe in this release.

API commands that were made threadsafe in CICS Transaction Server for z/OS, Version 3 Release 2

The following API commands were made threadsafe in CICS TS for z/OS, Version 3.2 when the file to which they refer is defined as either local VSAM or RLS. As described above, in CICS TS for z/OS, Version 4.2, these commands were also made threadsafe when they are function shipped to a remote CICS region over an IPIC connection only.

DELETE
ENDBR
READ
READNEXT
READPREV
RESETBR
REWRITE
STARTBR
UNLOCK
WRITE

Changes to EXEC CICS VERIFY PASSWORD command

When you issue the EXEC CICS VERIFY PASSWORD command, CICS now enforces the revoked status of a user ID or a user's group connection. The new method CICS uses to verify the password is more efficient, but you might notice changes to the output that is produced when verification takes place.
CICS now attempts to verify a password using a RACROUTE REQUEST=EXTRACT request to the external security manager. If the password cannot be verified using this method, CICS uses a RACROUTE REQUEST=VERIFYX call. Before CICS Transaction Server for z/OS, Version 3 Release 1, CICS always used the RACROUTE REQUEST=VERIFYX call, which is more expensive.

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

- ESMRESP and ESMREASON codes are not supplied by the external security manager for the new method of verifying a password using a RACROUTE REQUEST=EXTRACT call. These codes are produced only if CICS needs to use the old method with a RACROUTE REQUEST=VERIFYX call. Your application programs must always check the EIBRESP and EIBRESP2 values returned by the EXEC CICS VERIFY PASSWORD command and not rely on the ESMRESP and ESMREASON codes.
- Message ICH70002I is not produced by the external security manager for the new method of verifying a password. The message is produced only if CICS needs to use the old method with a RACROUTE REQUEST=VERIFYX call. The SETR PASSWORD(WARN(nn)) option must also be active in the external security manager for the message to be produced. Your application programs must therefore not rely on receiving this message.

Changes to rounding for ASKTIME, CONVERTTIME, and FORMATTIME commands

Before CICS TS for z/OS, Version 4.1, ABSTIME values and formatted times returned by EXEC CICS commands were rounded up or down to the nearest hundredth of a second, but now they are always truncated, and the time is available in milliseconds. If you require the rounding behavior, you can code your application to perform rounding.

**EXEC CICS ASKTIME ABSTIME**

The ABSTIME value that is returned by the EXEC CICS ASKTIME command is no longer rounded to the nearest 1/100 second. The absolute time returned is the system time-of-day clock, adjusted for leap seconds and the local timezone offset, truncated to the millisecond, and returned as a packed decimal of length 8 bytes. It therefore represents the number of milliseconds since 00:00 on 1 January 1900 in the local timezone and adjusted for daylight saving time.

**EXEC CICS CONVERTTIME**

As for the EXEC CICS ASKTIME command, the ABSTIME value that is returned by the EXEC CICS CONVERTTIME command is no longer rounded to the nearest 1/100 second, but instead is truncated to the millisecond.

**EXEC CICS FORMATTIME**

Before CICS TS 4.1, the EXEC CICS FORMATTIME command rounded up a returned time if the number of milliseconds was greater than 500, except in the case where the ABSTIME argument contained a value representing the half-second before midnight, when no rounding was performed, and the TIME option returned
23:59:59. This rounding is no longer carried out, and the returned time (for example, with the TIME option) is given with the number of completed seconds. You can use the new MILLISECONDS option to obtain the number of milliseconds, and you can perform your own rounding if you need to replicate the former behavior of the command.
Chapter 4. Changes to the JCICS application programming interface

The JCICS application programming interface has new methods and other new elements to provide Java support for some of the new functions available through the EXEC CICS application programming interface.

The methods in the JCICS API do not map exactly to the functions available through the EXEC CICS API. For example, the function of a single EXEC CICS command might be provided by multiple JCICS methods, or some functions of an EXEC CICS command might not be supported by any JCICS method. This topic lists the changes to the JCICS API with the EXEC CICS commands that provide the same functions, but the JCICS method and EXEC CICS command do not necessarily provide equivalent functions.

New JCICS methods in CICS Transaction Server for z/OS, Version 4 Release 1

To support functions that are provided by the EXEC CICS EXTRACT TCPIP command, new JCICS methods are available in the TcpipRequest class, as follows:

- com.ibm.cics.server.TcpipRequest.getClientHostAddress6()
- com.ibm.cics.server.TcpipRequest.getServerHostAddress6()
- com.ibm.cics.server.TcpipRequest.getClientIpFamily()
- com.ibm.cics.server.TcpipRequest.getServerIpFamily()

To support functions that are provided by the EXEC CICS SIGNAL EVENT command, a new JCICS method is available in the Event and EventErrorException classes, as follows:

- com.ibm.cics.server.Event
- EventErrorException

To support functions that are provided by the EXEC CICS WEB EXTRACT command, a new JCICS method is available in the HttpRequest and HttpSession classes, as follows:

- com.ibm.cics.server.HttpRequest.getHostType()
- com.ibm.cics.server.HttpSession.getHostType()

To support functions that are provided by the EXEC CICS WEB READ QUERYPARM command and the associated browsing commands, new JCICS methods are available in the HttpRequest class to read and browse query parameters, as follows:

- com.ibm.cics.server.HttpRequest.getQueryParm()
- com.ibm.cics.server.HttpRequest.startBrowseQueryParm()
- com.ibm.cics.server.HttpRequest.getNextQueryParm()
- com.ibm.cics.server.HttpRequest.endBrowseQueryParm()
New JCICS methods in CICS Transaction Server for z/OS, Version 3 Release 2

To support new functions relating to channels and containers that are provided by the Server and Client versions of the EXEC CICS WEB RECEIVE and EXEC CICS WEB SEND commands, new JCICS methods are available in the HttpRequest, HttpResponse, and HttpClientRequest classes as follows:

- `com.ibm.cics.server.HttpRequest.setContainer()`
- `com.ibm.cics.server.HttpRequest.setChannel()`
- `com.ibm.cics.server.HttpRequest.getContentAsContainer()`
- `com.ibm.cics.server.HttpRequest.getBodyCharset()`
- `com.ibm.cics.server.HttpResponse.setContainer()`
- `com.ibm.cics.server.HttpResponse.setChannel()`
- `com.ibm.cics.server.HttpResponse.getContentAsContainer()`
- `com.ibm.cics.server.HttpResponse.getBodyCharset()`
- New version of `com.ibm.cics.server.HttpResponse.sendDocument()`
- New exceptions for `com.ibm.cics.server.HttpClientRequest.sendDocument()`

To support the new client basic authentication function that is provided by the EXEC CICS WEB SEND (Client) command, new JCICS methods are available in the HttpClientRequest class as follows:

- `com.ibm.cics.server.HttpClientRequest.setAuthenticate()`
- `com.ibm.cics.server.HttpClientRequest.setUserName()`

To support the new document deletion function that is provided by the Server and Client versions of the EXEC CICS WEB SEND command, new JCICS methods are available in the Document class as follows:

- `com.ibm.cics.server.Document.delete()`

New exceptions and data types in CICS Transaction Server for z/OS, Version 3 Release 2

**Characterset option:** All instances of ClientCodepage are changed to Characterset. This is a documentation change only, and does not affect existing code, or the externals of the class.

**CHAR data type:** The data type CHAR is now supported by the JCICS API for use in the Container class. This data type can be used in addition to the existing BIT data type. Use of the new CHAR data type is available through the following constructor, constants and methods:

- New `com.ibm.cics.server.Container ()` constructor
- New `Container.DATATYPE_BIT` and `Container.DATATYPE_CHAR` constants
- New `getDatatype()` getter method
- New version of the `get()` method
- New version of the `getLength()` method
- New version of the `put(byte[])` method
**NotAuthorised Exception:** This JCICS application programming interface exception can now be thrown by any of the following methods:

```java
com.ibm.cics.server.Document()
com.ibm.cics.server.Document.create*()
com.ibm.cics.server.Document.append*()
com.ibm.cics.server.Document.insert*()
com.ibm.cics.server.Webservice.invoke()
```
Chapter 5. Changes to resource definitions

Changes to the resource definitions available in CICS relate to new, changed, or obsolete CICS functions. The changes might involve complete resource definitions or individual attributes. The resource definitions supplied by CICS have corresponding changes, which you can implement by running the UPGRADE function of the CSD utility program (DFHCSDUP).

IPIC override for default connections

If both an APPC or MRO connection (a CONNECTION resource definition) and an IPIC connection (an IPCONN resource definition) exist between two CICS regions, and both have the same name, the IPIC connection takes precedence. The following rules apply:

- The IPIC connection, which is defined in the IPCONN resource, overrides any default APPC or MRO connections with the same name, which are defined in the CONNECTION resource.
- If you have not configured an IPCONN resource or the IPCONN is not acquired but is in service, a CONNECTION resource with the same name is used.
- If an APPC or MRO connection is used and the CONNECTION resource is not configured, the command is not sent.

For more information about routing transactions between different levels of CICS using IPIC connections, see Chapter 25, “Communicating over IPIC with different levels of CICS,” on page 201.

Obsolete resource definition attributes

Some individual attributes of existing resource definitions are now obsolete. If you have resource definitions that use these attributes, replace them as appropriate.

Resource definition attributes made obsolete in CICS Transaction Server for z/OS, Version 4 Release 2

LSRPOOLID in LSRPOOL resource definitions

The LSRPOOLID attribute in LSRPOOL resource definitions is obsolete, but is supported to provide compatibility with earlier releases of CICS. The value specified for LSRPOOLID in existing definitions is transferred to the new option LSRPOOLDNUM, which has values in the range 1 - 255, compared to the range 1 - 8 for LSRPOOLID. A value that you set for the new option LSRPOOLDNUM is not transferred to the old option LSRPOOLID.

Changed resource definition attributes

For some individual attributes of existing resource definitions, the values that you can specify are changed, or the scope of the attribute is changed. If you have resource definitions that use these attributes, check that the value you are using is still the best for your situation.
Resource definition attributes changed in CICS Transaction Server for z/OS, Version 4 Release 2

PROGRAM resource definition: changed CONCURRENCY attribute
The CONCURRENCY option of the PROGRAM resource now allows you to specify the new option REQUIRED.

Resource definition attributes changed in CICS Transaction Server for z/OS, Version 4 Release 1

URIMAP resource definition: additional use for USAGE(CLIENT)
Delivery of the HTTP EP adapter for event processing in CICS is supported by an additional use for the URIMAP resource definition. When using the HTTP EP adapter, you must specify a URIMAP with USAGE(CLIENT) in your URIMAP definition.

TERMINAL and TRANSACTION resource definitions: changed
REMOTE SYSTEM attribute
The REMOTE SYSTEM attribute of the TERMINAL and TRANSACTION resources now allows you to specify information about IP connections.

CORBASESERVER resource definition: changed HOST attribute
The HOST attribute of the CORBASESERVER resource has been extended to allow IPv6 addresses.

If you specify an IPv6 address (or a host name that resolves to an IPv6 address), ensure that you are operating in a dual-mode (IPv4 and IPv6) environment and that the client or server that you are communicating with is also operating in a dual-mode (IPv4 and IPv6) environment. For more information on IPv6, see the CICS Internet Guide.

IPCONN resource definition: changed HOST attribute
The HOST attribute of the IPCONN resource has been extended to allow IPv6 addresses.

URIMAP resource definition: changed HOST and PATH attributes
The HOST attribute of the URIMAP resource has been extended to allow IPv6 addresses to be specified. The HOST and PATH attributes of URIMAP definitions also now support IRIs (Internationalized Resource Identifiers), which permits the use of characters and formats that are suitable for national languages other than English.

To accommodate the requirements of domain name servers, Web clients convert the host name in an IRI into a format called Punycode. If you want to use an IRI as the link for a Web resource or Atom feed that is served by CICS, in the URIMAP resource that defines the Web client's request to CICS, you must specify the host name in Punycode. CICS does not provide a tool to carry out this conversion, but free applications are available on the Internet to support the conversion of Unicode to Punycode. If you use an asterisk (*) instead of a specific host name, you do not need to use Punycode.

Web clients do not convert the path component of an IRI into Punycode, but they do escape, or percent-encode, Unicode characters in the path. If you are using an IRI for a Web resource that is served by CICS, in the URIMAP resource definition, you must percent-encode any Unicode characters in the path that you specify. If you do not have an application that can convert Unicode characters to percent-encoded representations, free applications are available on the Internet to perform this task.
Resource definition attributes changed in CICS Transaction Server for z/OS, Version 3 Release 2

TCPIPSERVICE resource definition: new values

- On the PROTOCOL option, a value of IPIC is added:
  - IPIC  IPIC protocol is used. Specify IPIC for TCPIPSERVICE resources that are to be used for distributed program link (DPL) over IP interconnectivity connections (which are also known as IPCONNs).
- On the URM option, a value of NO is added, and a new user-replaceable program can be specified:
  - NO  Autoinstall is not permitted with this TCPIPSERVICE resource. This is only applicable for PROTOCOL(IPIC).

program_name

For those protocols for which URM is a required attribute, the default program name depends on the value of the PROTOCOL attribute:

- For the IPIC protocol, specify the name of the autoinstall user program for IPCONNs, if required. For PROTOCOL(IPIC), if you do not specify this attribute CICS uses the CICS-supplied, default, IPCONNs autoinstall user program, DFHISAIP.

New resource definitions and new attributes

Some new resource definitions are available in CICS Transaction Server for z/OS, Version 4 Release 2, and some new individual attributes are added to existing resource definitions. You can use these new resource definitions and attributes to define support for new CICS functions.

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

New resource definitions and attributes added in CICS Transaction Server for z/OS, Version 4 Release 2

FILE resource definition: new LSRPOOLNUM attribute

A new attribute, LSRPOOLNUM, specifies the identifier of the local shared resource pool. The value must be in the range 1 - 255. For more information, see FILE resources in the Resource Definition Guide.

LSRPOOL resource definition: new LSRPOOLNUM attribute

A new attribute, LSRPOOLNUM, specifies the identifier of the local shared resource pool. The value must be in the range 1 - 255. For more information, see LSRPOOL resources in the Resource Definition Guide.

PROGRAM resource definition: new JVMSERVER attribute

A new attribute, JVMSERVER, specifies the name of the JVMSERVER resource that you want to use to run a Java program. A JVMSERVER resource represents the JVM server runtime environment in CICS. For more information, see JVMSERVER resources in the Resource Definition Guide.

TCPIPSERVICE resource definition: new MAXPERSIST attribute

A new attribute, MAXPERSIST, specifies the maximum number of
persistent connections from Web clients that the CICS region allows for this port at any one time. For more information, see TCPIPSERVICE resources in the Resource Definition Guide.

**TSMODEL resource definition: new EXPIRYINT attribute**
A new attribute, EXPIRYINT, specifies the expiry interval, in hours, for a local temporary storage queue that matches the temporary storage model. For more information, see TSMODEL resources in the Resource Definition Guide.

**URIMAP resource definition: new SOCKETCLOSE attribute**
A new attribute, SOCKETCLOSE, specifies if, and for how long, CICS keeps a client HTTP connection open for reuse after the CICS application has finished using it. For more information, see URIMAP resources in the Resource Definition Guide.

**WEBSERVICE resource definition: new ARCHIVEFILE attribute**
A new attribute, ARCHIVEFILE, specifies the 1- to 255-character fully-qualified file name of an archive that contains one or more WSDL files. The supported format for the archive is .zip. For more information, see WEBSERVICE resources in the Resource Definition Guide.

**New resource definitions and attributes added in CICS Transaction Server for z/OS, Version 4 Release 1**

**New ATOMSERVICE resource definition**
The new ATOMSERVICE resource defines an Atom service, feed, collection, or category document, and identifies the Atom configuration file, CICS resource or application program, and XML binding that are used to supply the data for the feed. For more information, see ATOMSERVICE resources in the Resource Definition Guide.

**New BUNDLE resource definition**
The new BUNDLE resource defines the resources and artifacts associated with a bundle, which is a unit of deployment for an application. For more information, see BUNDLE resources in the Resource Definition Guide.

**New JVMSERVER resource definition**
The new JVMSERVER resource defines the runtime environment for a JVM server. For more information, see JVMSERVER resources in the Resource Definition Guide.

**New MQCONN resource definition**
The new MQCONN resource definition defines the attributes of the connection between CICS and WebSphere MQ. When you install an MQCONN resource definition that includes a setting for the INITQNAME attribute, CICS also installs an implicit MQINI resource definition. For more information, see MQCONN resources in the Resource Definition Guide.

**IPCONN resource definition: new IDPROP attribute**
A new attribute, IDPROP, specifies whether the distributed identity is transmitted to the connected system by the sender. For more information, see IPCONN resources in the Resource Definition Guide.

**URIMAP resource definition: new ATOM value for the USAGE attribute, and new ATOMSERVICE and AUTHENTICATE attributes**
When you specify ATOM, you create a URIMAP definition for an Atom feed. This type of URIMAP definition is used for an incoming request for
data that CICS makes available as an Atom feed. The URIMAP definition maps the request URI to an ATOMSERVICE resource definition, which defines an Atom document.

The attributes in the URIMAP resource definition that can be used for USAGE(ATOM) are ATOMSERVICE, GROUP, DESCRIPTION, STATUS, HOST (which can be specified as an asterisk), PATH, SCHEME, TCPIPSERVICE, TRANSACTION, USERID, REDIRECTTYPE, and LOCATION. For the TRANSACTION attribute, the default alias transaction for USAGE(ATOM) is CW2A, which runs the web 2.0 alias program DFHW2A.

A new attribute ATOMSERVICE specifies the name of the ATOMSERVICE resource definition for the Atom feed.

A new attribute AUTHENTICATE specifies whether to send HTTP basic authentication information to the HTTP server. For more information about all these attributes, see URIMAP resources in the Resource Definition Guide.

**New resource definitions and attributes added in CICS Transaction Server for z/OS, Version 3 Release 2**

**New IPCONN resource definition**
An IPCON connection is a TCP/IP communication link to a remote system. An IPCONN definition specifies the attributes of the TCP/IP connection. Some of the inbound attributes of the connection are specified by the TCPIPSERVICE definition named on the TCPIPSERVICE option of the IPCONN definition. For more information, see IPCONN resources in the Resource Definition Guide.

**New LIBRARY resource definition**
Support for dynamic program library management introduces a new CICS resource, the LIBRARY. A LIBRARY represents a partitioned data set or sequence of concatenated, partitioned data sets containing program entities that make up an application or group of applications, defined by the system programmer. A LIBRARY definition specifies the name of the LIBRARY, the data sets belonging to that LIBRARY, whether it is critical to the running of CICS, and its ranking in the overall LIBRARY search order. For more information, see LIBRARY resources in the Resource Definition Guide.

**PIPELINE resource definition: new RESPWAIT attribute**
A new attribute, RESPWAIT, specifies the number of seconds that an application program should wait for a response message from a remote Web service. For more information, see PIPELINE resources in the Resource Definition Guide.

**TCPIPSERVICE resource definition: new REALM attribute**
A new attribute, REALM, specifies the realm that is used for HTTP basic authentication. For more information, see TCPIPSERVICE resources in the Resource Definition Guide.

**New CICS-supplied resource definition groups**
New groups of CICS-supplied resource definitions are added to your CSD when you run the UPGRADE command.
DFHEP

The CICS-supplied group DFHEP, introduced in CICS Transaction Server for z/OS, Version 4 Release 1, contains PROFILE definitions for event processing.

Group DFHEP was added to DFHLIST with profile definitions for programs DFHECEAH, DFHECEAM, DFHECEAS, and DFHECEAT and transactions CEPH, CEPQ, and CEPT.

DFHISCIP

The CICS-supplied group DFHISCIP, introduced in CICS Transaction Server for z/OS, Version 3 Release 2, contains the default autoinstall user program for IPIC connections, DFHISAIP.

DFHISCIP is included in the default CICS startup grouplist DFHLIST. If you use a different CICS startup grouplist, ensure that you append the DFHISCIP group to it.

DFHMQ

The CICS-supplied group DFHMQ, introduced in CICS Transaction Server for z/OS, Version 3 Release 2, contains CSD definitions for the CICS-MQ adapter.

When the CICS-MQ adapter was shipped with the WebSphere MQ product, WebSphere MQ supplied the CSQCAT1 and CSQKB CSD groups. The CSQCAT1 and CSQCKB groups should not be installed on CICS TS 3.2 systems or higher and you should ensure that they are removed from GROUPLISTS.

DFHRL

The CICS-supplied group DFHRL, introduced in CICS Transaction Server for z/OS, Version 4 Release 1, contains the resource definitions for application bundles support.

The group contains the following definitions:

PROGRAM definitions
   DFHRLMF, DFHRLR, DFHRLSC, and DFHRLVC.

TRANSACTION definition
   CRLR

DFHRS

The CICS-supplied group DFHRS, introduced in CICS Transaction Server for z/OS, Version 4 Release 1, contains the resource definitions for region status.

The group contains the following definition:

PROGRAM definition
   DFHRSFDL

DFH$WEB

The CICS-supplied group DFH$WEB, introduced in CICS Transaction Server for z/OS, Version 3 Release 2, contains most of the samples for CICS Web support. The exception is the assembler language sample program DFH$WB1A, which is provided in the existing DFHWEB resource definition group.

DFH$WEB contains these definitions:
PROGRAM definitions
DFH$WB1C, DFH$WBCA, DFH$WBCC, DFH$WBCO, DFH$WBHA,
DFH$WBHC, DFH$WBHO, DFH$WBPA, DFH$WBPC, and DFH$WBPO.

URIMAP definitions
DFH$URI1, DFH$URI2, DFH$URI3, and DFH$URI4.

DFHWEB2
The CICS-supplied group DFHWEB2, introduced in CICS Transaction Server for
z/OS, Version 4 Release 1, contains the resource definitions for Atom feed support.

The group contains:
PROGRAM definitions
DFHW2A, DFHW2ER, DFHW2FI, DFHW2FR, and DFHW2TS.

TRANSACTION definition
CW2A

DFHWU
The CICS-supplied group DFHWU, introduced in CICS Transaction Server for
z/OS, Version 4 Release 1, contains the resource definitions for CMCI.

The group contains the following definitions:
PROGRAM definitions
DFHWUIPG, DFHWUIP1, DFHWUIP1, DFHWUIP2, DFHWUIP3,
DFHWUIP4, DFHWUIP5, DFHWUIP6, and DFHWUSRT

TRANSACTION definition
CWWU

DOCTEMPLATE definitions
DFHWUIPI, DFHWUIP1, DFHWUIP2, DFHWUIP3, DFHWUIP4,
DFHWUIP5, and DFHWUIP6

Changes to control tables (macro resource definition)
When upgrading to CICS Transaction Server for z/OS, Version 4 Release 2,
reassemble all CICS control tables using the CICS TS 4.2 macro libraries, even if
the macro externals have no changes. You must also reassemble any DFHCNV data
conversion tables that you use, because CICS initialization fails if you try to load
DFHCNV tables assembled using macros from an earlier release.

DFHMCT monitoring control table
The performance class data fields added for CICS Transaction Server for z/OS,
Version 4 Release 2, have corresponding new values, which can be defined on the
INCLUDE and EXCLUDE operands of the DFHMCT TYPE=RECORD macro. You
can use these values to include or exclude specific fields from performance class
monitoring records. **Control data recording - DFHMCT TYPE=RECORD** in the
CICS Resource Definition Guide lists all the fields that can now be included or
excluded using the macro.

A new COMPRESS option is available on the DFHMCT TYPE=INITIAL macro. Use
this option to activate or deactivate data compression for monitoring records. The
default is YES, meaning that you do want monitoring record data compression to
be performed. NO means that data compression is not performed.
The default for the COMPRESS option on the DFHMCT TYPE=INITIAL macro changed from NO to YES in CICS TS for z/OS, Version 4.1. If monitoring is active the monitor records are compressed automatically.

A new distributed program link option, DPLLIMIT, is available on the DFHMCT TYPE=INITIAL macro. This option specifies the maximum number of DPL requests for which CICS performs transaction resource monitoring.

**DFHDCT, DFHRCT, DFHTCT, and DFHTST control tables**

Support for the DFHCS Dup MIGRATE command was withdrawn in CICS TS for z/OS, Version 4.1.

In previous versions of CICS, the DFHCS Dup MIGRATE command migrated the eligible DFHDCT, DFHRCT, DFHTCT, and DFHTST macro resource definitions to the CICS system definition data set (CSD).

If you still have eligible but unmigrated definitions, you must migrate them to the CSD before you upgrade to CICS Transaction Server for z/OS, Version 4 Release 2. To do so, you can use the DFHCS Dup MIGRATE command on any supported release up to CICS TS for z/OS, Version 3.2.
Chapter 6. Changes to the system programming interface

CICS Transaction Server for z/OS, Version 4 Release 2 has some new SPI commands to control new system resources, and some existing commands have new options, or new values for existing options. Some system programming commands, options, or values are now obsolete because they relate to obsolete CICS functions.

Program compatibility

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

The SPI is also sensitive to the underlying environment in which it is implemented and, as a consequence, compatibility with future releases of CICS cannot be guaranteed.

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

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

Obsolete options or values on SPI commands

These system programming interface command options or values are obsolete. Remove these options from your applications, because they represent functions that are no longer available, so the behavior of applications that use these options will change.

Obsolete options or values on SPI commands in CICS Transaction Server for z/OS, Version 4 Release 2

CREATE LSRPOOL: The LSRPOOLID option is obsolete, but is supported to provide compatibility with earlier releases of CICS. Use the new option LSRPOOLNUM instead, which has values in the range 1 - 255, compared to the range 1 - 8 for LSRPOOLID. If you do use LSRPOOLID in any CICS SPI command, CICS transfers the value that you specify to LSRPOOLNUM.

CREATE FILE: The LSRPOOLID option is obsolete. Use the new option LSRPOOLNUM instead. If you do use LSRPOOLID in any CICS SPI command, CICS transfers the value that you specify to LSRPOOLNUM.

INQUIRE FILE: The LSRPOOLID option is obsolete. Use the new option LSRPOOLNUM instead. If you do use LSRPOOLID in any CICS SPI command, CICS transfers the value that you specify to LSRPOOLNUM.

SET FILE: The LSRPOOLID option is obsolete. Use the new option LSRPOOLNUM instead. If you do use LSRPOOLID in any CICS SPI command, CICS transfers the value that you specify to LSRPOOLNUM.
Obsolete options or values on SPI commands in CICS Transaction Server for z/OS, Version 3 Release 2

INQUIRE CLASSCACHE: The value RESET is no longer returned for the REUSEST option. If the shared class cache is not started, the value UNKNOWN is displayed. In this situation, CICS cannot identify the reuse status, but when the shared class cache is started the status always becomes REUSE.

INQUIRE JVM: The value RESET is no longer returned for the REUSEST option.

INQUIRE JVMPROFILE: The value RESET is no longer returned for the REUSEST option.

INQUIRE MONITOR: The SUBSYSTEMID option is obsolete.

SET JVMPOOL: The TERMINATE function on the SET JVMPOOL command is now deprecated. Use the improved function on the PERFORM JVMPOOL command instead.

New options or values on SPI commands

A number of system programming interface commands have new options or new values for options.

CREATE FILE

A new option LSRPOOLNUM is added:

```
| LSRPOOLNUM({1|number|NONE}) |
|-------------------------------|
| Specifies the identity of the local shared resource pool. The default value for |
| LSRPOOLNUM is 1, unless a value has been specified for the NSRGROUP |
| attribute, in which case the default value for LSRPOOLNUM is NONE. |
| NONE |
| Specifies that the data set associated with this file uses VSAM nonshared |
| resources (NSR). |
| You cannot specify NONE for a CICS shared data table (CICS or |
| user-maintained), because these types of data tables must use an LSR pool. |
| However, this restriction does not apply to a coupling facility data table, |
| for which you can specify NONE. |
| number |
| Identifies the number of the VSAM shared resource pool that is used by |
| the VSAM data set associated with this file. The value must be in the range |
| 1 through 255. The data set is defined as using VSAM local shared |
| resources (LSR). Define the buffers, strings, and other resources explicitly |
| in an LSRPOOL resource definition that corresponds to the assigned |
| LRPOOLNUM value. |
```
By default, if the file definition specifies RLSACCESS(YES), the LSRPOOLNUM value is ignored when CICS opens the file. However, if you change a file definition that specifies an LSR pool from RLSACCESS(NO) to RLSACCESS(YES), you are advised to keep the LSRPOOLNUM value. LSRPOOLNUM ensures that, if the file is switched at any time from RLS to LSR mode, the file correctly references an LSR pool.

**CREATE LSRPOOL**

A new option LSRPOOLNUM is added:

```
LSRPOOLNUM({1|number})
```

Specifies the identifier of the local shared resource pool that is being defined. The value must be in the range 1 through 255.

**CREATE MQCONN**

A new value GROUPRESYNC is added to the RESYNCMEMBER option:

```
RESYNCMEMBER({YES|NO|GROUPRESYNC})
```

GROUPRESYNC

CICS connects to any member of the queue-sharing group. The queue manager is chosen by WebSphere MQ and it asks CICS to resolve indoubt units of work on behalf of all eligible queue managers in the queue-sharing group. This function is called group unit of recovery. The GROUPRESYNC option can be used only when you are running WebSphere MQ 7.1, or higher, that supports group unit of recovery for CICS and when group unit of recovery is enabled in the queue managers.

Do not change the setting for RESYNCMEMBER when units of work are outstanding in WebSphere MQ, because units of work cannot be resolved. A unit of work held in CICS is identified with a resource manager qualifier. When RESYNCMEMBER(GROUPRESYNC) is used the qualifier is the name of the queue-sharing group, otherwise the qualifier used is the name of the individual queue manager.

**CREATE PROGRAM**

A new option JVMSERVER is added:

```
JVMSERVER(jvmserver)
```

Specify the name (up to 8 characters in length) of the JVMSERVER resource that contains the OSGi service. A JVMSERVER resource represents the JVM server runtime environment in CICS. The JVM server runs all programs in the CICS key. If you set a value for this attribute, you cannot set a value for the JVMPROFILE attribute.

Acceptable characters:

A-Z a-z 0-9 $ @ # . _ % ? ! : | = , ;

A new CVDA value REQUIRED is added to the CONCURRENCY option:

**REQUIRED**

The program is written to threadsafe standards. CICS starts the program on an open TCB and ensures that the program always runs on an open TCB. If CICS switches to the QR TCB to run a CICS command, it returns to...
the open TCB before handing control back to the application program. The type of open TCB used depends on the API setting and the language of the program.

- Java programs using pooled JVMs operate like OPENAPI programs and use a J8 TCB if CICS key is set, and a J9 TCB if user key is set. OSGi bundles that run in a JVM server use a T8 TCB.
- C or C++ XPLink programs operate like OPENAPI programs and use an X8 TCB if CICS key is set, and an X9 TCB if user key is set.
- COBOL, PL/I, non-XPLink C or C++, and assembly language programs that also specify API(CICSAPI) use an L8 TCB because CICS commands can operate on this TCB irrespective of the execution key of the program. This setting is also suitable for programs that access resource managers like DB2® and WebSphere MQ, which also require an L8 TCB. However, for OPENAPI programs CICS must use an L9 TCB for user key programs and an L8 TCB for CICS key programs so that non-CICS API commands such as MVS requests operate correctly.

REQUARED is applicable to user application programs, PLT programs, and user-replaceable programs, and is the preferred option for Java programs.

CREATE TCPIPSERVICE

A new option MAXPERSIST is added:

MAXPERSIST(\{NO|number\})

Specifies the maximum number of persistent connections from web clients that the CICS region allows for this port at any one time. This setting applies only for the HTTP protocol.

- The default value NO means that there is no limit on the number of persistent connections.
- In a CICS region that is at risk of being overloaded with persistent connections, you can specify a suitable value (up to a theoretical maximum of 65535) based on the number of persistent connections that the CICS region can handle simultaneously. When this limit is reached and further web clients connect on the port, CICS requires the new clients to close the connection after they receive each response. When the new clients reconnect, if they connect to another CICS region that shares the port and has not reached its limit, they can maintain a persistent connection there instead. An HTTP/1.1 server should normally allow persistent connections, so only set this option in a CICS region that has experienced performance problems due to persistent connections from long-lived web clients.
- If you specify a value of zero for this option, the CICS region does not allow persistent connections and requires every web client to close the connection after they receive each response. A zero setting for MAXPERSIST is not compliant with the HTTP/1.1 specification, so only use that setting if you have a special requirement for it in a CICS region that is not currently handling external requests, for example, in a test environment.

CREATE TSMODEL

A new option EXPIRYINT is added:

EXPIRYINT(\{0|number\})

Specifies the expiry interval, in hours, for a temporary storage queue that matches this model. The interval count begins after each use of the temporary
storage queue. If the queue is not used again before the expiry interval is reached, the queue becomes eligible for CICS to delete it automatically.

0  No expiry interval applies to temporary storage queues that match this model, and they are never eligible for automatic deletion. This setting is the default.

**number**

An expiry interval in hours, in the range 1 - 15000. After this expiry interval, a temporary storage queue that matches this model becomes eligible for automatic deletion if it has not been used again.

Expiry intervals apply to temporary storage queues in the following locations:

- Main temporary storage in the local CICS region.
- Nonrecoverable auxiliary temporary storage (DFHTEMP data set) associated with the local CICS region.

Expiry intervals do not apply to the following types of temporary storage queues, so CICS never deletes them automatically:

- Queues in auxiliary temporary storage that are defined as recoverable.
- Queues in a remote CICS region. To make CICS delete remote temporary storage queues, specify an expiry interval in a suitable TSMODEL resource definition in the region that owns the queues.
- Queues that CICS creates for its own use.
- Temporary storage queues in shared temporary storage pools.

If you change the expiry interval in a TSMODEL resource definition, existing temporary storage queues that match the model are not affected. Those queues continue to use the expiry interval that applied when they were created. If all the TSMODEL resource definitions with a nonzero expiry interval are deleted from a CICS region, CICS stops scanning for expired temporary storage queues.

**CREATE URIMAP**

A new option SOCKETCLOSE is added:

**SOCKETCLOSE**({0|hhmmss})

This attribute is for USAGE (CLIENT).

SOCKETCLOSE specifies if, and for how long, CICS keeps a client HTTP connection open after the CICS application has finished using it. After use, CICS checks the state of the connection and then places it in a pool in a dormant state. A dormant connection can be reused by the same application or by another application that connects to the same host and port.

0  CICS closes each client HTTP connection when the CICS application has finished using it. CICS does not place the connection in a pool for reuse.

**hhmmss**

When a CICS application has finished using its client HTTP connection, CICS checks the state of the connection and places it in a pool for reuse. A dormant connection that is not reused is discarded after the length of time that you specify here.

Connection pooling can provide performance benefits for the HTTP EP adapter for CICS event processing, or where multiple invocations of CICS Web support applications make connection requests for the same host and port, or where a
Web services application makes multiple requests and responses. To activate connection pooling, your application programs must specify the URIMAP resource on the INVOKE SERVICE or WEB OPEN command. For more information about connection pooling, see Connection pooling for HTTP client performance in the Internet Guide.

INQUIRE ASSOCIATION

The following options have been added for transaction tracking support:

**ODADPTRID**(data-area)
Returns, in a 64-character area, the data that was added to the origin data by the adapter. This field is created when the originating task is started. If the task was not started by using an adapter, or if it was and the adapter did not set this value, ODADPTRID returns blanks.

**ODADPTRDATA1**(data-area)
Returns, in a 64-character area, the data that was added to the origin data by the adapter. This field is created when the originating task is started. If the task was not started by using an adapter, or if it was and the adapter did not set this value, ODADPTRDATA1 returns blanks. ODADPTRDATA1 also returns blanks if the adapter set a value for this field, but did not set an adapter identifier.

**ODADPTRDATA2**(data-area)
Returns, in a 64-character area, the data that was added to the origin data by the adapter. This field is created when the originating task is started. If the task was not started by using an adapter, or if it was and the adapter did not set this value, ODADPTRDATA2 returns blanks. ODADPTRDATA2 also returns blanks if the adapter set a value for this field, but did not set an adapter identifier.

**ODADPTRDATA3**(data-area)
Returns, in a 64-character area, the data that was added to the origin data by the adapter. This field is created when the originating task is started. If the task was not started by using an adapter, or if it was and the adapter did not set this value, ODADPTRDATA3 returns blanks. ODADPTRDATA3 also returns blanks if the adapter set a value for this field, but did not set an adapter identifier.

**PHAPPLID**(data-area)
Returns the 8-character APPLID from previous hop data. If the specified task was initiated by a task in another CICS region, PHAPPLID contains the APPLID of the other CICS region, or spaces if it was not initiated in this way. See Previous hop data characteristics for more information about previous hop data.

**PHCOUNT**(data-area)
Returns, in fullword binary form, the number of times there has been a request from one CICS region to another to initiate a task with which this task is associated, or zero if there have been no such requests.

**PHNETWORKID**(data-area)
Returns the 8-character network qualifier from previous hop data. If the specified task was initiated by a task in another CICS region, PHNETWORKID contains the network qualifier for the APPLID of the other CICS region or spaces if it was not initiated in this way.

**PHSTARTTIME**(data-area)
Returns a 21-character representation of the task start time from previous hop...
data. The time is in the form yyyymmddhhmmss.ssssss. If the specified task was
initiated by a task in another CICS region, PHSTARTTIME contains the start
time of the task in the other CICS region, or spaces if it was not initiated in
this way.

**PHTASKID**(data-area)
Returns the 4-byte packed decimal identifier from previous hop data. If the
specified task was initiated by a task in another CICS region, PHTASKID
contains the identifier of the task in the other CICS region, or packed decimal
zero if it was not initiated in this way.

**PHTRANSID**(data-area)
Returns the 4-character name of a transaction from previous hop data. If the
specified task was initiated by a task in another CICS region, PHTRANSID
contains the transaction name of the task in the other CICS region, or spaces if
it was not initiated in this way.

**INQUIRE ATOMSERVICE**
New options URIMAP and XMLTRANSFORM are added:

**URIMAP**(data-area)
Returns the 8-character URIMAP name that indicates the URI associated with
this ATOMSERVICE definition. If there is no auto-generated URIMAP
associated with this ATOMSERVICE definition, this field is empty.

**XMLTRANSFORM**(data-area)
Returns the 32-character name of the XMLTRANSFORM resource associated
with the ATOMSERVICE definition. If the value of ATOMTYPE is SERVICE or
CATEGORY, this field is empty.

**INQUIRE CAPTURESPEC**
New options are added for event processing:

**CURRPGM**(data-area)
Specifies an 8-character data area to receive the value specified by the
application context predicate for the current program name. Blanks are
returned if no application context predicate for the current program name is
defined for this capture specification.

**CURRPGMOP**(cvda)
Returns a CVDA value that defines the operator that is used, together with the
value in the CURRPGM option, to evaluate the application context predicate
on the current program name. Possible CVDA values are as follows:

**ALLVALUES**
The predicate always evaluates true; that is, there is no filtering based
on the name of the current program.

**DOESNOTEQUAL**
The predicate evaluates true when the name of the current program is
not equal to the value of the CURRPGM option.

**DOESNOTSTART**
The predicate evaluates true when the name of the current program
does not start with the value of the CURRPGM option.

**EQUALS**
The predicate evaluates true when the name of the current program is
equal to the value of the CURRPGM option.
GREATERTHAN
   The predicate evaluates true when the name of the current program is
greater than the value of the CURRPGM option.

ISNOTGREATER
   The predicate evaluates true when the name of the current program is
equal to or less than the value of the CURRPGM option.

ISNOTLESS
   The predicate evaluates true when the name of the current program is
   equal to or greater than the value of the CURRPGM option.

LESTHAN
   The predicate evaluates true when the name of the current program is
   less than the value of the CURRPGM option.

STARTSWITH
   The predicate evaluates true when the name of the current program
starts with the value of the CURRPGM option.

CURRTRANID(data-area)
   Specifies a 4-character data area to receive the value specified by the
application context predicate for the current transaction name.

CURRTRANIDOP(cvda)
   Returns a CVDA value that defines the operator that is used, together with the
value in the CURRTRANID option, to evaluate the application context predicate on
the current transaction name. Possible CVDA values are as follows:

   ALLVALUES
   The predicate always evaluates true; that is, there is no filtering based
   on the name of the current transaction.

   DOESNOTEQUAL
   The predicate evaluates true when the name of the transaction that is
   running is not equal to the value of the CURRTRANID option.

   DOESNOTSTART
   The predicate evaluates true when the name of the transaction that is
   running does not start with the value of the CURRTRANID option.

   EQUALS
   The predicate evaluates true when the name of the current transaction
is equal to the value of the CURRTRANID option.

   GREATERTHAN
   The predicate evaluates true when the name of the current transaction
is greater (that is, higher in the collating sequence of possible
transaction IDs) than the value of the CURRTRANID option.

   ISNOTGREATER
   The predicate evaluates true when the name of the current transaction
is equal to or less (that is, lower in the collating sequence of possible
transaction IDs) than the value of the CURRTRANID option.

   ISNOTLESS
   The predicate evaluates true when the name of the current transaction
is equal to or greater (that is, higher in the collating sequence of
possible transaction IDs) than the value of the CURRTRANID option.

   LESTHAN
   The predicate evaluates true when the name of the current transaction
is less (that is, lower in the collating sequence of possible transaction IDs) than the value of the CURRTRANID option.

STARTSWITH
The predicate evaluates true when the name of the current transaction starts with the value of the CURRTRANID option.

CURRUSERID(data-area)
Specifies an 8-character data area to receive the value specified by the application context predicate for the user ID that is associated with the current transaction.

CURRUSERIDOP(cvda)
Returns a CVDA value that defines the operator that is used, together with the value in the CURRUSERID option, to evaluate the application context predicate on the user ID. Possible CVDA values are as follows:

ALLVALUES
The predicate always evaluates true; that is, there is no filtering based on the user ID.

DOESNOTEQUAL
The predicate evaluates true when the user ID of the current user is not equal to the value of the CURRUSERID option.

DOESNOTSTART
The predicate evaluates true when the user ID of the current user does not start with the value of the CURRUSERID option.

EQUALS
The predicate evaluates true when the user ID of the current user is equal to the value of the CURRUSERID option.

GREATER THAN
The predicate evaluates true when the user ID of the current user is greater (that is, higher in the collating sequence of possible user IDs) than the value of the CURRUSERID option.

ISNOTE GREATER
The predicate evaluates true when the user ID of the current user is equal to or less (that is, lower in the collating sequence of possible user IDs) than the value of the CURRUSERID option.

ISNOTLESS
The predicate evaluates true when the user ID of the current user is equal to or greater (that is, higher in the collating sequence of possible user IDs) than the value of the CURRUSERID option.

LESSTHAN
The predicate evaluates true when the user ID of the current user is less (that is, lower in the collating sequence of possible user IDs) than the value of the CURRUSERID option.

STARTSWITH
The predicate evaluates true when the user ID of the current user starts with the value of the CURRUSERID option.

NUMDATAPRED(data-area)
Specifies a fullword binary field that is set to the number of application data predicates that are defined for this capture specification.
NUMINFOSRCE(data-area)
Specifies a fullword binary field that is set to the number of information
sources that are defined for this capture specification.

NUMOPTPRED(data-area)
Specifies a fullword binary field that is set to the number of application
command option or system event option predicates that are defined for this
capture specification. The total number of predicates includes the primary
predicate.

PRIMPRED(data-area)
Specifies a 32-character data area to receive the value of the primary predicate
for this capture specification. The primary predicate for a capture specification
is the predicate to specify with the EQUALS operator; it helps to avoid a
performance impact as more capture specifications are added for a particular
capture point. Blanks are returned if there is no named primary predicate
defined for this capture point.

PRIMPREDOP(cvda)
Returns a CVDA value that defines the operator that is used, together with the
value in the PRIMPRED option, to evaluate the primary predicate. Possible
CVDA values are as follows:

ALLVALUES
The predicate always evaluates true; that is, there is no filtering based
on the name of the resource for the command.

DOESNOTEQUAL
The predicate evaluates true when the resource that is specified by the
command is not equal to the value of the PRIMPRED option.

DOESNOTSTART
The predicate evaluates true when the resource that is specified by the
command does not start with the value of the PRIMPRED option.

EQUALS
The predicate evaluates true when the resource that is specified by the
command is equal to the value of the PRIMPRED option.

GREATER_THAN
The predicate evaluates true when the resource that is specified by the
command is greater than the value of the PRIMPRED option.

IS_NOT_GREATER
The predicate evaluates true when the resource that is specified by the
command is equal to or less than the value of the PRIMPRED option.

IS_NOT_LESS
The predicate evaluates true when the resource specified by the
command is equal to or greater than the value of the PRIMPRED option.

LESSTHAN
The predicate evaluates true when the resource that is specified by the
command is less than the value of the PRIMPRED option.

STARTS_WITH
The predicate evaluates true when the resource that is specified by the
command starts with the value of the PRIMPRED option.

PRIMPREDTYPE(cvda)
Returns a CVDA value that identifies the type of the primary predicate for this
capture specification. Possible CVDA values are as follows:
CONTAINER
   The primary predicate is a container.

CURRENTPGM
   The primary predicate is the current program name.

EVENT
   The primary predicate is a CICS event.

FILE
   The primary predicate is a CICS file.

MAP
   The primary predicate is a CICS basic mapping support (BMS) map.

NONE
   The capture specification has no primary predicate.

PROGRAM
   The primary predicate is a CICS program name.

SERVICE
   The primary predicate is a CICS service or a WEBSERVICE resource.

TDQUEUE
   The primary predicate is a CICS transient data queue.

TRANCLASS
   The primary predicate is a CICS transaction class name.

TRANSACTION
   The primary predicate is a CICS transaction identifier.

TSQUEUE
   The primary predicate is a CICS temporary storage queue.

INQUIRE DB2CONN

A new option REUSELIMIT is added:

REUSELIMIT(data-area)
   Returns a value in the range 0 - 10000 representing the maximum number of
   times a thread can be reused before it is terminated. The default is 1000. A
   value of 0 means that there is no limit on the number of times that a thread
   can be reused. Long-running CICS DB2 threads that are constantly being
   reused build up resources in DB2 that can cause storage problems.
   The reuse limit applies to unprotected threads both in the pool and on a
   DB2ENTRY, and to protected DB2ENTRY threads.

INQUIRE EVENTBINDING

A new option EPADAPTER is added:

EPADAPTER(data-area)
   Specifies the name (1 - 32 characters) of an EP adapter. You must specify this
   option to retrieve details of a particular EP adapter by name. On the browse
   form of this command, you must provide a 32-character data area to receive
   the name of the EP adapter.

INQUIRE EVENTPROCESS

A new option SCHEMLEVEL is added:
SCHEMASEVEL(*data-area*)

Returns a 4-character value (vvrr) indicating the highest version and release of event binding schema that is supported by CICS, where vv is the version and rr is the release; for example, 0201 indicates version 2 release 1 of the event binding schema.

INQUIRE FILE

A new option LSRPOOLNUM is added:

**LSRPOOLNUM(*data-area*) (VSAM only)**

Returns a fullword binary field indicating the number of the VSAM LSR pool associated with this file, in the range 1 through 255. If the file does not share buffers, the LSRPOOLNUM value is 0.

INQUIRE IPCCONN

A new option MIRRORLIFE is added:

**MIRRORLIFE(cvda)**

Returns the minimum lifetime of the mirror task for function-shipped file control, transient data, and temporary storage requests received by this region. CVDA values are as follows:

- **REQUEST**: The mirror task terminates as soon as possible. This is the default value.
- **TASK**: The mirror task remains available to the application that issues the remote request until the task of the application ends.
- **UOW**: The mirror transaction remains available to the application that issues the remote request until the next sync point is issued.

INQUIRE JVMPool

A new option PROFILEDIR is added:

**PROFILEDIR(*data-area*)**

Returns a 240-character data value of the directory on z/OS UNIX that contains the JVM profiles for CICS. This value is taken from the JVMPROFILEDIR system initialization parameter.

INQUIRE JVMSERVER

New options are added to report statistics on the JVM server:

**CURRENTHEAP(*data-area*)**

Returns a doubleword binary value indicating the current size of the heap in bytes that is allocated to the JVM server.

**GCPOLICY(*data-area*)**

Returns a 32-character value indicating the garbage collection policy that is being used by the JVM server.

**INITHEAP(*data-area*)**

Returns a doubleword binary value that indicates the initial size of the heap in bytes that is allocated to the JVM server. This value is set by the -Xms option in the JVM profile.
MAXHEAP(*data-area*)
Returns a doubleword binary value that indicates the maximum size of the heap in bytes that is allocated to the JVM server. This value is set by the *-Xmx* option in the JVM profile.

OCCUPANCY(*data-area*)
Returns a doubleword binary value that indicates the size of the heap in bytes after the last garbage collection ran in the JVM server.

PID(*data-area*)
Returns a fullword value that indicates the process ID (PID) of the JVM.

INQUIRE MQCONN

A new CVDA value GROUPRESYNC is added to the RESYNCMEMBER option:

GROUPRESYNC
CICS connects to any member of the queue-sharing group. The queue manager is chosen by WebSphere MQ and it asks CICS to resolve indoubt units of work on behalf of all eligible queue managers in the queue-sharing group. This function is called group unit of recovery.

INQUIRE PROGRAM

A new option JVMSERVER is added:

JVMSERVER(*data-area*) (Java programs only)
Returns the name of the JVM server in which this Java program runs. The name can be up to 8 characters in length.

A new CVDA value REQUIRED is added to the CONCURRENCY option:

REQUIRED
The program is defined as threadsafe, and must run on an open TCB. The type of open TCB used depends on the API setting.

INQUIRE TCPIPSERVICE

A new option MAXPERSIST is added:

MAXPERSIST(*data-area*)
Returns, in fullword binary form, the setting for the maximum number of persistent connections from web clients that the CICS region allows for this port at any one time. This setting applies only for the HTTP protocol. A null setting (-1) means that there is no limit on the number of persistent connections. A zero setting means that no persistent connections are allowed. A zero setting is not compliant with the HTTP/1.1 specification and must not be set in a CICS region that is handling external requests.

INQUIRE TSMODEL

A new option EXPIRYINT is added:

EXPIRYINT(*data-area*)
Returns a fullword binary field giving the expiry interval, in hours, for temporary storage queues matching this model. If a temporary storage queue is not referenced during its expiry interval, it becomes eligible to be deleted automatically by CICS. A value of zero means that no expiry interval applies to queues matching this model, so they are never eligible for automatic deletion.
CICS does not apply an expiry interval to recoverable, remote, or shared temporary storage queues, or temporary storage queues created by CICS.

**INQUIRE TSQUEUE / TSQNAME**

A new option `EXPIRYINT` is added:

```plaintext
EXPIRYINT(data-area)

Returns a fullword binary field that gives the expiry interval, in hours, that is defined for the temporary storage queue in its TSMODEL resource definition. If the temporary storage queue is not referenced during the expiry interval, it becomes eligible to be deleted automatically by CICS.

A value of zero means that no expiry interval applies to the temporary storage queue, so it is never eligible for automatic deletion. In addition, the following types of temporary storage queues are never deleted automatically by CICS, even if a nonzero expiry interval is set in the matching TSMODEL resource definition:

- Queues in auxiliary temporary storage that are defined as recoverable.
- Queues in a remote CICS region.
- Queues that CICS creates for its own use.
- Temporary storage queues in shared temporary storage pools.
```

**INQUIRE URIMAP**

New options `SOCKETCLOSE` and `SOCKPOOLSIZE` are added:

```plaintext
SOCKETCLOSE(data-area)

Returns, in fullword binary form, the maximum length of time in seconds that CICS keeps a client HTTP connection open for reuse after the CICS application has finished using it. If the value is 0, CICS does not keep connections open for reuse. This attribute is for USAGE(CLIENT). For other usage types, CICS returns a null value (-1).

SOCKPOOLSIZE(data-area)

Returns, in fullword binary form, the number of client HTTP connections that CICS is currently holding in a pool in a dormant state. The connections can be reused by any CICS application that connects as a Web client to the same host and port. This attribute is for USAGE(CLIENT). For other usage types, CICS returns a null value (-1).
```

**INQUIRE WEBSERVICE**

A new option `ARCHIVEFILE` is added:

```plaintext
ARCHIVEFILE(data-area)

Returns the name of an archive file that contains one or more WSDL files. The name can be up to 255 characters in length.
```

**SET DB2CONN**

A new option `REUSELIMIT` is added:

```plaintext
REUSELIMIT(data-value)

Specifies, as a fullword binary value, a value in the range 0 - 10000 representing the maximum number of times a thread can be reused before it is terminated. The default is 1000. A value of 0 means that there is no limit on the number of times that a thread can be reused.
```
The reuse limit applies to unprotected threads both in the pool and on a DB2ENTRY, and to protected DB2ENTRY threads.

**SET FILE**

A new option LSRPOOLNUM is added:

**LSRPOOLNUM**(data-value) (VSAM only)

Specifies, as a fullword binary value, the number of the LSR pool associated with this file. LSR pool IDs are in the range 1 through 255.

If the file cannot share buffers, set this value to 0.

For a CICS-maintained or user-maintained data table, the value must be 1 or greater. Both these types of CICS shared data tables must use LSR access mode (unless the file is defined to be opened in RLS access mode).

For a coupling facility data table, you can set this value to 0.

**SET MQCONN**

A new value GROUPRESYNC is added to the RESYNCMEMBER option:

**GROUPRESYNC**

CICS connects to any member of the queue-sharing group. The queue manager is chosen by WebSphere MQ and it asks CICS to resolve indoubt units of work on behalf of all eligible queue managers in the queue-sharing group. This function is called group unit of recovery. The GROUPRESYNC option can be used only when you are running a release of WebSphere MQ that supports group unit of recovery for CICS and when the GROUPUR attribute has been enabled in the WebSphere MQ queue managers.

When an attempt is made to connect CICS to WebSphere MQ by using an EXEC CICS SET MQCONN CONNECTED command and RESYNCMEMBER(GROUPRESYNC) is set but WebSphere MQ does not support group unit of recovery, or group unit of recovery is not enabled, then WebSphere MQ rejects the connection attempt. The connection attempt results in the SET command failing with INVREQ and RESP2=9 (connection error).

Do not change the setting for RESYNCMEMBER when units of work are outstanding in WebSphere MQ because this means that units of work cannot be resolved. A unit of work held in CICS is identified with a resource manager qualifier. When RESYNCMEMBER(GROUPRESYNC) is used the qualifier is the name of the queue-sharing group, otherwise the qualifier used is the name of the individual queue manager.

**Resource signature options added to INQUIRE SPI command**

The INQUIRE command has new options to support the resource signature.

**Changed command, INQUIRE**

The definition and installation signature options are added to the INQUIRE command for the following resource types:

ATOMSERVICE
The list of possible values for each resource type CHANGEAGENT and INSTALLAGENT can vary and depends on how the resource was defined and installed. For details of a specific INQUIRE command, see the CICS System Programming Reference.

**CHANGEAGENT(cvda)**
Returns a CVDA value that identifies the agent that made the last change to the resource definition. The possible values are as follows:

**AUTOINSTALL**
The resource was autoinstalled.

**AUTOINSTALL**
The resource was autoinstalled as a result of specifying an initiation queue name on a CKQC START command, and the previously installed MQCONN definition did not specify a value for INITQNAME.
CREATESPI
The resource definition was last changed by an `EXEC CICS CREATE` command.

CSDAPI
The resource definition was last changed by a CEDA transaction or the programmable interface to DFHEDAP.

CSDBATCH
The resource definition was last changed by a DFHCSDUP job.

DREPAPI
The resource definition was last changed by a CICSPlex SM BAS API command.

DYNAMIC
The resource definition was last changed by a PIPELINE scan.

DYNAMIC
The resource was defined as a result of the installation of a DB2ENTRY with TRANSID specified.

DYNAMIC
The resource was defined by the CICS scanning mechanism.

DYNAMIC
The resource was defined by the CICS system for a template being used through the CICS template manager, DFHWBTL.

DYNAMIC
The resource was defined by an ATOMSERVICE resource.

DYNAMIC
The resource was defined as a result of an MQCONN resource definition with INITQNAME specified.

SYSTEM
The resource definition was last changed by the CICS or CICSPlex system.

TABLE
The resource definition was last changed by a table definition.

CHANGEAGREL(*data-area*)
Returns a 4-digit number of the CICS release that was running when the resource definition was last changed.

CHANGETIME(*data-area*)
Returns an ABSTIME value that represents the time stamp when the resource definition was last changed. For more information about the format of the ABSTIME value, see `FORMATTIME` in CICS Application Programming.

CHANGEUSRID(*data-area*)
Returns the 8-character user ID that ran the change agent.

DEFINETIME(*data-area*)
Returns an ABSTIME value that represents the time stamp when the resource definition was created.

DEFINESOURCE(*data-area*)
Returns the 8-character source of the resource definition. The DEFINESOURCE value depends on the CHANGEAGENT value. For more information, see the Summary of the resource signature field values in the Resource Definition Guide.
INSTALLAGENT(*cvda*)

Returns a CVDA value that identifies the agent that installed the resource. The possible values are as follows:

**AUTOINSTALL**
The resource was autoinstalled.

**AUTOINSTALL**
The resource was autoinstalled as a result of specifying an initiation queue name on a CKQC START command, and the previously installed MQCONN definition did not specify a value for INITQNAME.

**BUNDLE**
The resource was installed by a bundle deployment.

**CREATESPI**
The resource was installed by an EXEC CICS CREATE command.

**CSDAPI**
The resource was installed by a CEDA transaction or the programmable interface to DFHEDAP.

**DYNAMIC**
The resource was installed by using a PIPELINE scan.

**DYNAMIC**
The resource was installed as a result of the installation of a DB2ENTRY with TRANSID specified.

**DYNAMIC**
The resource was installed by the CICS scanning mechanism.

**DYNAMIC**
The resource was installed by the CICS system for a template being used through the CICS template manager, DFHWBTL.

**DYNAMIC**
The resource was installed as a result of the installation of an MQCONN with INITQNAME specified.

**DYNAMIC**
The resource was installed by an ATOMSERVICE resource.

**GRPLIST**
The resource was installed by GRPLIST INSTALL.

**SYSTEM**
The resource was installed by the CICS or CICSPlex SM system.

**TABLE**
The resource was installed by using a table definition.

INSTALLTIME(*data-area*)

Returns an ABSTIME value that represents the time stamp when the resource was installed.

INSTALLUSRID(*data-area*)

Returns the 8-character user ID that installed the resource.

### New options or values on SPI commands in CICS TS 4.1

These system programming interface commands were changed in CICS Transaction Server for z/OS, Version 4 Release 1.
CREATE TCPIPSERVICE

A new option, HOST, replaces IPADDRESS for new programs:

\[ \text{HOST} \left( \{ \text{ANY} | \text{DEFAULT} | \text{hostname} \} \right) \]

Specifies the 116-character IPv4 or IPv6 address or host name on which CICS listens for incoming connections. Use HOST instead of IPADDRESS when you define new resources. Do not specify both HOST and IPADDRESS, because HOST always takes precedence over IPADDRESS. IPADDRESS is supported for existing programs that specify IPv4 function.

Possible values are as follows:

**ANY**  
The ANY option has the same function as the ANY and INADDR_ANY options of IPADDRESS. The ANY option specifies that CICS listens on any of the addresses known to TCP/IP for the host system. You can have multiple IP addresses defined for a host. By specifying ANY, you also allow for the TCPIPSERVICE definition to be shared among CICS servers. If you specify ANY, CICS attempts to bind to the port on every stack where it is defined. If, in addition, you want more than one CICS region to bind to the port, you must specify the SHAREPORT option in every stack where the port is defined. If you do not do so, only one CICS region can bind to the port number in those stacks that do not have the SHAREPORT option. Subsequent attempts by other regions to bind to every stack fail, and CICS issues a message indicating that the port is in use.

If you specify the ANY option in a dual-mode (IPv4 and IPv6) environment, CICS attempts to reuse the most recent IPv4 or IPv6 address. If this is the first connection, and CICS cannot retrieve an address, 0.0.0.0 is returned, and no affinity is assigned.

**DEFAULT**  
The DEFAULT option assigns affinity to the TCP/IP stack that has been defined as the default in a multistack CINET environment.

If the DEFAULT option is used in a dual-mode (IPv4 and IPv6) environment, affinity is assigned to the IPv4 environment, because the DEFAULT option is applied to the IPv4 environment.

If DEFAULT is used in a non-CINET environment or no default TCP/IP stack exists, an exception trace is written, 0.0.0.0 is returned, and no affinity is assigned.

If you are operating in a dual-mode (IPv4 and IPv6) environment, specifying HOST(DEFAULT) forces all traffic to pass across the IPv4 network connection.

**hostname**  
hostname can be a character host name, an IPv4 address, or an IPv6 address.

You can specify an address as a character name that can be looked up on the domain name server. The host name can be entered in uppercase, lowercase, or mixed case, but if a host name is specified instead of an IP address, the host name is converted to lowercase in the TCPIPSERVICE definition.

Do not use a character host name if you have a list of addresses at the domain name server, because hostname resolves against the first IP address only in the list (that is, the server does not listen on any of the
IP addresses in the list for this host name). If you require a particular IP address in a list at the domain name server, define the IP address explicitly in hostname.

If you specify an IPv6 address (or a host name that resolves to an IPv6 address), ensure that you are operating in a dual-mode (IPv4 and IPv6) environment and that the client or server that you are communicating with is also operating in a dual-mode (IPv4 and IPv6) environment. For more information about IPv6, see the CICS Internet Guide.

You can specify IPv4 and IPv6 addresses in a number of acceptable formats. See IP addresses in the Internet Guide for more information about address formats.

**INQUIRE ASSOCIATION**

A new option, CLIENTLOC, returns information about z/OS Communication Server socket options. A new option, SRVRIPFAMILY, replaces the IPFAMILY option for new programs. A new option, CLNTIPFAMILY, is also available. The ODIPFAMILY option now includes IPv6 values. The CLIENTIPADDR, ODCLNTIPADDR, and SERVERIPADDR options now return IPv6 addresses. New options, DNAME and REALM, display the distinguished name and realm name returned for the specified task.

**CLIENTIPADDR(data-area)**

Returns, into a 39-character area, the IP address of the TCP/IP client that requested this task to start. When the CLNTIPFAMILY option returns IPV4, the returned address is a 15-character dotted decimal IPv4 address, padded with blanks. When CLNTIPFAMILY returns IPV6, the address returned is a 3- to 39-character colon hexadecimal IPv6 address, padded with blanks. If this task was not started from a TCP/IP client, CLIENTIPADDR returns 0.0.0.0 and CLNTIPFAMILY returns NOTAPPLIC. If the source of this task has not yet been determined, CLIENTIPADDR returns 0.0.0.0 and CLNTIPFAMILY returns UNKNOWN.

**CLIENTLOC(data-area)**

Returns a 32-character area that represents the SO_CLUSTERCONNTYPE socket option returned by z/OS Communications Server for the facility in the FACILNAME option. The binary format of SO_CLUSTERCONNTYPE is converted to characters in CLIENTLOC and displayed as either zeros or ones. The CLIENTLOC option represents the current socket, unless the value in the FACILTYPE option is IPIC, in which case CLIENTLOC is taken from the CLIENTLOC value for the IPCONN. For details, see [INQUIRE IPCONN](#). For a description of SO_CLUSTERCONNTYPE and an explanation of the bit settings, see [z/OS Communications Server: IP Sockets Application Programming Interface Guide and Reference](#).

**CLNTIPFAMILY(cvda)**

Returns a value indicating the form of TCP/IP addressing used by this task. The CVDA values are as follows:

- **IPV4** The address is specified in IPv4 dotted decimal address format.
- **IPV6** The address is specified in IPv6 colon hexadecimal address format.
- **NOTAPPLIC** 0.0.0.0 is specified in the CLIENTIPADDR option and the task was not started from a TCP/IP client.

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UNKNOWN
0.0.0.0 is specified in the CLIENTIPADDR option and the source of
this task has not yet been determined.

DNAME(data-area)
Returns the 1- to 246-character distinguished name padded with trailing ASCII
blanks. Distinguished names are represented in UTF-8 encoding. If a
distinguished name is not available for the task, DNAME returns ASCII blanks.

ODCLNTIPADDR(data-area)
Returns, into a 39-character area, the IP address of the TCP/IP client
that requested the originating task to start. When ODIPFAMILY returns IPV6, the
address returned is a 3- to 39-character colon hexadecimal IPv6 address,
padded with blanks. If the originating task was not started from a TCP/IP client, ODCLNTIPADDR returns 0.0.0.0 and ODIPFAMILY returns NOTAPPLIC.
If this task was not started from a TCP/IP client, ODCLNTIPADDR returns 0.0.0.0. If the source of this task has not yet been determined,
ODCLNTIPADDR returns 0.0.0.0 and ODIPFAMILY returns UNKNOWN.

ODIPFAMILY(cvda)
Returns a value indicating the form of TCP/IP addressing used by the
originating task. CVDA values are as follows:

IPV4 The address is specified in IPv4 dotted decimal address format.
IPV6 The address is specified in IPv6 colon hexadecimal address format.
NOTAPPLIC 0.0.0.0 is specified in the ODCLNTIPADDR option and the task was
not started from a TCP/IP client.
UNKNOWN 0.0.0.0 is specified in the ODCLNTIPADDR option and the source of
the task has not been determined.

REALM(data-area)
Returns the 1- to 255-character realm name in UTF-8 encoding, padded with
trailing ASCII blanks. The realm is a component of a distributed identity and
defines the region where a security ID applies.

SERVERIPADDR(data-area)
Returns, into a 39-character area, the IP address of the TCP/IP service that
scheduled this task. When the IPFAMILY option returns IPV4, the returned
address is a 15-character dotted decimal IPv4 address, padded with blanks.
When SRVRIPFAMILY returns IPV6, it is a 3- to 39-character colon hexadecimal
IPv6 address, padded with blanks. If this task was not started from a TCP/IP service, SERVERIPADDR returns 0.0.0.0 and SRVRIPFAMILY returns NOTAPPLIC.
If the source of this task has not yet been determined,
SERVERIPADDR returns 0.0.0.0 and SRVRIPFAMILY returns UNKNOWN.

SRVRIPFAMILY(cvda)
Replaces the IPFAMILY option. SRVRIPFAMILY returns a value indicating the
form of IP addressing used by this task. CVDA values are as follows:

IPV4 The address is specified in IPv4 dotted decimal address format.
IPV6 The address is specified in IPv6 colon hexadecimal address format.
NOTAPPLIC 0.0.0.0 is specified in the SERVERIPADDR option and the task was
not started from a TCP/IP client.
UNKNOWN
0.0.0.0 is specified in the SERVERIPADDR option and the source of the task has not been determined.

INQUIRE ASSOCIATION LIST

New options, DNAME and REALM, display the distinguished name search filter and realm name returned for the specified list of tasks. New filtering options apply to the DNAME and REALM options. New options, DNAMELEN and REALMLEN, display the length of the distinguished name search filter and realm name fields.

DNAME(data-value)
Specifies UTF-8 character field, up to a maximum of 246 characters, including 2 characters for opening and closing parentheses. You must specify parentheses in the DNAME option. DNAME is a filter to return a list of distinguished names for the realm specified in the REALM option. Distinguished names are represented in UTF-8 encoding, therefore null values are represented with ASCII blanks. An empty list is returned if you specify this option and you do not have the correct z/OS release.

The following search forms are accepted:
(attr=value)
(attr=value*)

where:
• attr is the first attribute in the distinguished name for the realm, specified in the REALM option. This attribute is case-sensitive.
• value is the first value in the distinguished name, which can be a generic name if value* is specified. * represents zero or more characters. This attribute is case-sensitive.

For example, if a distinguished name is in the following format:
CN=John Smith
the search argument can be in this format:
(CN=John Smith)

or a generic form can be in this format:
(CN=John S*)

If a generic filter, for example, (CN=*), is specified, only the tasks that have distinguished names with the first attribute specified are included.

If you are filtering on a name that is greater than 244 characters in length, you must use a generic filter.

If value is not specified, or DNAME is not set, all distinguished names for the specified realm are included.

DNAMELEN(data-value)
Specifies the length of the DNAME option. DNAMELEN is a numeric value, up to a maximum of 246.

REALM(data-value)
Specifies the realm name in UTF-8 encoding, therefore null values are represented with ASCII blanks. The realm is a component of a distributed identity and defines the region where a security ID applies. If you are using WebSphere Application Server, the realm name can be the service that provides
access to the registry where the user is defined. The LDAP server configuration
listen statement provides the realm name in URL format.

An empty list is returned if you specify this option and you do not have the
correct z/OS release.

If a value is not specified, or REALM is not set, all realms are included.

**REALMLEN(data-value)**
Specifies the length of the REALM option. REALMLEN is a numeric value, up
to a maximum of 255.

**INQUIRE CORBASERVER**

The HOST option now allows IPv6 addresses and a new option, HOSTTYPE,
returns the format of the contents of the HOST option. A new option,
IPRESOLVED, returns the IP address of the host and a new option, IPFAMILY,
returns the format of the IPRESOLVED option.

**HOST(data-area)**
Returns a 255-character area, containing the IP host name or a string
containing the dotted decimal or colon hexadecimal IP address, which is
included in Interoperable Object References (IORs) exported from the
CorbaServer. HOST displays all IPv4 addresses as native IPv4 dotted decimal
addresses; for example, 1.2.3.4, regardless of the type of address format used.
You can specify IPv4 and IPv6 addresses in a number of acceptable formats.
See IP addresses in the Internet Guide for more information on address
formats.

HOST displays the defined host name, IPv4, or IPv6 address.
HOST is specified in the resource definition.

**HOSTTYPE(cvda)**
Returns the address format of the HOST option. HOSTTYPE is set by the
domain when the CorbaServer is installed. CVDA values are as follows:

- **HOSTNAME**
  The HOST option contains a character host name. The IP address that
corresponds to the host name is looked up in the domain name server.

- **IPV4**
  The address is specified in IPv4 dotted decimal address format.

- **IPV6**
  The address is specified in IPv6 colon hexadecimal address format.

- **NOTAPPLIC**
  An incorrect host address was returned (HOST=0.0.0.0).

**IPFAMILY(cvda)**
Returns the address format of the IPRESOLVED option. CVDA values are as
follows:

- **IPV4**
  The address is specified in IPv4 dotted decimal address format.

- **IPV6**
  The address is specified in IPv6 colon hexadecimal address format.

- **UNKNOWN**
  IPRESOLVED is not yet in use or the address cannot be resolved.
  UNKNOWN is the default when IPRESOLVED is 0.0.0.0

**IPRESOLVED(data-area)**
Returns a 39-character field that specifies the IPv4 or IPv6 address of the HOST
option. If the CorbaServer is installed but not enabled, or the address cannot
be resolved, a default value of 0.0.0.0 is returned. After the CorbaServer is
enabled, IPRESOLVED displays the last resolved IP address that was used by the CorbaServer resource. IPRESOLVED is reset to 0.0.0.0 when the resource is disabled. The content of IPRESOLVED is not recoverable after a warm or emergency restart.

**INQUIRE DISPATCHER**

Two new options are added:

ACTTHRDTCBS\((data-area)\)
Returns a fullword binary field giving the total number of T8 mode open TCBs currently allocated to the enabled JVM servers.

The T8 mode TCBs are allocated from a pool of open TCBs that CICS attaches up to the maximum set by the JVMSERVER resource definition. One pool is used by one JVM server. CICS dispatcher maintains the pools of T8 mode TCBs for use in the JVM server runtime environment.

MAXTHRDTCBS\((data-area)\)
Returns a fullword binary field giving the maximum number of T8 mode open TCBs that CICS can attach and maintain for all JVM servers. CICS calculates the maximum number by adding one TCB for each JVM server to the value of the THREADLIMIT attribute from all the enabled and disabled JVMSERVER resources. The value of MAXTHRDTCBS cannot exceed 1024.

The difference between MAXTHRDTCBS and ACTTHRDTCBS represents the number of TCBs that are free. If you initialize another JVM server, one TCB is reserved for the JVM server.

**INQUIRE IPCONN**

The HOST option is updated and new options, HOSTTYPE, IPRESOLVED, IPFAMILY, return IPv6 information. A new option, CLIENTLOC, returns information about z/OS Communications Server socket options, and a new option, PARTNER, returns information about the product token of a partner system. A new option, IDPROP, displays whether the sender will include the distributed identity in attach requests over the IPIC connection.

CLIENTLOC\((data-area)\)
Returns a 32-character area that represents an evaluation of the SO_CLUSTERCONNTYPE options returned by z/OS Communications Server, for all the sockets used by the IPIC connection. For a description of SO_CLUSTERCONNTYPE and an explanation of the bit settings, see [z/OS Communications Server: IP Sockets Application Programming Interface Guide and Reference](https://www.ibm.com/support/knowledgecenter/SSFKST_8.5.0/com.ibm.zos.v8r5.boc5100/aixboccom/tclnt.htm). Multiple sockets might provide the IPIC connection with a number of different paths to the partner system. Each character in CLIENTLOC is displayed as either zero or one. CLIENTLOC represents the most diverse route between the CICS region and its partner system.

HOST\((data-area)\)
Returns the 116-character host name of the remote system or its IPv4 or IPv6 address. The HOST option can be a character host name, an IPv4 address, or an IPv6 address. HOST is specified in the resource definition. HOST displays all IPv4 addresses as native IPv4 dotted decimal addresses, for example, 1.2.3.4, irrespective of which type of address format is used. You can specify IPv4 and IPv6 addresses in a number of acceptable formats. See [IP addresses in the Internet Guide](https://www.ibm.com/support/knowledgecenter/SSFKST_8.5.0/com.ibm.zos.v8r5.boc5100/aixboccom/sadcvis.html) for more information on address formats.
HOSTTYPE(cvda)
Returns the address format of the HOST option. HOSTTYPE is set by the domain when the IPIC connection is installed. CVDA values are as follows:

HOSTNAME
The HOST option contains a character host name. The IP address that corresponds to the host name is looked up in the domain name server.

IPV4
The address is an IPv4 address.

IPV6
The address is an IPv6 address.

NOTAPPLIC
An incorrect host address was returned (HOST=0.0.0.0).

IDPROP(cvda)
Indicates whether the sender includes the distributed identity in requests over the IPIC connection. The IDPROP option is meaningful only if a connection extends outside a sysplex and is used primarily to prevent distributed identities being transmitted between enterprises. If the connection is between systems in the same sysplex, the value returned by this option is ignored, and the connection operates as if IDPROP(OPTIONAL) is specified.

CDVA values are as follows:

NOTALLOWED
A user ID associated with the sending transaction is sent for requests using this connection. NOTALLOWED is the default value.

OPTIONAL
A distributed identity is sent, if available. The user ID associated with the sending transaction is also sent.

REQUIRED
A distributed identity is required for requests using this connection. If REQUIRED is specified, the receiving system must support distributed identities. The user ID associated with the sending transaction is not sent.

IPFAMILY(cvda)
Returns the address format of the IPRESOLVED option. IPFAMILY is set only when the IPIC connection is acquired. CDVA values are as follows:

IPV4
The address is specified in IPv4 dotted decimal address format.

IPV6
The address is specified in IPv6 colon hexadecimal address format.

UNKNOWN
The IPRESOLVED option is not yet in use or the address cannot be resolved. UNKNOWN is the default when IPRESOLVED is 0.0.0.0.

IPRESOLVED(data-area)
Returns a 39-character field that specifies the IPv4 or IPv6 address of the HOST option. If the IPCCONN resource has not yet been acquired or has been released, or the address cannot be resolved, a default value of 0.0.0.0 is returned. After the IPIC connection is acquired, IPRESOLVED displays the last resolved IP address that was used by the IPCCONN resource. IPRESOLVED is reset to 0.0.0.0 when the resource is out of service and released. The content of IPRESOLVED is not recoverable after a warm or emergency restart.

PARTNER(data-area)
Returns a 64-character field indicating the product token of the partner system. The field is blank when the connection is not acquired or if the partner system
does not indicate a product type when the connection is established. For example, the partner system is IBM_CICS_Transaction_Server/4.1.0(zOS) for a CICS TS 4.1 partner.

**INQUIRE MONITOR**

The default setting for the COMPRESSST option has changed. Data compression is now the default option. A new option, DPLLIMIT, returns the maximum number of DPL requests allowed for transaction resource monitoring. A new option, IDNTYCLASS, specifies whether identity class monitoring is enabled.

**COMPRESSST**(cvda)
Returns a CVDA value indicating whether data compression is active for the CICS SMF 110 monitoring records produced by the CICS monitoring facility. CVDA values are as follows:

- **COMPRESS**
  Data compression is being performed for the monitoring records. Data compression is the default.

- **NOCOMPRESS**
  Data compression is not being performed for the monitoring records.

**DPLLIMIT**(data-area)
Returns the maximum number of distributed program link requests for which CICS is to perform transaction resource monitoring.

**IDNTYCLASS**(cvda)
Returns a CVDA value indicating whether the identity class of monitoring data is recorded when monitoring is active. CVDA values are as follows:

- **IDNTY**
  Identity data is recorded.

- **N OIDNTY**
  Identity data is not recorded.

**INQUIRE SYSTEM**

A new MQCONN option is added:

**MQCONN**(data-area)
Returns the 1- to 8-character name of the MQCONN resource definition that is currently installed for the CICS region, or blanks if no MQCONN definition is currently installed. Only one MQCONN definition can be installed at a time. The MQCONN resource definition specifies the attributes of the connection between CICS and WebSphere MQ.

**INQUIRE TCPIPSERVICE**

A new option, HOST, returns the host name, IPv4, or IPv6 address of the remote system, which replaces the IPADDRESS option for new programs. A new option, HOSTTYPE, returns the format of the contents of the HOST option or of the IPADDRESS option, if HOST is not specified. A new option, IPRESOLVED, returns the IP address of the host and a new option, IPFAMILY, returns the format of the IPRESOLVED option.

**HOST**(data-area)
Returns the 116-character host name of the remote system or its IP address.
HOST displays character host name, an IPv4 address, an IPv6 address, ANY, or DEFAULT. The HOST option provides the same function as IPADDRESS for defined hostnames and defined IPv4 addresses, but also supports defined IPv6 format addresses. However, it differs from IPADDRESS in that DEFAULT and ANY are returned instead of an IP address, because this information is available in IPRESOLVED. If you are using IPv6 connections, use the HOST option for your queries, instead of IPADDRESS. HOST displays all IPv4 addresses as native IPv4 dotted decimal addresses; for example, 1.2.3.4, regardless of the type of address format used.

You can specify IPv4 and IPv6 addresses in a number of acceptable formats. See [IP addresses in the Internet Guide](#) for more information about address formats.

HOST is specified in the resource definition.

**HOSTTYPE(cvda)**

Returns the address format of HOST, or if HOST is not specified the IPADDRESS option. HOSTTYPE is set by the domain when the TCPIPSERVICE is installed. The CVDA values are as follows:

- **ANY** The ANY option is specified for the HOST option.
- **DEFAULT** The DEFAULT option is specified for the HOST option.
- **HOSTNAME** The HOST option contains a character host name. The IP address that corresponds to the host name is looked up in the domain name server.
- **IPV4** The HOST option contains a dotted decimal IPv4 address.
- **IPV6** The HOST option contains a colon hexadecimal IPv6 address.
- **NOTAPPLIC** 0.0.0.0 is specified in the HOST option.

**IPFAMILY(cvda)**

Returns the address format of the IPRESOLVED option. The CVDA values are as follows:

- **UNKNOWN** IPRESOLVED is not yet used or the address cannot be resolved. UNKNOWN is the default when IPRESOLVED is 0.0.0.0.
- **IPV4** The IPRESOLVED option contains a dotted decimal IPv4 address.
- **IPV6** The IPRESOLVED option contains a colon hexadecimal IPv6 address.

**IPRESOLVED(data-area)**

Returns, in a 39-character area, the IPv4, or IPv6 address of the HOST option. If the OPENSTATUS option is not set to OPEN, or the address cannot be resolved, a value of 0.0.0.0 is returned. If the HOST option is set to ANY, IPRESOLVED always returns the IPv4 address for the system on which CICS is running, even if other IPv4 or IPv6 addresses are available.

The content of IPRESOLVED is not recoverable after a warm or emergency restart.

**INQUIRE TERMINAL**

New option REMOTESYSTEM is added. The REMOTESYSTEM option now provides information about IP connections.
**REMTESYSTEM**(data-area)

Returns the first four characters of a connection, if the subject of the inquiry is a remote terminal. The named connection can be either a connection entry that links towards the TOR or an indirect connection that provides the netname of the TOR.

Otherwise this field is blank.

**INQUIRE TRACETYPE**

A new option FLAGSET is added:

**FLAGSET**(cvda)

Indicates whether the standard or special flags for the specified component are to be returned. CVDA values are as follows:

- **SPECIAL**
  Indicates that CICS returns the trace levels for special tracing.

- **STANDARD**
  Indicates that CICS returns the trace levels for standard tracing.

**INQUIRE TRANSACTION**

The REMOTESYSTEM option now provides information about IP connections.

**REMTESYSTEM**(data-area)

Returns the first four characters of the remote system on which this transaction is defined, if it is defined as a remote transaction.

If the remote transaction is defined as DYNAMIC=YES, and the REMOTESYSTEM option is omitted, CICS returns the name of the local region.

Blanks are returned if the transaction is not remote.

**INQUIRE URIMAP**

A new option, AUTHENTICATE, provides information about whether the host specified in the USAGE(CLIENT) URIMAP resource requires authentication.

**AUTHENTICATE**(cvda)

Returns a CVDA value indicating whether to provide authentication information to a web services provider. CVDA values are as follows:

- **BASICAUTH**
  The web services provider requires HTTP basic authentication. You can supply credentials to the web services requester (a user ID and password) to the global user exit, XWBAUTH, which, if enabled, sends the credentials to the web services provider.

- **NOAUTHENTIC**
  The web services provider does not require authentication.

A new option, ATOMSERVICE, returns the resource definition name for an Atom feed. The USAGE option has a new value, ATOM.

**ATOMSERVICE**(data-area)

Returns the 1- to 8-character name of an ATOMSERVICE resource definition for an Atom feed. The ATOMSERVICE resource definition defines an Atom service, feed, collection, or category document, and identifies the Atom
configuration file, CICS resource or application program, and XML binding that are used to supply the data for the feed. This attribute is for USAGE(ATOM).

**USAGE(cvda)**

Returns a CVDA value indicating the purpose of this URIMAP definition.

**ATOM**

A URIMAP definition for an Atom feed. This type of URIMAP definition is used for an incoming request for data that CICS makes available as an Atom feed. The URIMAP definition maps the request URI to an ATOMSERVICE resource definition, which defines an Atom document.

The HOST option now allows IPv6 addresses and a new option, HOSTTYPE, returns the format of the contents of the HOST option. A new option, IPRESOLVED, returns the IP address of the host and a new option, IPFAMILY, returns the format of the IPRESOLVED option. A new option, PORT, returns the port number used for the connection.

**HOST(data-area)**

Returns the 116-character host name or its IPv4 or IPv6 address. The HOST option can be a character host name, an IPv4 address, or an IPv6 address. HOST is specified in the resource definition. HOST displays all IPv4 addresses as native IPv4 dotted decimal addresses, for example, 1.2.3.4, regardless of the type of address format used. You can specify IPv4 and IPv6 addresses in a number of acceptable formats. See [IP addresses in the Internet Guide](#) for more information about address formats.

For USAGE(CLIENT), the port number is also displayed in the HOST option if HOST contains a native IPv4 address or a host name; however, if you specify a hostname that is greater than 110 characters in length, port information is not displayed in the HOST option. This rule also applies if you specify an IPv4 address in IPv6 format. Use the PORT option to view the port number.

**HOSTTYPE(cvda)**

Returns the address format of the HOST option. HOSTTYPE is set by CICS when the URIMAP is installed. CVDA values are as follows:

**HOSTNAME**

The HOST option contains a character host name. The IP address that corresponds to the host name is looked up in the domain name server.

**IPV4**

The address is specified in IPv4 dotted decimal address format.

**IPV6**

The address is specified in IPv6 colon hexadecimal address format.

**NOTAPPLI**

An incorrect host address was returned (HOST=0.0.0.0 or HOST=*) or the HOSTTYPE option is used with URIMAP(ATOM), URIMAP(PIPELINE), or URIMAP(SERVER).

**IPFAMILY(cvda)**

Returns the address format of the IPRESOLVED option. CVDA values are as follows:

**IPV4**

The address is specified in IPv4 dotted decimal address format.

**IPV6**

The address is specified in IPv6 colon hexadecimal address format.

**UNKNOWN**

IPRESOLVED is not yet in use or the address cannot be resolved.
UNKNOWN is the default when IPRESOLVED is 0.0.0.0, or if the IPFAMILY option is used with URIMAP(ATOM), URIMAP.PIPELINE), or URIMAP(SERVER).

**IPRESOLVED(data-area)**

Returns a 39-character field that specifies the IPv4 or IPv6 address of the HOST option. This attribute is for all types except USAGE(SERVER). If the URIMAP is installed but has not yet been used to establish a connection, or the address cannot be resolved, a default value of 0.0.0.0 is returned. When the URIMAP establishes a connection, IPRESOLVED displays the resolved IP address that was used by the resource to connect. IPRESOLVED is reset to 0.0.0.0 when the resource is disabled. The content of IPRESOLVED is not recoverable after a warm or emergency restart.

**PORT(value)**

Displays the numeric port number value used by USAGE(CLIENT) for the connection to the server, in the range 1 - 65535. The port number is also displayed in the HOST option if HOST contains a native IPv4 address or a host name. For USAGE(CLIENT), the PORT attribute always contains the port number that is being used for the communication, even if PORT(NO) is specified on the URIMAP at define time. For USAGE(ATOM), USAGE(SERVER), or USAGE.PIPELINE), the PORT option displays {}.

**INQUIRE VTAM**

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**Note:** VTAM is now the z/OS Communications Server.

A new option PSTYPE is added:

**PSTYPE(cvda)**

Returns a CVDA value indicating the type of Communications Server persistent sessions support for the CICS region. CVDA values are as follows:

- **SNPS** Single-node persistent sessions. Communications Server sessions can be recovered after a CICS failure and restart.
- **MNPS** Multinode persistent sessions. Communications Server sessions can also be recovered after a Communications Server or z/OS failure in a sysplex.
- **NOPS** Communications Server persistent sessions support is not used for this CICS region.

**INQUIRE WORKREQUEST**

A new option, CLNTIP6ADDR, replaces the CLIENTIPADDR option for new programs. A new option, CLNTIPFAMILY, indicates the address type returned in CLNTIP6ADDR and CLIENTIPADDR. A new option, TARGETSYS, returns the APPLID of the target CICS system, replacing the TSYSTEM option. A new option, TSYSTYPE, returns the format of the IP address returned in TSYSTEM or TARGETSYS.

**CLNTIPFAMILY(cvda)**

Returns a value indicating the form of TCP/IP addressing used by this task. Here are the values:

- **IPV4** The CLIENTIPADDR and CLIENTIP6ADDR options contain a dotted decimal IPv4 address.
IPV6  The CLNTIP6ADDR option contains a colon hexadecimal IPv6 address.

NOTAPPLIC  
No entry is specified in the CLIENTIPADDR or CLNTIP6ADDR option.

CLNTIP6ADDR(data-area)  
Returns, into a 39-character area, the colon hexadecimal IPv6 address of the TCP/IP client that originated the request. If the client address is in IPv4 format, the dotted decimal IPv4 address is returned.

TARGETSYS(data-area)  
Returns the applid of the target CICS system as a 50-byte field. This field can contain one of the following values:

- The colon hexadecimal TCP/IP address and port number of the target system, in the format [::a:b:c:d]:port where [] are X'BA' & X'BB' (code page 37).
- The dotted decimal TCP/IP address and port number of the target system.
- The z/OS Communications Server applid of the target system. The applid can be up to 8 characters followed by blanks.
- A string of blank characters indicating that the target system is not CICS over MRO or that the target system is not CICS over TCP/IP, or that an error has occurred.
- A different value, which CICS captures but does not translate.

The TARGETSYS option returns the same information as TSYSTEM, but can also return an IPv6 format address. If TARGETSYS returns an IPv4 address, this address is also returned in TSYSTEM; otherwise, TSYSTEM returns 0.0.0.0:0.

If you are using IPv6 connections, you must use the TARGETSYS option for your queries, instead of TSYSTEM.

TSYSTYPE(cvda)  
Returns a value indicating the form of TCP/IP addressing used by this task. CVDA values are as follows:

- IPV4  The TSYSTEM and TARGETSYS options contain a dotted decimal IPv4 address and a port.
- IPV6  The TARGETSYS option contains a colon hexadecimal IPv6 address and a port. This value is returned only if an IPv6 address is returned in the TARGETSYS option.
- APPLID  The TSYSTEM and TARGETSYS options contain an APPLID.
- NOTAPPLIC  No entry is specified in the TSYSTEM or TARGETSYS option. Blanks or a different value are returned.

SET MONITOR  
New options DPLLIMIT, FILELIMIT, IDNTYCLASS, and TSQUEUELIMIT are added.

DPLLIMIT(data-value)  
Specifies the maximum number of distributed program link requests for which CICS is to perform transaction resource monitoring, as a halfword binary value. The value specified must be in the range 0 - 64.
FILELIMIT\(data-value\)
- Specifies the maximum number of files for which CICS is to perform transaction resource monitoring, as a halfword binary value. The value specified must be in the range 0 - 64.

IDNTYCLASS\(cvda\)
- Specifies whether the identity class of monitoring data is to be recorded when monitoring is active. CVDA values are as follows:
  - IDNTY: Identity data is to be recorded.
  - NOIDNTY: Identity data is not to be recorded.

TSQUEUELIMIT\(data-value\)
- Specifies the maximum number of temporary storage queues for which CICS is to perform transaction resource monitoring, as a halfword binary value. The value specified must be in the range 0 - 64.

SET TRACETYPE
A new option FLAGSET is added:

FLAGSET\(cvda\)
- Indicates whether the standard or special flags, for the specified component, are to be set. CVDA values are as follows:
  - SPECIAL: Specifies that you want to set levels for special tracing, for the components listed.
  - STANDARD: Specifies that you want to set levels for standard tracing, for the components listed.

SET VTAM
This command does not allow you to change PSDINTERVAL, PSDINTHRS, PSDINTMINS, or PSDINTSECS to a nonzero value when the system initialization parameter PSTYPE=NOPS is in effect.

New options or values on SPI commands in CICS TS 3.2
These system programming interface commands were changed in CICS Transaction Server for z/OS, Version 3 Release 2.

CREATE PIPELINE
A new option RESPWAIT is added:

RESPWAIT\(value\)
- Specifies the number of seconds that an application program should wait for a response message from a remote Web service. The value can range from 0 to 9999 seconds.

To use the default timeout value of the transport protocol, specify DEFT. The default timeout value is also used if you do not specify any value for RESPWAIT.
  - The default timeout value for HTTP is 10 seconds.
• The default timeout value for WebSphere MQ is 60 seconds.

CREATE TCPIP SERVICE

A new option REALM is added:

REALM(data-area)

Returns the 56-character realm that is used during the process of HTTP basic authentication. This value is returned only when PROTOCOL has a value of HTTP. If no realm is specified for this service, the default realm used by CICS is returned, which is CICS application aaaaaaaaa, where aaaaaaaaa is the APPLID of the CICS region.

The PROTOCOL option has a new value:

IPIC

IPIC protocol is used. Specify IPIC for TCPIP SERVICE resources that are to be used for distributed program link (DPL) over IP interconnectivity connections (which are also known as IPCONNs).

ENABLE PROGRAM

The QUASIRENT and THREADSAFE options now apply to global user exit programs, as well as to task-related user exit programs. The meaning of value X'802000', which can be returned on the INEXITREQ condition of the EXEC CICS ENABLE command, has changed.

EXTRACT STATISTICS

The RESTYPE option has some new values:

DOCTEMPLATE

Request statistics for a document template; RESID identifies the particular DOCTEMPLATE resource definition.

IPCONN

Request statistics for an IPCONN resource; RESID identifies the particular IPCONN resource definition.

LIBRARY

Request statistics for a LIBRARY resource; RESID identifies the particular LIBRARY resource definition.

MQCONN

Request statistics for a WebSphere MQ connection.

INQUIRE DOCTEMPLATE

The new CACHESIZE option is added:

CACHESIZE(data-area)

Returns a fullword binary field giving the amount of storage, in bytes, used by the cached copy of the document template. A value of zero is returned if there is no cached copy of the template at the time of the inquiry.

INQUIRE FILE

The new RBATYPE option is added:
RBATYPE(*cvda*)
Returns a CVDA value identifying whether, for VSAM files, the data set uses extended addressing. CVDA values are as follows:

**EXTENDED**
This VSAM data set uses extended relative byte addressing and therefore can hold more than 4 GB of data.

**NOTAPPL**
One of the following is true:
- The data set is BDAM.
- The file is remote.
- The file is not open.

**NOTEXTENDED**
This VSAM data set does not use extended relative byte addressing and therefore cannot hold more than 4 GB of data.

**INQUIRE IRC**
The new XCFGROUP option is added:

**XCFGROUP(data-area)**
Returns the 8-character name of the cross-system coupling facility (XCF) group of which this region is a member.

If this region is not a member of an XCF group (because it has not signed on to IRC), XCFGROUP contains the XCF group for the region if XCF was opened.

For introductory information about XCF/MRO, see Cross-system multiregion operation (XCF/MRO) in the CICS Intercommunication Guide.

**INQUIRE MONITOR**
The new COMPRESSST option is added:

**COMPRESSST(*cvda*)**
Returns a CVDA value indicating whether data compression is active for the CICS SMF 110 monitoring records produced by the CICS monitoring facility. CVDA values are as follows:

**COMPRESS**
Data compression is being performed for the monitoring records. Data compression is the default.

**NOCOMPRESS**
Data compression is not being performed for the monitoring records.

**INQUIRE MVSTCB**
The INQUIRE MVSTCB command has a new syntax, which uses a new SET option and the existing NUMELEMENTS option to provide a list of descriptors for individual storage elements owned by the TCB that you are browsing. The descriptors contain the new information about the storage key and storage in use for each storage element, as well as the information that was formerly provided about addresses, lengths, and MVS subpools for each element.

The options ELEMENTLIST, LENGTHLIST, and SUBPOOLLIST are now obsolete, but are supported for compatibility with applications developed in releases before
CICS Transaction Server for z/OS, Version 3 Release 2. These options do not provide the new information about the storage key and storage in use for each element. You cannot use these options in combination with the new SET option. For all new applications, use the new syntax with the SET option.

**INQUIRE NETNAME**

A new option AIDCOUNT is added:

**AIDCOUNT**(data-area)

Returns a fullword binary field giving the number of automatic initiate descriptors (AIDs) queued for the specified terminal. If there are no AIDs, then an AIDCOUNT value of 0 is returned.

**INQUIRE PROGRAM**

New options LIBRARY and LIBRARYDSN are added:

**LIBRARY**(data-area)

Returns the 8-character name of the library resource from which this program was loaded. This data area is blank if the program has not been loaded, or if the LPSTATUS is LPA, indicating that the program has been loaded from the LPA.

**LIBRARYDSN**(data-area)

Returns the 44-character name of the data set from which the program was loaded. This data area is blank if the program has not been loaded or if the LPSTATUS is LPA (indicating that the program has been loaded from the LPA).

The USECOUNT and CONCURRENTST options have a new scope:

- The USECOUNT option now displays a use count for Java programs. In earlier CICS releases, this count was unavailable and a value of -1 was returned.
- The CONCURRENTST option now applies to global user exit programs, as well as to task-related user exit programs.

**INQUIRE PIPELINE**

This command has a number of new options:

**CIDDOMAIN**(data-area)

Returns the domain name that is used to generate MIME content-ID values to identify binary attachments in containers. The name can be up to 255 characters long.

**MODE**(cvda)

Returns the operating mode of the pipeline. CVDA values are as follows:

**PROVIDER**

CICS is using the pipeline as a service provider.
REQUESTER
CICS is using the pipeline as a service requester.

UNKNOWN
The operating mode of the pipeline cannot be determined.

MTOMNOXOPST(cvda)
Returns a value that indicates whether MTOM will be used for outbound SOAP messages when no binary attachments are present.

MTOMNOXOP
Use MTOM, even when no binary attachments are present.

NOMTOMNOXOP
Do not use MTOM unless binary attachments are present.

MTOMST(cvda)
Returns a value that indicates whether support for MTOM has been enabled in the pipeline.

MTOM
MTOM support has been enabled in the pipeline.

NOMTOM
MTOM support has not been enabled in the pipeline.

RESPWAIT(data-area)
Returns the number of seconds that an application program waits for an optional response message from a remote Web service. If the returned value is -1, no value has been set for the pipeline and the default timeout value of the transport protocol is being used.

• The default timeout value for HTTP is 10 seconds.
• The default timeout value for WebSphere MQ is 60 seconds.

SENDMTOMST(cvda)
Returns a value that indicates when MTOM will be used for outbound SOAP messages.

NOSENDMTOM
Do not use MTOM for outbound SOAP messages.

SAMESENDMTOM
Use MTOM for outbound SOAP message responses when the inbound message is received in MTOM format.

SENDMTOM
Always use MTOM for outbound SOAP messages.

SOAPLEVEL(data-area)
Returns an 8-byte character string of the SOAP level that is used in the PIPELINE. The value of the SOAP level is 1.1 or 1.2. If the pipeline is not being used for SOAP messages, a value of NOTSOAP is returned.

SOAPRNUM(data-area)
Returns a fullword binary value of the release number for the SOAP level that is used in the PIPELINE. The value of the release number is 1 or 2.

SOAPVNUM(data-area)
Returns a fullword binary value of the version number for the SOAP level that is used in the PIPELINE. The value of the version number is 1.
**XOPDIRECTST**(cvda)
Returns a value that indicates whether the pipeline can currently handle XOP documents in direct mode.

**XOPDIRECT**
The pipeline supports the direct processing of XOP documents and binary attachments.

**NOXOPDIRECT**
The pipeline does not support the direct processing of XOP documents and binary attachments. Compatibility mode is in operation.

**XOPSUPPORTST**(cvda)
Returns a value that indicates whether the application handler for the pipeline supports the processing of XOP documents and binary attachments.

**XOPSUPPORT**
The application handler supports XOP documents.

**NOXOPSUPPORT**
The application handler does not support XOP documents.

**INQUIRE SYSTEM**
This command has a number of new options:

**MEMLIMIT**(data-area)
Returns a doubleword binary field that shows the maximum amount, in bytes, of storage above the bar for use by the CICS region. A value of -1 indicates that no limit has been imposed on the amount of storage that the region can attempt to use (also known as NOLIMIT). The MEMLIMIT value can be set as a PARMLIB member, by JCL, or through the IEFUSI global user exit.

**SOSABOVEBAR**(cvda)
Returns a CVDA value that indicates whether CICS is short on storage in the dynamic storage areas above the bar:

**NOTSOS**
CICS is not short on storage in any of the dynamic storage areas above the bar.

**SOS**
CICS is short on storage in at least one dynamic storage area above the bar.

**SOSABOVELINE**(cvda)
Returns a CVDA value that indicates whether CICS is short on storage in the dynamic storage areas above 16 MB but below 2 GB (above the line):

**NOTSOS**
CICS is not short on storage in any of the dynamic storage areas above 16 MB but below 2 GB.

**SOS**
CICS is short on storage in at least one dynamic storage area above 16 MB but below 2 GB.

**SOSBELOWLINE**(cvda)
Returns a CVDA value that indicates whether CICS is short on storage in the dynamic storage areas below 16 MB (below the line):

**NOTSOS**
CICS is not short on storage in any of the dynamic storage areas below 16 MB.

**SOS**
CICS is short on storage in at least one dynamic storage area below 16 MB.
INQUIRE SUBPOOL

The new DSA name GCDSA (above the bar CICS dynamic storage area) is added to the values returned by the DSANAME option.

INQUIRE TASK

New options IPFACILITIES and IPFLISTSIZE are added:

**IPFACILITIES(ptr-ref)**

Returns the address of a list of 4-byte binary tokens, each of which identifies an IPCONN session that the task is using to communicate with another system. If there are no such IP facilities for this task, the IPFACILITIES pointer contains a null value.

CICS obtains the storage for the list and frees it when the inquiring task issues another INQUIRE TASK command or ends; the task cannot free the storage itself.

**IPFLISTSIZE(data-area)**

Returns a fullword binary field giving the number of IP facilities associated with this task. (That is, it returns the number of items in the list addressed by the IPFACILITIES option.)

If this task has no IP facilities, IPFLISTSIZE contains zero.

INQUIRE TCPIPSERVICE

The new REALM option is added:

**REALM(data-area)**

Returns the 56-character realm that is used during the process of HTTP basic authentication. This value is returned only when PROTOCOL has a value of HTTP. If no realm is specified for this service, the default realm used by CICS is returned, which is CICS application aaaaaaaa, where aaaaaaaa is the APPLID of the CICS region.

The PROTOCOL option has a new value:

**IPIC** IP interconnectivity (IPIC).

INQUIRE TERMINAL

A new option AIDCOUNT is added:

**AIDCOUNT(data-area)**

Returns a fullword binary field giving the number of automatic initiate descriptors (AIDs) queued for the specified terminal. If there are no AIDs, then an AIDCOUNT value of 0 is returned.

INQUIRE WEBSERVICE

This command has a number of new options:

**CCSID(data-area)**

Returns the CCSID that is used to encode the character data in the application data structure at run time. This value is set using the optional CCSID parameter in the web services assistant when the web service binding file was generated. If the data-area is 0, the default CCSID for the CICS region that is specified by the LOCALCCSID system initialization parameter is used.
**MAPPINGLEVEL** *(data-area)*

Returns an 8-byte character string of the mapping level that is used to convert data between language structures and web service description (WSDL) documents. The value of the mapping level is 1.0, 1.1, 1.2, 2.0, or 2.1.

**MAPPINGRNUM** *(data-area)*

Returns a fullword binary value of the release number for the mapping level that is used to convert data between language structures and web service description (WSDL) documents. The value of the release number is 0, 1, or 2.

**MAPPINGVNUM** *(data-area)*

Returns a fullword binary value of the version number for the mapping level that is used to convert data between language structures and web service description (WSDL) documents. The value of the version number is 1 or 2.

**MINRUNLEVEL** *(data-area)*

Returns an 8-byte character string of the minimum runtime level that is required to run the web service in CICS. The value of the runtime level is 1.0, 1.1, 1.2, 2.0, or 2.1.

**MINRUNRNUM** *(data-area)*

Returns a fullword binary value of the release number for the minimum runtime level that is required to run the web service in CICS. The value of the release number is 0, 1, or 2.

**MINRUNVNUM** *(data-area)*

Returns a fullword binary value of the version number for the minimum runtime level that is required to run the web service in CICS. The value of the version number is 1 or 2.

**XOPDIRECTST** *(cvda)*

Returns a value that indicates whether the web service is currently able to handle XOP documents in direct mode. CDVA values are as follows:

- **NOXOPDIRECT**
  The web service cannot currently handle XOP documents and binary attachments directly. This value is true when the web service implementation does not support the direct handling of XOP documents and binary attachments, or web service validation is switched on.

- **XOPDIRECT**
  The web service can currently handle XOP documents and binary attachments directly. This value is true when the web service implementation supports the direct handling of XOP documents and web service validation is not switched on.

**XOPSUPPORTST** *(cvda)*

Returns a CVDA value that indicates whether the web service implementation can handle XOP documents and binary attachments in direct mode. The CVDA values are as follows:

- **NOXOPSUPPORT**
  The web service implementation does not support the direct handling of XOP documents and binary attachments.

- **XOPSUPPORT**
  The web service implementation supports the direct handling of XOP documents and binary attachments. This value is true for any web services that are generated and deployed using the web services assistant.
**PERFORM STATISTICS RECORD**

This command supports some new statistics types:

**DOCTEMPLATE**
- Records specific statistics for each document template installed in the CICS region.

**IPCONN**
- Records specific statistics for all IPIC connections installed in the CICS region.

**LIBRARY**
- Records specific statistics for all LIBRARY resources.

**MQCONN**
- Records global statistics for the WebSphere MQ connection.

**SET MONITOR**

A new option COMPRESSST is added:

**COMPRESSST**(cvda)
- Specifies whether you want data compression to be performed for the CICS SMF 110 monitoring records produced by the CICS monitoring facility. If you change the setting for the data compression option, the new setting applies to all monitoring records written from that point on, even if they are for a task being processed at the time the change is made. The new setting also applies to any records that are in the buffer waiting to be written to SMF at the time the change is made. The change applies only until a CICS restart.

**COMPRESS**
- CICS is to perform data compression for the monitoring records. In some situations, some of the records might not be compressed. Data compression is the default.

**NOCOMPRESS**
- CICS is not to perform data compression for the monitoring records.

**SET PIPELINE**

A new option RESPWAIT is added:

**RESPWAIT**(data-area)
- Specifies the number of seconds that an application program should wait for an optional response message from a remote Web service. The value can range from 0 to 9999 seconds. If you do not specify a value, the default timeout value of the transport protocol is used.
  - The default timeout value for HTTP is 10 seconds.
  - The default timeout value for WebSphere MQ is 60 seconds.

**SET TSQUEUE / TSQNAME**

The maximum number of TS queues that you can delete by using a single **SET TSQUEUE** or **SET TSQNAME** command is 32766. If this limit is exceeded, the request fails and no queues are deleted.
New SPI commands

CICS Transaction Server for z/OS, Version 4 Release 2 includes some new SPI commands that you can use to control new system resources or to work in new ways with existing resources.

New system programming commands added in CICS Transaction Server for z/OS, Version 4 Release 2

**INQUIRE CAPDATAPRED**
Retrieve information about an application data predicate that is defined for a capture specification.

**INQUIRE CAPINFOSRCE**
Retrieve information about an information source that is defined for a capture specification.

**INQUIRE CAPOPTPRED**
Retrieve information about an application command option predicate that is defined for a capture specification.

**INQUIRE EPADAPTER**
Retrieve information about a specified event processing adapter.

**INQUIRE OSGIBUNDLE**
Retrieve information about an OSGi bundle that is installed in a JVM server.

**INQUIRE OSGISERVICE**
Retrieve information about OSGi services that are registered in a CICS region.

**INQUIRE TEMPSTORAGE**
Retrieve information about storage used by temporary storage queues in the CICS region.

**SET EPADAPTER**
Set the status of a specified EP adapter to enabled or disabled.

**SET TEMPSTORAGE**
Set the amount of storage that is available to temporary storage queues in the CICS region.

New system programming commands added in CICS Transaction Server for z/OS, Version 4 Release 1

**CREATE ATOMSERVICE**
Define an ATOMSERVICE resource definition in the local CICS region.

**CREATE BUNDLE**
Define a BUNDLE resource definition in the local CICS region.

**CREATE JVMSERVER**
Define a JVMSERVER resource definition in the local CICS region.

**CREATE MQCONN**
Define an MQCONN resource in the local CICS region.

**CSD ADD**
Add a group to a list on the CSD.

**CSD ALTER**
Change the attributes of an existing resource definition on the CSD.
CSD APPEND
Append the groups in one list on the CSD to the end of another list.

CSD COPY
Copy a resource definition in a group to a different group, or copy an entire group.

CSD DEFINE
Create a new resource definition on the CSD.

CSD DELETE
Delete a list, a group, or a single resource definition in a group from the CSD.

CSD DISCONNECT
 Disconnect the current task from the CSD.

CSD ENDBRGROUP
End the current browse of the groups in the CSD or of the groups in a list.

CSD ENDBRLIST
End the current browse of the lists in the CSD.

CSD ENDBRRSRC
End the current browse of the resources in a specified group.

CSD GETNEXTGROUP
Get the next group in a group browse.

CSD GETNEXTLIST
Get the next list in a list browse.

CSD GETNEXTRSRC
Get the details of next resource in a resource browse.

CSD INQUIREGROUP
Inquire on a group in the CSD, or on a group in a specified list in the CSD.

CSD INQUIRELIST
Inquire on a list in the CSD.

CSD INQUIRERSRC
Inquire on the attributes of a resource in a specified group in the CSD.

CSD INSTALL
Install in the CSD a list, a group, or a single resource definition in a group.

CSD LOCK
Restrict update and delete access for a group or list to a single operator identifier.

CSD REMOVE
Remove a group from a list on the CSD.

CSD RENAME
Rename a resource definition on the CSD.

CSD STARTBRGROUP
Start a browse of the groups in the CSD or of the groups in a list.

CSD STARTBRLIST
Start a browse of the lists in the CSD.

CSD STARTBRRSRC
Start a browse of the resources in a specified group.
CSD UNLOCK
Remove the lock from a group or list of definitions.

CSD USERDEFINE
Create a new resource definition with user-specified default values on the CSD.

DISCARD ATOMSERVICE
Remove an ATOMSERVICE resource definition from the system.

DISCARD BUNDLE
Remove a BUNDLE resource definition from the system.

DISCARD JVMSERVER
Remove a JVMSERVER resource definition from the system.

DISCARD MQCONN
Remove an MQCONN resource definition. Any implicit MQINI resource definition is also discarded.

INQUIRE ATOMSERVICE
Retrieve information about ATOMSERVICE resources.

INQUIRE BUNDLE
Retrieve information about installed BUNDLE resources.

INQUIRE BUNDLEPART
Retrieve information about the resources that are contained in an installed BUNDLE resource.

INQUIRE CAPTURESPEC
Retrieve information about a capture specification.

INQUIRE EVENTBINDING
Retrieve information about an EVENTBINDING resource.

INQUIRE EVENTPROCESS
Retrieve the status of event processing in the CICS region.

INQUIRE JVMSERVER
Retrieve information about a JVM server in the CICS region.

INQUIRE MQCONN
Retrieve information about the connection between CICS and WebSphere MQ.

INQUIRE MQINI
Retrieve information about the default initiation queue that is used for the connection between CICS and WebSphere MQ.

INQUIRE XMLTRANSFORM
Retrieve information about an installed XMLTRANSFORM resource.

SET ATOMSERVICE
Enables or disables an ATOMSERVICE resource.

SET BUNDLE
Enables or disables a BUNDLE resource.

SET EVENTBINDING
Enables or disables an EVENTBINDING resource.

SET EVENTPROCESS
Enables or disables event processing in the CICS region.
SET JVMSERVER
Enables or disables a JVMSERVER resource.

SET MQCONN
Change the attributes of the connection between CICS and WebSphere MQ.
You can also start or stop the connection.

SET XMLTRANSFORM
Enables or disables an XMLTRANSFORM resource.

New system programming commands added in CICS Transaction Server for z/OS, Version 3 Release 2

CREATE IPCONN
Define and install an IPCONN resource in the local CICS region.

CREATE LIBRARY
Create a LIBRARY resource in the local CICS region.

DISCARD IPCONN
Remove an IPCONN resource.

DISCARD LIBRARY
Remove a LIBRARY resource.

INQUIRE ASSOCIATION
Retrieve association information for a specified task from its associated data control block (ADCB).

INQUIRE ASSOCIATIONLIST
Retrieve a list of tasks, based on user correlation data contained in the tasks' association information.

INQUIRE IPCONN
Retrieve information about an IPCONN resource.

INQUIRE LIBRARY
Retrieve information about a LIBRARY resource.

SET IPCONN
Change the attributes of an IPCONN resource or cancel outstanding AIDs.

SET LIBRARY
Change the attributes of a LIBRARY resource.

PERFORM JVMPOOL
Start and terminate JVMs in the JVM pool.

SET DOCTEMPLATE
Refresh the cached copy of a document template installed in your CICS region, or phase in a new copy of a CICS program or exit program that is defined as a document template.

SPI commands that have been made threadsafe

These system programming interface commands were not threadsafe when they were first introduced in CICS, but they have now been made threadsafe.

SPI commands that were made threadsafe in CICS Transaction Server for z/OS, Version 4 Release 2

INQUIRE CLASSCACHE
INQUIRE JVM
INQUIRE JVMPOOL
SPI commands that were made threadsafe in CICS Transaction Server for z/OS, Version 4 Release 1

No existing SPI commands were made threadsafe in this release.

SPI commands that were made threadsafe in CICS Transaction Server for z/OS, Version 3 Release 2

Changes to DOCTYPE SPI commands

If resource security for document templates is active in the CICS region, with the XRES system initialization parameter set on (which is the default), the system programming commands for CICS document templates can be affected.

The following commands can be affected:

- EXEC CICS CREATE DOCTYPE
- EXEC CICS DISCARD DOCTYPE
- EXEC CICS INQUIRE DOCTYPE
- EXEC CICS SET DOCTYPE

Document templates specified by these commands are subject to resource security checking if RESSEC(YES) is specified in the transaction resource definition for the transaction that issues the command.

If resource security checking is in place, the user ID for the transaction must have an appropriate level of access to the DOCTYPE resource definition involved:

*Table 1. Access required for system programming commands involving document templates*

<table>
<thead>
<tr>
<th>Action</th>
<th>Access required</th>
</tr>
</thead>
<tbody>
<tr>
<td>CREATE</td>
<td>ALTER</td>
</tr>
<tr>
<td>DISCARD</td>
<td>ALTER</td>
</tr>
<tr>
<td>INQUIRE</td>
<td>READ</td>
</tr>
<tr>
<td>SET</td>
<td>UPDATE</td>
</tr>
</tbody>
</table>

For all these commands, there is a new RESP2 value of 101 for the condition NOTAUTH:

**NOTAUTH**

101 The user associated with the issuing task is not authorized to access this DOCTYPE resource definition in the way required by this command.
The XHFS system initialization parameter, which specifies access control for z/OS UNIX files, does not affect any system programming commands. z/OS UNIX files are referenced by EXEC CICS commands only when they are defined as CICS document templates. In this situation, resource security for CICS document templates, specified by the XRES system initialization parameter, controls access to them for users.
Chapter 7. Changes to CEMT

The commands available in the CEMT transaction have been modified to reflect changes to resource definitions and new functions.

The CICS transactions accept as few characters of a keyword as needed to identify the keyword uniquely in the request. Minimum abbreviations might change between CICS releases because of the introduction of new commands. If you use automated processes or programs to issue commands for CICS transactions, and you use abbreviations for the keywords, check for any changes to these abbreviations in the new release. In the syntax displays on your screen, the minimum permitted abbreviation is shown in uppercase characters, and the remainder is shown in lowercase.

Layout change for CEMT INQUIRE command

Before CICS Transaction Server for z/OS, Version 4 Release 1, the CEMT INQUIRE command returned information about the attributes of certain resources (such as DB2CONN) on a single screen, arranged in the following four-column layout:

| Column 1 | Field name |
| Column 2 | Field value |
| Column 3 | Field name |
| Column 4 | Field value |

From CICS Transaction Server for z/OS, Version 4 Release 1, the data is arranged in the following two-column layout:

| Column 1 | Field name |
| Column 2 | Field value |

To view the field names and field values that were previously displayed in Column 3 and Column 4, use the scroll key. The resource name is also now added to the top of the column.

Obsolete options on CEMT commands

Obsolete options on CEMT commands in CICS Transaction Server for z/OS, Version 4 Release 1

INQUIRE CLASSCACHE: The PROFILE option is obsolete and is no longer displayed. PROFILE used to specify the JVM profile for the master JVM, which is no longer required.
Obsolete options on CEMT commands in CICS Transaction Server for z/OS, Version 3 Release 2

INQUIRE CLASSCACHE: The value Reset is no longer displayed for the REUSEST option. If the shared class cache is not started, the value Unknown is displayed. In this situation, CICS cannot identify the reuse status, but, when the shared class cache is started, the status always becomes Reuse.

INQUIRE JVM: The value Reset is no longer displayed for the REUSEST option.

INQUIRE MONITOR: The SUBSYSTEMID option is obsolete and has been removed.

SET JVMPOOL: The TERMINATE function on the SET JVMPOOL command is now deprecated. Use the improved function on the PERFORM JVMPOOL command instead.

Changed CEMT commands

These CEMT commands have new options or new values for options.

INQUIRE ATOMSERVICE

New options URIMAP and XMLTRANSFORM are added:

URIMAP
Displays the 8-character URIMAP name that indicates the URI associated with this ATOMSERVICE definition. If there is no dynamically generated URIMAP associated with this ATOMSERVICE definition, this field is empty.

XMLTRANSFORM
Displays the 32-character name of the XMLTRANSFORM resource associated with the ATOMSERVICE definition. If the value of ATOMTYPE is SERVICE or CATEGORY, this field is empty.

INQUIRE CLASSCACHE

A new option STARTTIME is added which replaces DATESTARTED and TIMESTARTED:

STARTTIME(date time)
Displays the date and time on which the current shared class cache was started. The format of the date depends on the value that you selected for the DATFORM system initialization parameter for your CICS region. The format of the time is hh:mm:ss.

INQUIRE EVENTBINDING

A new option EPADAPTER is added:

EPADAPTER(value)
Displays the 32-character name of an EP adapter.

INQUIRE EVENTPROCESS

A new option SCHEMALEVEL is added:
SCHEMALEVEL (vvrr)
Returns a 4-character value (vvrr) indicating the highest version and release of event binding schema that is supported by CICS, where vv is the version and rr is the release; for example, 0201 indicates version 2 release 1 of the event binding schema.

INQUIRE IPCONN
A new option MIRRORLIFE is added:

MIRRORLIFE(value)
Indicates the minimum lifetime of the mirror task for function-shipped file control, transient data, and temporary storage requests received by this region. This parameter only takes affect when it is specified on the IPCONN definition on the resource-owning region. It is not valid for function shipping interval control or link requests. The possible values are as follows:

REQUEST
The mirror task terminates as soon as possible.
TASK
The mirror task remains available to the application that issues the remote request the until the application task ends.
UOW
The mirror transaction remains available to the application that issues the remote request until the next sync point is issued.

INQUIRE MQCONN
A new value GROUPRESYNC is added to the RESYNCMEMBER option:

GROUPRESYNC
CICS connects to any member of the queue-sharing group. The queue manager is chosen by WebSphere MQ and it asks CICS to resolve indoubt units of work on behalf of all eligible queue managers in the queue-sharing group. This function is called group unit of recovery.

INQUIRE PROGRAM
A new option JVMSERVER is added:

JVMSERVER
Displays the name of the JVMSERVER resource that is used to run this OSGi service in a JVM server.

The CONCURRENCY option has a new value:

OREQUIRED
The program is defined as threadsafe, and must run on an open TCB. The type of open TCB used depends on the API setting.

A value of CONCURRENCY(OREQUIRED) is equivalent to CONCURRENCY(REQUIRED) on the program definition. CEMT uses a value of OREQUIRED to distinguish it from a value of REQUIRED on the option COPYSTATUS. You can use the filter OREQUIRED to return all programs with the concurrency setting of REQUIRED.

INQUIRE TCPIPSERVICE
A new option MAXPERSIST is added:
MAXPERSIST(value)
Returns a fullword value containing the maximum number of persistent
connections from web clients that the CICS region allows for this port at any
one time. This setting applies only for the HTTP protocol. NO means that there
is no limit on the number of persistent connections. A zero setting means that
no persistent connections are allowed. A zero setting is not compliant with the
HTTP/1.1 specification and must not be set in a CICS region that is handling
external requests.

INQUIRE TSMODEL
A new option EXPIRYINT is added:

EXPIRYINT(value)
Displays the expiry interval, in hours, for temporary storage queues associated
with this TS model. If a temporary storage queue is not referenced during its
expiry interval, it becomes eligible to be deleted automatically by CICS. A
value of zero means that no expiry interval applies to queues matching this
model, so they are never eligible for automatic deletion. CICS does not apply
an expiry interval to recoverable, remote, or shared temporary storage queues,
or temporary storage queues created by CICS.

INQUIRE TSQUEUE / TSQNAME
A new option EXPIRYINT is added:

EXPIRYINT(value)
Displays the expiry interval, in hours, that is defined for the temporary storage
queue in its TSMODEL resource definition. If the temporary storage queue is
not referenced during the expiry interval, it becomes eligible to be deleted
automatically by CICS.

A value of zero means that no expiry interval applies to the temporary storage
queue, so it is never eligible for automatic deletion. In addition, the following
types of temporary storage queues are never deleted automatically by CICS,
even if a nonzero expiry interval is set in the matching TSMODEL resource
definition:
- Queues in auxiliary temporary storage that are defined as recoverable.
- Queues in a remote CICS region.
- Queues that CICS creates for its own use.
- Temporary storage queues in shared temporary storage pools.

INQUIRE URIMAP
New options SOCKETCLOSE and SOCKPOOLSIZE are added:

SOCKETCLOSE(value)
Displays the maximum length of time in seconds that CICS keeps a client
HTTP connection open for reuse after the CICS application has finished using
it. If the value is 0, CICS does not keep connections open for reuse. A value is
only displayed when the URIMAP definition has a usage type of CLIENT. For
other usage types, SOCKETCLOSE displays ()

SOCKPOOLSIZE(value)
Displays the number of client HTTP connections that CICS is currently holding
in a pool in a dormant state. The connections can be reused by any CICS
application that connects as a Web client to the same host and port. A value is
only displayed when the URIMAP definition has a usage type of CLIENT. For other usage types, SOCKPOOLSIZE displays ( ).

**INQUIRE WEBSERVICE**

A new option ARCHIVEFILE is added:

ARCHIVEFILE(value)

Displays the name and location (1-255 characters) of the archive that is associated with the web service. The archive contains one or more WSDL files. The name can be up to 255 characters long.

**SET MQCONN**

A new value GROUPRESYNC is added to the RESYNCMEMBER option:

GROUPRESYNC

CICS connects to any member of the queue-sharing group. The queue manager is chosen by WebSphere MQ and it asks CICS to resolve indoubt units of work on behalf of all eligible queue managers in the queue-sharing group. This function is called group unit of recovery. The GROUPRESYNC option can be used only you are when running a release of WebSphere MQ that supports group unit of recovery for CICS and when the GROUPUR attribute has been enabled in the WebSphere MQ queue managers.

When an attempt is made to connect CICS to WebSphere MQ by using an EXEC CICS SET MQCONN CONNECTED command and RESYNCMEMBER(GROUPRESYNC) is set but WebSphere MQ does not support group unit of recovery, or group unit of recovery is not enabled, then WebSphere MQ rejects the connection attempt. The connection attempt results in the SET command failing with INVREQ and RESP2=9 (connection error).

Do not change the settings for RESYNCMEMBER when units of work are outstanding in WebSphere MQ because the units of work cannot then be resolved. A unit of work held in CICS is identified with a resource manager qualifier. When RESYNCMEMBER(GROUPRESYNC) is used, the qualifier is the name of the queue-sharing group, otherwise the qualifier used is the name of the individual queue manager.

**Resource signature options added to CEMT INQUIRE command**

**Changed command, INQUIRE**

The definition and installation signature options are added to the INQUIRE command for the following resource types:

ATOMSERVICE
BUNDLE
CONNECTION
CORBASERVER
DB2CONN
DB2ENTRY
DB2TRAN
DJAR
DOCTEMPLATE
ENQMODEL
The list of possible values for each resource type `CHANGEAGENT` and `INSTALLAGENT` can vary and depends on the how the resource is defined and installed. For details of a specific INQUIRE command, see *CICS Supplied Transactions*.

**CHANGEAGENT(value)**
Displays a value that identifies the agent that made the last change to the resource definition. You cannot use CEMT to filter on some of these values because they are duplicated. The possible values are as follows:

- **AUTOINSTALL**
  The resource was autoinstalled.

- **AUTOINSTALL**
  The resource was autoinstalled as a result of specifying an initiation queue name on a CKQC START command, and the previously installed MQCONN definition did not specify a value for INITQNAME.

- **CREATESPI**
  The resource definition was last changed by an `EXEC CICS CREATE` command.

- **CSDAPI**
  The resource definition was last changed by a CEDA transaction or the programmable interface to DFHEDAP.

- **CSDBATCH**
  The resource definition was last changed by a DFHCSDUP job.
DREPAPI
The resource definition was last changed by a CICSPlex SM BAS API command.

DYNAMIC
The resource definition was last changed by a PIPELINE scan.

DYNAMIC
The resource was defined as a result of the installation of a DB2ENTRY with TRANSID specified.

DYNAMIC
The resource was defined by the CICS scanning mechanism.

DYNAMIC
The resource was defined by the CICS system for a template being used through the CICS template manager, DFHWBTI.

DYNAMIC
The resource was defined as a result of an MQCONN resource definition with INITQNAME specified.

DYNAMIC
The resource was defined by an ATOMSERVICE resource.

SYSTEM
The resource definition was last changed by the CICS or CICSPlex system.

TABLE
The resource definition was last changed by a table definition.

TABLE
The resource definition was last changed by a File Control table definition.

CHANGEAGREL(value)
Displays the 4-digit number of the CICS release that was running when the resource definition was last changed.

CHANGETIME(date time)
Displays the date and time when the resource definition was last changed. The format of the date depends on the value that you selected for the DATFORM system initialization parameter for your CICS region. The format of the time is hh:mm:ss.

CHANGEUSRID(value)
Displays the 8-character user ID that ran the change agent.

DEFINESOURCE(value)
Displays the source of the resource definition. The DEFINESOURCE value depends on the CHANGEAGENT option. For details, see Summary of the resource signature field values in the Resource Definition Guide.

DEFINETIME(date time)
Displays the date and time when the resource was created. The format of the date depends on the value that you selected for the DATFORM system initialization parameter for your CICS region. The format of the time is hh:mm:ss.
**INSTALLAGENT**(*value*)
Displays a value that identifies the agent that installed the resource. You cannot use CEMT to filter on some of these values because they are duplicated. The possible values are as follows:

**AUTOINSTALL**
The resource was autoinstalled.

**AUTOINSTALL**
The resource was autoinstalled as a result of specifying an initiation queue name on a CKQC START command, and the previously installed MQCONN definition did not specify a value for INITQNAME.

**BUNDLE**
The resource was installed by a bundle deployment.

**CREATESPI**
The resource was installed by an *EXEC CICS CREATE* command.

**CSDAPI**
The resource was installed by a CEDA transaction or the programmable interface to DFHEDAP.

**DYNAMIC**
The resource was installed by using a PIPELINE scan.

**DYNAMIC**
The resource was installed as a result of the installation of a DB2ENTRY with TRANSID specified.

**DYNAMIC**
The resource was installed by the CICS scanning mechanism.

**DYNAMIC**
The resource was installed by the CICS system for a template being used through the CICS template manager, DFHWBTL.

**DYNAMIC**
The resource was installed as a result of the installation of an MQCONN with INITQNAME specified.

**DYNAMIC**
The resource was installed by an ATOMSERVICE resource.

**GRPLIST**
The resource was installed by **GRPLIST INSTALL**.

**SYSTEM**
The resource was installed by the CICS or CICSPlex SM system.

**TABLE**
The resource was installed by using a table definition.

**TABLE**
The resource was installed by using a File Control table definition.

**INSTALLTIME**(*date time*)
Displays the date and time when the resource was installed. The format of the date depends on the value that you selected for the DATFORM system initialization parameter for your CICS region. The format of the time is hh:mm:ss.
INSTALLUSRID(value)
Displays the 8-character user ID that installed the resource.

**Changed CEMT commands in CICS TS 4.1**
These CEMT commands were changed in CICS Transaction Server for z/OS, Version 4 Release 1.

**INQUIRE CORBASENDER**
The HOST option now displays IPv6 addresses. The values HOSTNAME, IPV4HOST, IPV6HOST, and NOTAPPLIC filter the contents of the new HOST option. A new option, IPRESOLVED, displays the IPv4 or IPv6 address of the host. The values IPV4FAMILY, IPV6FAMILY, and UNKNOWN filter the contents of the new IPRESOLVED option.

**HOST(value)**
Displays the host name, IPv4, or IPv6 address of the logical EJB/CORBA server. All IPv4 addresses are displayed as native IPv4 dotted decimal addresses, for example, 1.2.3.4, regardless of the type of address format used. For information on accepted IPv4 formats, see the *CICS Internet Guide*.

**HOSTTYPE(value)**
Displays the address format of the HOST option. The HOSTTYPE option is available using an expanded query only. The possible values are as follows:

- **HOSTNAME**
  The HOST option contains a character host name.

- **IPV4HOST**
  The address is an IPv4 address.

- **IPV6HOST**
  The address is an IPv6 address.

**IPFAMILY(value)**
Displays the address format of the IPRESOLVED option. The IPFAMILY option is available using an expanded query only. Filtering interacts with the IPFAMILY option when you filter using wildcard characters. For example, if the value in IPFAMILY is IPV6FAMILY, you must use the colon character to retrieve an IP address. The possible values are as follows:

- **IPV4FAMILY**
  The address is an IPv4 address.

- **IPV6FAMILY**
  The address is an IPv6 address.

- **UNKNOWN**
  The IPRESOLVED option is not yet in use, or the address cannot be resolved.

**IPRESOLVED(value)**
Displays the IPv4 or IPv6 address of the host. The IPRESOLVED option is available using an expanded query only.

**INQUIRE DISPATCHER**
Two new options are added:
**ACTHRTDCBS**(value)
Displays the number of T8 mode open TCBs that are currently active; that is, allocated to a user task.

**MAXHRTDCBS**(value)
Displays the maximum number of T8 mode open TCBs that can exist concurrently in the CICS region for all enabled and disabled JVMSERVER resources. The value can be in the range 1 - 1024.

**INQUIRE IPCONN**

The HOST option now displays IPv6 addresses. The values HOSTNAME, IPV4HOST, IPV6HOST, and NOTAPPLIC filter the contents of the new HOST option. A new option, IPRESOLVED, displays the IPv4 or IPv6 address of the host. The values IPV4FAMILY, IPV6FAMILY, and UNKNOWN filter the contents of the new IPRESOLVED option. A new option, PARTNER, displays the product token of a partner system. A new option, IDPROP, displays whether the sender will include the distributed identity in attach requests over the IPIC connection.

**HOST**(value)
Displays the host name, IPv4, or IPv6 address of the remote system. All IPv4 addresses are displayed as native IPv4 dotted decimal addresses, for example, 1.2.3.4, regardless of which type of address format is used. For information about accepted IPv4 formats, see the CICS Internet Guide.

**HOSTTYPE**(value)
Displays the address format of the HOST option. The HOSTTYPE option is available using an expanded query only. The possible values are as follows:

- **HOSTNAME**
  The HOST option contains a host name.

- **IPV4HOST**
  The address is an IPv4 address.

- **IPV6HOST**
  The address is an IPv6 address.

**IDPROP**(value)
Displays whether the sender includes the distributed identity in requests over the IPIC connection. The IDPROP option is meaningful only if a connection extends outside a sysplex and is used primarily to prevent distributed identities being transmitted between enterprises. If the connection is between systems in the same sysplex, the value returned by this option is ignored, and the connection operates as if IDPROP(OPTIONAL) is specified.

The possible values are as follows:

- **NOTALLOWED**
  A user ID associated with the sending transaction is sent for requests using this connection. NOTALLOWED is the default value.

- **OPTIONAL**
  A distributed identity is sent, if available. The user ID associated with the sending transaction is also sent.

- **REQUIRED**
  A distributed identity is required for requests using this connection.
REQUIRED is specified, the receiving system must support distributed identities. The user ID associated with the sending transaction is not sent.

**IPFAMILY**(value)
Displays the address format of the IPRESOLVED option. The IPFAMILY option is available using an expanded query only. Filtering interacts with the IPFAMILY option when you filter using wildcard characters. For example, if the value in IPFAMILY is IPv6FAMILY, you must use the colon character to retrieve an IP address. The possible values are as follows:

**IPV4FAMILY**
The address is an IPv4 address.

**IPV6FAMILY**
The address is an IPv6 address.

**UNKNOWN**
IPRESOLVED is not yet in use, or the address cannot be resolved.

**IPRESOLVED**(value)
Displays the IPv4 or IPv6 address of the host. The IPRESOLVED option is available using an expanded query only.

**PARTNER**(value)
Displays a 64-character string indicating the product token of the partner system. The field is blank when the connection is not acquired or if the partner system does not indicate a product type when the connection is established. For example, the partner system is `IBM_CICS_Transaction_Server/4.1.0(zOS)` for a CICS TS 4.1 partner.

**INQUIRE MONITOR**

The default setting for the COMPRESSST option has changed. Data compression is now the default option. A new option, DPLLIMIT, returns the maximum number of DPL requests allowed for transaction resource monitoring. A new option, IDNTYCLASS, specifies whether identity class monitoring is enabled.

**COMPRESSST**(value)
Displays whether data compression is performed for monitoring records. The values are as follows:

**COMPRESS**
Data compression is performed. The default is for monitoring records to be compressed.

**NOCOMPRESS**
Data compression is not performed.

You can reset this value by overtyping it with a different value.

**DPLLIMIT**(value)
Displays the maximum number of distributed program link requests for which transaction resource class monitoring data is being collected.

**IDNTYCLASS**(value)
Displays whether the identity class of monitoring data is being collected. The values are as follows:

**IDNTY**
Identity class monitoring data is being collected.

**NOIDNTY**
Identity class monitoring data is not being collected.
**INQUIRE SYSTEM**

A new option MQCONN is added:

**MQCONN(value)**

Displays the name of the MQCONN resource definition that is currently installed for the CICS region. If no MQCONN resource definition is currently installed, the field is blank. Only one MQCONN resource definition can be installed at a time in a CICS region. The MQCONN resource definition specifies the attributes of the connection between CICS and WebSphere MQ.

**INQUIRE TCPIPSERVICE**

A new option, HOST, displays the host name, IPv4, or IPv6 address of the remote system. This option is an alternative to IPAddress. The values HOSTNAME, ANY, DEFAULT, IPV4HOST, IPV6HOST, and NOTAPPLIC filter the contents of the IPAddress option and the new HOST option. A new option, IPRESOLVED, displays the IPv4 or IPv6 address of the host. The values IPV4FAMILY, IPV6FAMILY, and UNKNOWN filter the contents of the new IPRESOLVED option.

**HOST(value)**

Displays the host name, IPv4, or IPv6 address of the remote system. All IPv4 addresses are displayed as native IPv4 dotted decimal addresses, for example, 1.2.3.4, regardless of the type of address format used. For information about accepted IPv4 formats, see the CICS Internet Guide.

**HOSTTYPE(value)**

Displays the address format of the HOST option. The HOSTTYPE option is available using an expanded query only. The possible values are as follows:

- **HOSTNAME**
  - The HOST option contains a character host name.

- **ANY**
  - The ANY option is specified for the HOST option.

- **DEFAULT**
  - The DEFAULT option is specified for the HOST option.

- **IPV4HOST**
  - The address is an IPv4 address.

- **IPV6HOST**
  - The address is an IPv6 address.

**IPFAMILY(value)**

Displays the address format of the IPRESOLVED option. The IPFAMILY option is available by using an expanded query only. Filtering interacts with the IPFAMILY option when you filter by using wildcard characters. For example, if the value in IPFAMILY is IPV6FAMILY, you must use the colon character to retrieve an IP address. The possible values are as follows:

- **IPV4FAMILY**
  - The address is an IPv4 address.

- **IPV6FAMILY**
  - The address is an IPv6 address.

- **UNKNOWN**
  - The IPRESOLVED option is not yet in use, or the address cannot be resolved.
IPRESOLVED(value)
Displays the IPv4 or IPv6 address of the host. The IPRESOLVED option is available by using an expanded query only.

INQUIRE TERMINAL
The REMOTESYSTEM option now provides information about IP connections.

INQUIRE TRANSACTION
The REMOTESYSTEM option now provides information about IP connections.

INQUIRE URIMAP
A new option, AUTHENTICATE, displays information about whether the host specified in the USAGE(CLIENT) URIMAP resource requires authentication.

AUTHENTICATE(value)
Displays whether to provide authentication information to a web services provider. The possible values are as follows:

BASEAUTH
The web services provider requires HTTP basic authentication. You can supply credentials to the web services requester (a user ID and password) to the global user exit, XWBAUTH, which, if enabled, sends the credentials to the web services provider.

NOAUTHENTIC
The web services provider does not require authentication.

A new option, ATOMSERVICE, displays the name of the ATOMSERVICE resource definition and the USAGE option has a new value, ATOM. The HOST option has been extended to display IPv6 addresses. The values HOSTNAME, IPV4HOST, IPV6HOST, and NOTAPPLIC filter the contents of the new HOST option. A new option, IPRESOLVED, displays the IPv4 or IPv6 address of the host. The values IPV4FAMILY, IPV6FAMILY, and UNKNOWN filter the contents of the new IPRESOLVED option. A new option, PORT, displays the numeric port number of the connection.

ATOMSERVICE(value)
Displays the 1- to 8-character name of an ATOMSERVICE resource definition for an Atom feed. The ATOMSERVICE resource definition defines an Atom service, feed, collection, or category document, and identifies the Atom configuration file, CICS resource or application program, and XML binding that are used to supply the data for the feed.

HOST(value)
Displays the host name, IPv4, or IPv6 address of the URL. All IPv4 addresses are displayed as native IPv4 dotted decimal addresses; for example, 1.2.3.4, regardless of the type of address format used. If you are using a URIMAP definition relating to CICS as an HTTP client, USAGE(CLIENT), and a native IPv4 address or host name is used, the address or host name and port number are displayed; for example, 1.2.3.4:80 or hostname.com:443. If you specify a hostname that is greater than 110 characters in length, port information is not displayed in the HOST option. Use the PORT option to view the port number.

HOSTTYPE(value)
Displays the address format of the HOST option. The HOSTTYPE option is available using an expanded query only. The possible values are as follows:
HOSTNAME
The HOST option contains a character host name.

IPV4HOST
The address is an IPv4 address.

IPV6HOST
The address is an IPv6 address.

IPFAMILY(value)
Displays the address format of the IPRESOLVED option. The IPFAMILY option is available using an expanded query only. Filtering interacts with the IPFAMILY option when you filter using wildcard characters. For example, if the value in IPFAMILY is IPV6FAMILY, you must use the colon character to retrieve an IP address. The possible values are as follows:

IPV4FAMILY
The address is an IPv4 address.

IPV6FAMILY
The address is an IPv6 address.

UNKNOWN
The IPRESOLVED option is not yet in use, or the address cannot be resolved.

IPRESOLVED(value)
Displays the IPv4 or IPv6 address of the host. The IPRESOLVED option is available using an expanded query only. This option is for all types except USAGE(SERVER).

PORT(value)
Displays the numeric port number value used by USAGE(CLIENT) for the connection to the server, in the range 1 - 65535. The port number is also displayed in the HOST option if HOST contains a native IPv4 address or a host name. For USAGE(CLIENT), the PORT attribute always contains the port number that is being used for the communication, even if PORT(NO) is specified on the URIMAP at define time. For USAGE(ATOM), USAGE(SERVER), or USAGE.PIPELINE), the PORT option displays ().

USAGE(value)
Displays the usage for the URIMAP definition.

ATOM
The URIMAP definition is for an Atom feed. It is used for an incoming request for data that CICS makes available as an Atom feed.

INQUIRE VTAM

Note: VTAM is now the z/OS Communications Server.

A new option PSTYPE is added:

PSTYPE(value)
Displays the type of Communications Server persistent sessions support for the CICS region. The values are as follows:

SNPS Single-node persistent sessions. Communications Server sessions can be recovered after a CICS failure and restart.
MNPS
Multinode persistent sessions. Communications Server sessions can also be recovered after a Communications Server or z/OS failure in a sysplex.

NOPS Communications Server persistent sessions support is not used for this CICS region.

INQUIRE WORKREQUEST

A new option, CLNTIP6ADDR, displays the IPv6 address of the client that originated the request. The values IPV4FAMILY, IPV6FAMILY, and UNKNOWN filter the contents of the CLIENTIPADDR option and the new CLNTIP6ADDR option. A new option, TARGETSYS, displays the IPv4 or IPv6 address of the target system. This option is an alternative to TSYSTEM. The values IPV4TSYS, IPV6TSYS, APPLID, and NOTAPPLIC filter the contents of the TSYSTEM option and the new TARGETSYS option.

CLNTIPFAMILY(value)
Displays the address format of the IP address in CLIENTIPADDR and CLNTIP6ADDR. The CLNTIPFAMILY option is available using an expanded query only. Filtering interacts with the CLNTIPFAMILY option when you filter using wildcard characters. For example, if the value in CLNTIPFAMILY is IPV6FAMILY, you must use the colon character to retrieve an IP address. The possible values are as follows:

IPV4FAMILY
The address is an IPv4 address.

IPV6FAMILY
The address is an IPv6 address.

UNKNOWN
The IPRESOLVED option is not yet in use, or the address cannot be resolved.

CLNTIP6ADDR(value)
Displays the colon hexadecimal IPv6 address of the TCP/IP client that originated the request as a 39-character value. If the client address is in IPv4 format, the dotted decimal IPv4 address is returned.

TARGETSYS(value)
Displays the APPLID of the target CICS system as a 50-byte field. This field can contain one of the following values:

- The colon hexadecimal TCP/IP address and port number of the target system, in the format [::a:b:c:d]:port where [] are X‘BA’ & X‘BB’ (code page 37).
- The dotted decimal TCP/IP address and port number of the target system. All IPv4 addresses are displayed as native IPv4 dotted decimal addresses, for example, 1.2.3.4, irrespective of which type of address format is used. For information on accepted IPv4 formats, see the CICS Internet Guide.
- The z/OS Communications Server APPLID of the target system. The APPLID can be up to 8 characters followed by blanks.
- A string of blank characters. The target system is not CICS over MRO, the target system is not CICS over TCP/IP, or an error has occurred.
- A different value, which CICS captures but does not translate.
TSYSTYPE(value)
Displays the address format of the IP address in TSYSTEM and TARGETSYS. Here are the values:

IPV4  The TSYSTEM and TARGETSYS options contain a dotted decimal IPv4 address.

IPV6  The TARGETSYS option contains a colon hexadecimal IPv6 address. This value is returned only if an IPv6 address is returned in the TARGETSYS option.

APPLID  The TSYSTEM and TARGETSYS options contain an APPLID.

NOTAPPLIC  No entry is specified in the TSYSTEM or TARGETSYS option. Blanks are returned.

SET MONITOR
New options DPLLIMIT, FILELIMIT, IDNTYCLASS, and TSQUEUELIMIT are added.

DPLLIMIT(value)
The maximum number of distributed program link requests for which CICS performs transaction resource monitoring. The value specified must be in the range 0 - 64.

FILELIMIT(value)
The maximum number of files for which CICS performs transaction resource monitoring. The value specified must be in the range 0 - 64.

IDNTY
The identity class of monitoring data is to be collected.

NOIDNTY
The identity class of monitoring data is not to be collected.

TSQUEUELIMIT(value)
The maximum number of temporary storage queues for which CICS performs transaction resource monitoring. The value specified must be in the range 0 - 64.

Changed CEMT commands in CICS TS 3.2
These CEMT commands were changed in CICS Transaction Server for z/OS, Version 3 Release 2.

INQUIRE DOCTEMPLATE
A new option SIZE is added to this command:

SIZE
Returns the amount of storage, in bytes, used by the cached copy of the document template. A value of zero is returned if there is no cached copy of the template at the time of the inquiry.

INQUIRE DSAS
The SOSSTATUS option is removed, and new options MEMLIMIT, SOSABOVEBAR, SOSABOVELINE and SOSBELOWLINE are added:
**MEMLIMIT**(value)

Displays the limit of storage above the bar, for use by the CICS region. A value of NOLIMIT indicates that no limit is imposed on the amount of storage that the region can attempt to use.

**SOSABOVEBAR**(value)

Displays whether CICS is short on storage in the dynamic storage areas above the bar.

NOTSOS

CICS is not short on storage in any of the dynamic storage areas above the bar.

**SOS**

CICS is short on storage in at least one of the dynamic storage areas above the bar.

**SOSABOVE Line**(value)

Displays whether CICS is short on storage in the dynamic storage areas above 16 MB but below 2 GB (above the line).

**NOTSOS**

CICS is not short on storage in any of the dynamic storage areas above 16 MB but below 2 GB.

**SOS**

CICS is short on storage in at least one of the dynamic storage areas above 16 MB but below 2 GB.

**SOSBELOW Line**(value)

Displays whether CICS is short on storage in the dynamic storage areas below 16 MB (below the line).

**NOTSOS**

CICS is not short on storage in any of the dynamic storage areas below 16 MB.

**SOS**

CICS is short on storage in at least one of the dynamic storage areas below 16 MB.

**INQUIRE FILE**

A new option RBATYPE is added:

**RBATYPE**(value)

Displays whether, for VSAM files, the data set uses extended addressing.

**EXTENDED**

This VSAM data set uses extended relative byte addressing and therefore can hold more than 4 gigabytes of data.

**NOTAPPLIC**

One of the following is true:

- The data set is BDAM.
- The file is remote.
- The file is not open.

**NOTEXTENDED**

This VSAM data set does not use extended relative byte addressing and therefore cannot hold more than 4 gigabytes of data.

You cannot modify the contents of this field.

**INQUIRE IRC**

A new option XCFGROUP is added:
XCFGROUP
Displays the name of the cross-system coupling facility (XCF) group of which this region is a member.

If this region is not a member of an XCF group, because it has not signed on to IRC, XCFGROUP displays the relevant XCF group for the region if XCF was open.

For introductory information about XCF and MRO, see Cross-system multiregion operation (XCF/MRO) in the CICS Intercommunication Guide.

INQUIRE MONITOR
A new option COMPRESSST is added:

COMPRESSST(value)
Displays whether data compression is performed for monitoring records. The values are as follows:
COMPRESS
Data compression is performed. The default is for monitoring records to be compressed.
NOCOMPRESS
Data compression is not performed.

You can reset this value by overtyping it with a different value.

INQUIRE PROGRAM
The USECOUNT option now displays a use count for Java programs. In earlier CICS releases, this count was not available.

INQUIRE PIPELINE
A number of new options are added to this command:

CIDDOMAIN(value)
Displays the name of the domain that is used to generate MIME content-ID values that identify binary attachments.

MODE(value)
Displays the operating mode of the pipeline.

PROVIDER
CICS is using the pipeline as a service provider of web services.

REQUESTER
CICS is using the pipeline as a service requester of web services.

UNKNOWN
The operating mode of the pipeline cannot be determined.

MTOMNOXOPST(value)
Displays the status of the pipeline for sending outbound messages in MIME format when binary attachments are not present.

MTOMNOXOP
Outbound messages are sent in MIME format, even when there are no binary attachments present.

NOMTOMNOXOP
Outbound messages are sent in MIME format only when there are binary attachments present.
**MTOMST**(value)
Displays the status of the MTOM handler in the pipeline.

- **MTOM**
  The MTOM handler is enabled in the pipeline.

- **NOMTOM**
  The MTOM handler is not enabled in the pipeline.

**RESPWAIT**(value)
Displays the number of seconds that an application program waits for an optional message from a remote web service. If no value is displayed, the default timeout value of the transport protocol is being used.

- The default timeout value for HTTP is 10 seconds.
- The default timeout value for WebSphere MQ is 60 seconds.

**SENDMTOMST**(value)
Displays the status of the pipeline for sending outbound messages in MIME format.

- **NOSENDMTOM**
  Outbound messages are never sent in MIME format.

- **SAMESENDMTOM**
  Outbound messages are sent in MIME format only when the inbound message is in MIME format.

- **SENDMTOM**
  Outbound messages are always sent in MIME format.

**SOAPLEVEL**(value)
Displays the level of SOAP that is supported in the pipeline. The SOAP level can be 1.1 or 1.2. If the pipeline is not being used for SOAP messages, a value of NOTSOAP is displayed.

**XOPDIRECTST**(value)
Displays the status of the pipeline for handling XOP documents and binary attachments in direct or compatibility mode.

- **XOPDIRECT**
  The pipeline is processing XOP documents and binary attachments in direct mode.

- **NOXOPDIRECT**
  The pipeline is processing XOP documents and binary attachments in compatibility mode.

**XOPSupportST**(value)
Displays the status of the application handler for processing XOP documents and binary attachments directly.

- **XOPSupport**
  The application handler supports the direct handling of XOP documents and binary attachments.

- **NOXOPSupport**
  The application handler does not support the direct handling of XOP documents and binary attachments.
INQUIRE SYSTEM

The SOSSTATUS option is removed, and new options SOSABOVEBAR, SOSABOVELINE, and SOSBELOWLINE are added:

**SOSABOVEBAR**(value)
Displays whether CICS is short on storage in the dynamic storage areas above the bar.

**NOTSOS**
CICS is not short on storage in any of the dynamic storage areas above the bar.

**SOS**
CICS is short on storage in at least one of the dynamic storage areas above the bar.

**SOSABOVELINE**(value)
Displays whether CICS is short on storage in the dynamic storage areas above 16 MB but below 2 GB (above the line).

**NOTSOS**
CICS is not short on storage in any of the dynamic storage areas above 16 MB but below 2 GB.

**SOS**
CICS is short on storage in at least one of the dynamic storage areas above 16 MB but below 2 GB.

**SOSBELOWLINE**(value)
Displays whether CICS is short on storage in the dynamic storage areas below 16 MB (below the line).

**NOTSOS**
CICS is not short on storage in any of the dynamic storage areas below 16 MB.

**SOS**
CICS is short on storage in at least one of the dynamic storage areas below 16 MB.

INQUIRE TCPIPSERVICE

A new option REALM is added:

**REALM**(value)
Returns the 56-character realm that is used during the process of HTTP basic authentication.

The PROTOCOL option has a new value:

**IPIC**
IP interconnectivity.

INQUIRE WEBSERVICE

A number of new options are added to this command:

**CCSID**(value)
Displays the CCSID that is used to encode data between the application program and the web service binding file at run time. This value is set using the optional CCSID parameter in the web services assistant when the web service binding file was generated. If the value is 0, the default CCSID for the CICS region that is specified by the LOCALCCSID system initialization parameter is used.

**MAPPINGLEVEL**(value)
Displays the mapping level that is used to convert data between language
structures and web service description (WSDL) documents. The value of the mapping level is 1.0, 1.1, 1.2, 2.0, or 2.1. The default is to use a mapping level of 1.0.

MINRUNLEVEL(value)
Displays the minimum runtime level that is required to run the web service in CICS. The value of the runtime level is 1.0, 1.1, 1.2, 2.0, or 2.1.

XOPDIRECTST(value)
Indicates whether the web service can handle XOP documents and binary attachments in direct mode:

NOXOPDIRECT
The web service cannot handle XOP documents and binary attachments in direct mode, either because validation is switched on for the web service or because the web service implementation does not support the handling of XOP documents and binary attachments. Compatibility mode is used instead.

XOPDIRECT
The web service can handle XOP documents and binary attachments in direct mode.

XOPSUPPORTST(value)
Indicates whether the web service implementation can handle XOP documents and binary attachments.

NOXOPSUPPORT
The web service implementation cannot handle XOP documents and binary attachments.

XOPSUPPORT
The web service implementation can handle XOP documents and binary attachments. This case is true for any CICS-generated web service created by a level of CICS that supports MTOM/XOP.

SET MONITOR
New options COMPRESS and NOCOMPRESS are added to this command:

COMPRESS
Data compression is performed for monitoring records. The default is for monitoring records to be compressed.

NOCOMPRESS
Data compression is not to be performed for monitoring records.

SET PIPELINE
A new option RESPWAIT is added to this command:

RESPWAIT(value)
Specifies the time, in seconds, that an application program waits for a response message from a remote web service. The value can range from 0 to 9999 seconds.

If you do not specify a value, the default timeout value of the transport protocol is used.

• The default timeout value for HTTP is 10 seconds.
• The default timeout value for MQ is 60 seconds.

SET PROGRAM

The number of elements that can be set by the CEMT SET PROGRAM command is now limited to 32766:

ALL

Specifies that any changes you request are made to all resources of the specified type that you are authorized to access, up to a maximum of 32766. If this limit is exceeded, the request fails and no resources are updated.

SET TSQUEUE / TSQNAME

The number of elements that can be set by the CEMT SET TSQUEUE or CEMT SET TSQNAME command is now limited to 32766:

ALL

Specifies that any changes you request are made to all resources of the specified type that you are authorized to access, up to a maximum of 32766. If this limit is exceeded, the request fails and no resources are updated.

PERFORM STATISTICS

Statistics can be written for the new resource types DOCTEMPLATE, IPCCONN, LIBRARY, and MQCONN.

DISCARD DOCTEMPLATE, INQUIRE DOCTEMPLATE, SET DOCTEMPLATE

If resource security for document templates is active in the CICS region, with the XRES system initialization parameter set on (which is the default), and assuming RESSEC(YES) is specified for CEMT, these commands are subject to resource security checking.

New CEMT commands

These CEMT commands support new CICS functions.

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

New CEMT commands in CICS Transaction Server for z/OS, Version 4 Release 2

INQUIRE EPADAPTER

Retrieve information about an EP adapter.

INQUIRE TEMPSSTORAGE

Retrieve information about storage used by temporary storage queues in the CICS region.

SET EPADAPTER

Enable or disable an EP adapter.

SET TEMPSSTORAGE

Set the amount of storage that is available to temporary storage queues in the CICS region.
New CEMT commands in CICS Transaction Server for z/OS, Version 4 Release 1

**DISCARD ATOMSERVICE**
Remove an ATOMSERVICE resource definition.

**DISCARD BUNDLE**
Remove a BUNDLE resource definition. Any resources that were dynamically created by the bundle are also discarded.

**DISCARD JVMSERVER**
Remove a JVMSERVER resource definition.

**DISCARD MQCONN**
Remove an MQCONN resource definition. If there is an implicit MQINI resource definition, it is also discarded.

**INQUIRE ATOMSERVICE**
Retrieve information about ATOMSERVICE resource definitions.

**INQUIRE BUNDLE**
Retrieve information about a BUNDLE resource.

**INQUIRE EVENTBINDING**
Retrieve information about an event binding.

**INQUIRE EVENTPROCESS**
Retrieve the status of event processing.

**INQUIRE JVMSERVER**
Retrieve information about the status of a JVM server.

**INQUIRE MQCONN**
Retrieve information about the connection between CICS and WebSphere MQ.

**INQUIRE MQINI**
Retrieve the name of the default initiation queue used for the connection between CICS and WebSphere MQ.

**INQUIRE XMLTRANSFORM**
Retrieve information about an installed XMLTRANSFORM resource.

**SET ATOMSERVICE**
Enable or disable an ATOMSERVICE resource.

**SET BUNDLE**
Enable or disable a BUNDLE resource.

**SET EVENTBINDING**
Enable or disable an EVENTBINDING resource.

**SET EVENTPROCESS**
Change the status of event processing in the CICS region.

**SET JVMSERVER**
Change the attributes of a JVM server.

**SET MQCONN**
Change information about the attributes of the connection between CICS and WebSphere MQ. You can also start and stop the connection.

**SET XMLTRANSFORM**
Change the validation status of an XMLTRANSFORM resource.
New CEMT commands in CICS Transaction Server for z/OS, Version 3 Release 2

**DISCARD IPCONN**
Remove an IPCONN resource definition.

**DISCARD LIBRARY**
Remove a LIBRARY resource definition.

**INQUIRE IPCONN**
Retrieve information about IPCONN resources.

**INQUIRE LIBRARY**
Retrieve information about LIBRARY resources.

**PERFORM JVMPOOL**
Start and terminate JVMs in the JVM pool.

**SET IPCONN**
Change the attributes of an IPCONN resource or cancel outstanding AIDs.

**SET LIBRARY**
Change the attributes of a LIBRARY resource.

**SET DOCTEMPLATE**
Refresh the cached copy of a document template installed in your CICS region, or phase in a new copy of a CICS program or exit program that is defined as a document template.
Chapter 8. Changes to the CICS management client interface (CMCI)

The CICS management client interface (CMCI) supports additional CICSPlex SM and CICS resources, and you can query the resources using these external resource names.

**New CICSPlex SM resources supported in CICS Transaction Server for z/OS, Version 4 Release 2**

The new supported resources together with their external resource names for use in CMCI queries are as follows:

<table>
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<th>CICSPlex SM resource name</th>
<th>External resource name</th>
<th>Description</th>
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<td>CMAS to MAS link</td>
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<td>CICS router region in an active workload</td>
</tr>
</tbody>
</table>
Chapter 9. Changes to the CICS-supplied transactions

Some CICS-supplied transactions are new or have changed in support of new functions.

The CICS transactions accept as few characters of a keyword as needed to identify the keyword uniquely in the request. Minimum abbreviations might change between CICS releases because of the introduction of new commands. If you use automated processes or programs to issue commands for CICS transactions, and you use abbreviations for the keywords, check for any changes to these abbreviations in the new release. In the syntax displays on your screen, the minimum permitted abbreviation is shown in uppercase characters, and the remainder is shown in lowercase.

Changes to CKQC

When you use the CKQC transaction from the CICS-MQ adapter control panels or call it from the CICS command line or a CICS application, the default settings in the transaction are now taken from the MQCONN resource definition for the CICS region, rather than from an INITPARM system initialization parameter.

The default values supplied on the CICS-MQ adapter control panels for the queue manager name and initiation queue name are taken from the MQCONN resource definition and its implied MQINI resource definition.

When CICS is connected to WebSphere MQ, the field "QMgr name" in the Display Connection panel shows the name of the queue manager to which CICS is connected, or to which CICS is waiting to connect (if resynchronization is in progress). When CICS is not connected to WebSphere MQ, the field is blank. The new field "Mqname" in the Display Connection panel shows the name of the default WebSphere MQ queue-sharing group or queue manager for the connection, which you specified using the MQNAME attribute in the MQCONN resource definition. The value for the Mqname field is displayed whether or not CICS is connected to WebSphere MQ.

You can issue the CKQC START command without specifying a queue manager name, and CICS connects to the queue manager or a member of the queue-sharing group that you have specified in the MQCONN resource definition. You can also specify the name of a queue-sharing group on the CKQC START command in place of the name of a single queue manager. If you specify the name of a queue manager or queue-sharing group on the CKQC START command, the name that you specify replaces the setting for MQNAME in the installed MQCONN resource definition.

The following table summarizes the operator actions that you can perform for the CICS-WebSphere MQ connection, and whether you can perform these actions using EXEC CICS and CEMT commands, the CKQC transaction, the CICS Explorer®, or CICSPlex SM.
Table 2. Operator actions for CICS-WebSphere MQ connection

<table>
<thead>
<tr>
<th>Operator action</th>
<th>EXEC CICS, CEMT</th>
<th>CKQC</th>
<th>CICS Explorer or CICSPlex SM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start CICS-WebSphere MQ connection</td>
<td>Yes, using SET MQCONN, but you cannot specify the default initiation queue name</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Stop CICS-WebSphere MQ connection</td>
<td>Yes, using SET MQCONN</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Display connection status and settings</td>
<td>Yes, using INQUIRE MQCONN</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Display connect and disconnect time</td>
<td>Yes, using CICS statistics commands</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Display and reset detailed connection statistics including call types</td>
<td>Yes, using CICS statistics commands (resets all statistics)</td>
<td>Yes (resets CICS-WebSphere MQ connection statistics only)</td>
<td>No</td>
</tr>
<tr>
<td>Display tasks that are using the CICS-WebSphere MQ connection</td>
<td>Yes, but only the number of tasks, using INQUIRE MQCONN</td>
<td>Yes, full listing of tasks</td>
<td>No</td>
</tr>
<tr>
<td>Purge individual tasks that are using the CICS-WebSphere MQ connection</td>
<td>Yes, using SET TASK FORCEPURGE</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Enable or disable CICS-WebSphere MQ API-crossing exit</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Start instances of CKTI (CICS-WebSphere MQ trigger monitor or task initiator)</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>

Changes to CRTE

The routing transaction, CRTE, now supports transaction routing over an IPIC connection.

New transaction CEMN

CEMN, the CICS monitoring facility transaction, was introduced in CICS Transaction Server for z/OS, Version 3 Release 2.

CEMN gives you an alternative to the `INQUIRE MONITOR` and `SET MONITOR` system programming commands and the equivalent CEMT commands.

Note that if you use the Frequency option in CEMN to set the interval at which CICS produces performance class records for long-running tasks, CICS can produce a performance class monitoring record in this way only when the long-running transaction is running on the QR or CO TCBs.
CEMN is a Category 2 transaction.

**Changes to CEMN**

The CEMN transaction has new and changed options.

The CEMN transaction now includes the new distributed program link resource limit and a new identity class field. The CEMN transaction has been split into a primary panel and a second options panel. Also, you can change the DPLLIMIT, FILELIMIT, and TSQUEUELIMIT values using the CEMN transaction.

**New transaction CEPH**

CEPH, the HTTP EP adapter for event processing, was introduced in CICS Transaction Server for z/OS, Version 4 Release 2.

CEPH is defined by the event processing domain during CICS initialization. It is defined with RESSEC(YES) and CMDSEC(YES). CEPH runs the CICS program DFHECEAH, the HTTP EP adapter for event processing program. You can use an alternative transaction to run DFHECEAH.

CEPH is a RACF Category 2 transaction.

**New transaction CEPQ**

CEPQ, the WebSphere MQ EP adapter for event processing, was introduced in CICS Transaction Server for z/OS, Version 4 Release 1.

CEPQ is defined by the event processing domain during CICS initialization. It is defined with RESSEC(YES) and CMDSEC(YES). CEPQ runs the CICS program DFHECEAM, the WebSphere MQ EP adapter program. You can use an alternative transaction that runs DFHECEAM.

CEPQ is a RACF Category 2 transaction.

**New transaction CEPT**

CEPT, the TSQ adapter for event processing transaction, was introduced in CICS Transaction Server for z/OS, Version 4 Release 1.

CEPT is defined by the event processing domain during CICS initialization. It is defined with RESSEC(YES) and CMDSEC(YES). CEPT runs the CICS program DFHECEAT, the TSQ adapter for event processing program. You can use an alternative transaction that runs DFHECEAT.

CEPT is a RACF Category 2 transaction.

**New transaction CESL**

CESL, the sign-on long transaction, was introduced in CICS Transaction Server for z/OS, Version 4 Release 2.

With CESL, you can sign on to CICS with a password phrase of 9 to 100 characters or a standard password of up to 8 characters. In other respects CESL operates in the same way as the CESN sign-on transaction.
CESL is a RACF Category 3 transaction.

**New transaction CJGC**

CJGC, the CICS JVM garbage collection transaction, was introduced in CICS Transaction Server for z/OS, Version 3 Release 2.

When CICS initiates garbage collection in a JVM, this transaction is used for the process, so that the time spent in garbage collection is assigned to CJGC rather than to one of the user transactions that used the JVM.

If garbage collection is caused by an allocation failure in the JVM, rather than being scheduled by CICS, garbage collection takes place while the user application is running, and the CJGC transaction is not used.

The GC_HEAP_THRESHOLD option in the JVM profile specifies the heap utilization limit at which CICS initiates garbage collection. The default is 85%. If GC_HEAP_THRESHOLD is set to 100, CICS never initiates garbage collection, and so the CJGC transaction is not used.

CJGC is a Category 1 transaction.

**New transaction CJPI**

CJPI was introduced in CICS Transaction Server for z/OS, Version 3 Release 2. It starts up new JVMs as a result of a PERFORM JVMPOOL command.

CJPI is a Category 1 transaction.

**New transaction CWWU**

CWWU was introduced in CICS Transaction Server for z/OS, Version 4 Release 1 for the CICS management client interface. It calls the alias program DFHWBA to analyze CICS Web requests.

CWWU is defined in the CICS-supplied resource definition group DFHCURDI. The CICS management client interface uses CWWU instead of CWBA to run the CICS alias program DFHWBA, to distinguish CICS management client interface requests from other types of Web requests.

CWWU is a RACF Category 2 transaction.

**New transaction CW2A**

CW2A, the default alias transaction for Atom feeds, was introduced in CICS Transaction Server for z/OS, Version 4 Release 1. It is used for processing with ATOMSERVICE resource definitions.

CW2A is defined in the new CICS-supplied resource definition group DFHWEB2. It is defined with RESSEC(YES) and CMDSEC(YES). CW2A runs the CICS program DFHW2A, the W2 domain alias program. You may use an alternative transaction that executes DFHW2A.

CW2A is a RACF Category 2 transaction.
Chapter 10. Additions to CICS RACF category 1 transactions

The list of category 1 transactions has some new CICS internal system transactions. These transactions must be defined to your external security manager, and the CICS region user ID must be authorized to use them, so that CICS can initialize successfully when it is running with security enabled (SEC=YES).

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

The new category 1 transactions are as follows:

- CEPD
- CEPF
- CEPM
- CISB
- CISC
- CISD
- CISE
- CISM
- CISQ
- CISR
- CISS
- CIST
- CISU
- CISX
- CIS4
- CJGC
- CJPI
- CJSR
- CRLR
Chapter 11. Changes to global user exits, task-related user exits, and the exit programming interface

CICS Transaction Server for z/OS, Version 4 Release 2 has changes to some existing global user exit programs and task-related user exit programs, and there are some new global user exit points. Check your existing global user exit programs against the changes summarized here.

Reassembling global user exit programs

The CICS global user exit programming interface is product-sensitive, and depends on the facilities that are set up in your CICS system. It is advisable to reassemble global user exit programs for each CICS release.

Check the changes summarized in this section, and modify your global user exit programs to allow for changes to relevant parameters. After you complete your program changes, reassemble your global user exit programs against the CICS Transaction Server for z/OS, Version 4 Release 2 libraries.

A global user exit or task-related user exit might be assembled using CICS libraries from one CICS release and make an XPI call on a system that runs a different CICS release. In this situation, it depends on the combination of CICS releases, and whether the XPI call is a release-sensitive call, whether control is successfully transferred from the exit to the correct CICS module to handle that XPI call. For the user exit to succeed, you must also check other factors, for example whether XPI parameters have changed between releases.

If a user exit fails, an error message is issued and the transaction that called the exit might abend.

The following table summarizes the effect of different CICS releases on user exits.

<table>
<thead>
<tr>
<th>CICS release of the libraries used to assemble the XPI call</th>
<th>Release-sensitive XPI call?</th>
<th>CICS system that the XPI call is made on</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS 4.2</td>
<td>Yes</td>
<td>All currently supported CICS releases</td>
<td>Control transfers to the correct CICS module for the XPI call</td>
</tr>
<tr>
<td>CICS TS 4.2</td>
<td>No</td>
<td>Earlier than CICS TS 4.2</td>
<td>Unpredictable result</td>
</tr>
<tr>
<td>CICS TS 4.1</td>
<td>Yes</td>
<td>All currently supported CICS releases</td>
<td>Control transfers to the correct CICS module for the XPI call</td>
</tr>
</tbody>
</table>
Table 3. User exits with different CICS releases (continued)

<table>
<thead>
<tr>
<th>CICS release of the libraries used to assemble the XPI call</th>
<th>Release-sensitive XPI call?</th>
<th>CICS system that the XPI call is made on</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS 4.1</td>
<td>No</td>
<td>CICS TS 4.2</td>
<td>Control transfers to the correct CICS module for the XPI call</td>
</tr>
<tr>
<td>Earlier than CICS TS 4.1</td>
<td>No</td>
<td>CICS TS 4.2</td>
<td>User exit fails</td>
</tr>
</tbody>
</table>

Changes to the DFHUEPAR standard parameter list

The DFHUEPAR standard parameter list of TCB 2-character codes and symbolic values addressed by the global user exit task indicator field, UEPGIN, is extended. TCB modes are represented in DFHUEPAR as both a 2-character code and a symbolic value.

Table 4. TCB indicators changed in DFHUEPAR

<table>
<thead>
<tr>
<th>Symbolic value</th>
<th>2-byte code</th>
<th>Change</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>UEPTTP</td>
<td>TP</td>
<td>Addition</td>
<td>A TP open TCB, used to own the Language Environment enclave and THRD TCB pool for a JVM server.</td>
</tr>
<tr>
<td>UEPTT8</td>
<td>T8</td>
<td>Addition</td>
<td>A T8 open TCB, used by a JVM server to attach pthreads for system processing.</td>
</tr>
</tbody>
</table>

Changes to global user exits

Some existing global user exits have new parameters, new values or return codes, or changes to the way in which the exits are used.

Temporary storage exits domain exits: XTSQRIN, XTSQROUT, XTSPTIN, and XTSPTOUT

The UEPTERM parameter is a zero value for temporary storage requests that have been function shipped over an IPIC connection. To use IPIC connections for temporary storage requests, ensure that XTSQRIN, XTSQROUT, XTSPTIN, and XTSPTOUT check that the UEPTERM parameter is a non-zero value before trying to use it as an address.

XTSQRIN, XTSQROUT, XTSPTIN, and XTSPTOUT must be coded to threadsafe standards and declared threadsafe to get the benefits of threadsafe remote temporary storage queue support using an IPIC connection.

File control domain exits: XFCFRIN and XFCFROUT

The UEPTERM parameter is a zero value for file control requests that have been function shipped over an IPIC connection. To use IPIC connections for function shipping file control requests, ensure that XFCFRIN and XFCFROUT check that the UEPTERM parameter is a non-zero value before trying to use it as an address.
XFCFRIN and XFCFROUT must be coded to threadsafe standards and declared threadsafe to get the benefits of threadsafe remote file support using an IPIC connection.

**Managing IPIC intersystem queues exit: XISQUE**

XISQUE controls the requests and commands that are queued on an IPIC connection. XISQUE must be coded to threadsafe standards and declared threadsafe to get the benefits of threadsafe distributed program link (DPL) support, and threadsafe function shipping file control and temporary storage support, using an IPIC connection.

**HTTP client authorization and send exits: XWBAUTH and XWBSNDO**

XWBAUTH and XWBSNDO now support the HTTP EP adapter. If your target system requires basic authentication or security policies when using the HTTP EP adapter, you must implement XWBSNDO and XWBAUTH user exits to provide the required credentials.

**HTTP client open and send exits: XWBAUTH, XWBOPEN, and XWBSNDO**

XWBAUTH, XWBOPEN, and XWBSNDO now support IPv6 addressing. You must ensure that any programs that use these global user exits can process IPv6 addresses that are passed in the UEHOST parameter.

**Threadsafe PLT-enabled global user exit programs**

You can now define as threadsafe global user exit programs that are enabled from first-phase PLT programs. In previous CICS releases, this technique was available to task-related user exit programs but not to global user exit programs. To define a first-phase PLT global user exit program as threadsafe, specify the THREADSAFE keyword on the EXEC CICS ENABLE command. THREADSAFE overrides the CONCURRENCY(QUASIRENT) setting on the system-autoinstalled program definition.

**Changes to resource management installation and discard exit XRSINDI**

The range of values in the 1-byte field addressed by the UEPIDTYP parameter now covers the installation and discarding of the following new resource types:

- **UEIDATOM**
  - An ATOMSERVICE resource.

- **UEIDBNDL**
  - A BUNDLE resource.

- **UEIDEPAD**
  - An EPADAPTER resource.

- **UEIDEVCS**
  - An event capture resource.

- **UEIDEVNT**
  - An EVENTBINDING resource.
UEIDIPCO
   An IPCONN resource.

UEIDJSRV
   A JVM server resource.

UEIDLBRY
   A LIBRARY resource.

UEIDMQCN
   An MQCONN resource definition for the connection between CICS and
   WebSphere MQ.

UEIDMQIN
   An MQINI resource.

UEIDOSGB
   An OSGi bundle.

UEIDXMLT
   An XMLTRANSFORM resource.

To see all of the resource types that are available to the XRSINDI exit, see Exit XRSINDI

New parameters added to XRSINDI

New parameters are added to the install and discard global user exit, XRSINDI, to
support the resource signature.

UEPDEFTM
   The address of a variable-length list, which corresponds to the list in
   UEPIDNAM, containing the definition time of the individual resource as
   an 8-character STCK value.

   Note: The parameters UEPDEFTM, UEPCHUSR, UEPCHAGT,
   UEPCHREL, UEPCHTIM, UEPDEFSRC, UEPINUSR, UEPINTIM, and
   UEPINAGT are valid for the following resources: ATOMSERVICE,
   BUNDLE, CONNECTION, CORBASERVER, DB2CONN, DB2ENTRY,
   DB2TRAN, DJAR, DOCTEMPLATE, ENQMODEL, EPADAPTER,
   EVENTBINDING, FILE, IPCONN, JOURNALMODEL, JVMSERVER,
   LIBRARY, MQCONN, MQINI, OSGIBUNDLE, PIPELINE, PROFILE,
   PROCESSTYPE, PROGRAM, REQUESTMODEL, TCPIPSERVICE,
   TQQUEUE, TRANCLASS, TRANSACTION, TSMODEL, URIMAP,
   WEBSERVICE, and XMLTRANSFORM. The parameter value is zero for all
   other resources.

UEPCHUSR
   Address of a variable-length list, which corresponds to the list in
   UEPIDNAM, containing the 8-character user ID that ran the agent that last
   changed the individual resource.

UEPCHAGT
   Address of a variable-length list, which corresponds to the list in
   UEPIDNAM, of a 2-byte identifier representing the agent that last changed
   the individual resource. The possible values are as follows:

   UEPUNKAGT
      The resource was changed by an unknown agent.
UEPCSDAPI
The resource was changed using the CSD API or CEDA.

UEPCSDBAT
The resource was changed using the CSD batch program, DFHCSDUP.

UEPDRPAPI
The resource was changed using the CICSPlex SM BAS API.

UEPAUTOIN
The resource was changed using autoinstall.

UEPSYSTEM
The resource was changed by the running CICS region.

UEPDYNMAC
The resource was changed dynamically.

UEPTABLE
The resource was changed using a table.

UEPCHREL
Address of a variable-length list, which corresponds to the list in UEPIDNAM, containing the 4-character CICS release level that was running when the individual resource was last changed.

UEPCHTIM
Address of a variable-length list, which corresponds to the list in UEPIDNAM, containing the CSD record time stamp change for the individual resource as an 8-character STCK value.

UEPDEFSRC
Address of a variable-length list, which corresponds to the list in UEPIDNAM, containing the 8-character CSD group name or source corresponding to the individual resource.

UEPINUSR
Address of a variable-length list, which corresponds to the list in UEPIDNAM, containing the 8-character user ID that installed the individual resource.

UEPINTIM
Address of a variable-length list, which corresponds to the list in UEPIDNAM, containing the time that the domain was called for the installation of the individual resource as an 8-character STCK value.

UEPINAGT
Address of a variable-length list, which corresponds to the list in UEPIDNAM, of a 2-byte identifier representing the agent that installed the individual resource. The possible values are as follows:

UEPCSDAPI
The resource was installed using the CSD API or CEDA.

UEPCRESPI
The resource was installed using the EXEC CICS CREATE SPI commands.

UEPGRPLST
The resource was installed at startup using GRPLIST install.

UEPAUTOIN
The resource was autoinstalled.
UEPSYSTEM
The resource was installed by the running CICS system.

UEPDYNAMC
The resource was installed dynamically.

UEPBUNDLE
The resource was installed by a bundle deployment.

UEPTABLE
The resource was installed using a table.

Changes to global user exits in CICS Transaction Server for z/OS, Version 4 Release 1

Global user exits, XPCTA, XPCABND, and XPCHAIR

The transaction abend control block, TACB, now includes the breaking event address register information, BEAR. The XPCTA, XPCABND, and XPCHAIR global user exits are passed a pointer to the TACB parameter. These exits have to be reassembled only if the new information is to be processed by the exit or the ABNDMSGT field is not referenced by its address in field ABNDAMSG.

The TACB also includes additional GP and FP register information. Again, these exits have to be reassembled only if the new information is to be processed by the exit or the ABNDMSGT field is not referenced by its address in field ABNDAMSG.

Changed global user exit, XSRAB

New fields in the system recovery program exit, XSRAB, support the extended z/Architecture MVS linkage support.

SRP_ADDITIONAL_REG_INFO
An area containing additional register information.

SRP_ADDITIONAL_REGS_FLAG
1 byte containing flags:

SRP_CICS_GPR64_AVAIL
The 64-bit CICS GP registers are available.

SRP_SYSTEM_GPR64_AVAIL
The 64-bit system GP registers are available.

SRP_ADDITIONAL_FPR_AVAIL
Additional FP registers are available.

SRP_CICS_GP64_REGS
128-byte area containing the CICS 64-bit GP registers at the time of the abend.

SRP_SYSTEM_GP64_REGS
128-byte area containing the system 64-bit GP registers at the time of the abend.

SRP_FP_REGS
128-byte area containing all of the FP registers at the time of the abend.

SRP_FPC_REG
4-byte field containing the FPC register at the time of the abend.
Changes to global user exits in CICS Transaction Server for z/OS, Version 3 Release 2

EXEC interface program exits: XEIIN, XEIOUT, XEISPIN, and XEISPOUT

A new parameter, UEP_EL_PBTOK, is added to the exit-specific parameter lists of these exits:

**UEP_EL_PBTOK**

Address of a 4-byte field containing the z/OS Workload Manager (WLM) Performance Block Token. An exit program can use this token to access information (such as the service class token, SERVCLS) in the WLM Performance Block. To do so, it must use the WLM EXTRACT macro, IWMMEXTR, passing the Performance Block Token as the MONTKN input parameter. For more information about the IWMMEXTR macro, see z/OS MVS Programming: Workload Management Services.

An exit program must not attempt to modify the Performance Block: if it does so, the results are unpredictable.

File control domain exits: XFCFRIN and XFCFROUT

- A new value of UEP_FC_XRBA can be returned in the UEP_FC_RECORD_ID_TYPE exit-specific parameter.

**UEP_FC_XRBA**

VSAM extended ESDS access

- The following new return codes can be returned in UEP_FC_REASON:

**UEP_FC_REASON_KSDS_AND_XRBA**

Extended relative byte addressing (XRBA) was specified with a KSDS, CMT, or UMT data set.

**UEP_FC_REASON_NOT_EXTENDED**

Extended relative byte addressing was specified, with an XRBA number greater than 4 GB, but the data set uses standard relative byte addressing (RBA).

File control EXEC interface API exits: XFCREQ and XFCREQC

A new value of X'08' (XRBA) can be returned in the FC_EIDOPT8 field of the EXEC interface descriptor (EID), which is pointed to by the first address in the command-level parameter structure:

**FC_EIDOPT8**

Indicates whether certain keywords that do not take values were specified on the request.

X'80' DEBKEY specified.

X'40' DEBREC specified.

X'20' TOKEN specified.

X'08' XRBA specified. If the XRBA bit is on, FC_RIDFLD (described in DSECT DFHFCEDS) points to an 8-byte extended relative byte address (XRBA).
File control exits: XFCLDEL, XFCBFFAIL, XFCBOVER, and XFCBOUT

If you have exit programs that run at these exit points, you might have to recode them to cope with the format of the new log records that are issued for extended addressing ESDS data sets.

Message domain exit: XMEOUT

New parameters are added for CICSPlex SM messages:

**UEPCPID**
Address of a 3-byte product ID. The possible values are:
- **DFH**  CICS messages.
- **EYU**  CICSPlex SM messages.

**UEPCPDOM**
Address of a 2-byte field containing the domain identifier of the message.

**UEPCPNUM**
Address of a 4-byte field containing the message number.

**UEPCPSEV**
Address of the message severity code.

Program control program exits: XPCREQ, XPCREQC, and XPCERES

A new parameter, UEP_PC_PBTOK, is added to the exit-specific parameter lists of these exits:

**UEP_PC_PBTOK**
Address of a 4-byte field containing the z/OS Workload Manager (WLM) Performance Block Token. An exit program can use this token to access information (such as the service class token, SERVCLS) in the WLM Performance Block. To do so, it must use the WLM EXTRACT macro, IWMMEXTR, passing the Performance Block Token as the MONTKN input parameter. For more information about the IWMMEXTR macro, see z/OS MVS Programming: Workload Management Services.

An exit program must not attempt to modify the Performance Block: if it does so, the results are unpredictable.

Resource manager interface program exits: XRMIIN and XRMIOUT

A new parameter, UEP_RM_PBTOK, is added to the exit-specific parameter lists of these exits:

**UEP_RM_PBTOK**
Address of a 4-byte field containing the z/OS Workload Manager (WLM) Performance Block Token. An exit program can use this token to access information (such as the service class token, SERVCLS) in the WLM Performance Block. To do so, it must use the WLM EXTRACT macro, IWMMEXTR, passing the Performance Block Token as the MONTKN input parameter. For more information about the IWMMEXTR macro, see z/OS MVS Programming: Workload Management Services.
An exit program must not attempt to modify the Performance Block: if it does so, the results are unpredictable.

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**New global user exit points**

CICS Transaction Server for z/OS, Version 4 Release 2 includes some new global user exit points to help you customize new or existing CICS functions.

**New global user exit points added in CICS Transaction Server for z/OS, Version 4 Release 2**

**Event capture exit XEPCAP**

The XEPCAP exit is invoked just before an event is captured by CICS event processing. Use the XEPCAP exit to detect when events are captured.

**New global user exit points added in CICS Transaction Server for z/OS, Version 4 Release 1**

**File control RLS coexistence program exit XFCRLSCO**

The XFCRLSCO exit can be called during a request to open a file. Use this exit to allow an application to switch the mode between RLS and read-only non-RLS to access a particular data set.

**Intersystem communication program exit XISQLCL**

You can use the XISQLCL exit for EXEC CICS START NOCHECK commands that are scheduled for an IPIC connection.

You use the XISQLCL sample global user exit program DFH£XISL to control the queueing of START NOCHECK requests that are scheduled for an IPIC connection.

**Pipeline processing exit XWSPRROI**

Use the XWSPRROI exit to access containers on the current channel before the containers are processed by a Web services provider application, but after any instance of the XWSPRRWI exit is invoked.

**Pipeline processing exit XWSPRRWI**

Use the XWSPRRWI exit to access containers on the current channel that are to be processed by the Web services provider application, after CICS has converted the Web services request body into a language structure and before any instance of the XWSPRROI exit is invoked.

**Pipeline processing exit XWSPRRWO**

Use the XWSPRRWO exit to access containers on the current channel that have been processed by a Web services provider application after any instance of the XWSPRROO exit.

**Pipeline processing exit XWSRQROI**

Use the XWSRQROI exit to access containers on the current channel after they are processed by the transport as a Web services response. The XWSRQROI exit is invoked directly after CICS has processed the outbound Web service provider. It can also be invoked before any instance of the XWSRQRWI exit.

**Pipeline processing exit XWSRQROO**

Use the XWSRQROO exit to access containers on the current channel before they are passed to the transport to be processed. This exit runs after any instance of the XWSRQRWO exit is processed and before the data flowing outbound on the Web services transport.
Pipeline processing exit XWSRQRWI
Use the XWSRQRWI exit to access containers on the current channel after they have been processed by the transport as a Web services response. The XWSRQRWI exit is invoked directly after CICS has processed the inbound Web service response. It is also invoked after any instance of the XWSRQROI exit.

Pipeline processing exit XWSRQRWO
Use the XWSRQRWO exit to access containers on the current channel before they are passed to the transport to be processed. This exit runs after CICS has converted the application’s language structure into a Web services request body and before CICS processes the optional XWSRQROO exit point.

Pipeline processing exit XWSRQROI
Use the XWSRQROI exit to access containers on the current channel, with CICS acting as a secured Web services requester, after they are processed by the transport as a Web services response. This exit runs after CICS processes the Web service response and before any instance of the XWSSRRWI exit.

Pipeline processing exit XWSSRROO
Use the XWSSRROO exit to access containers on the current channel, with CICS acting as a secured Web services requester, before they are passed to the transport to be processed. This exit runs after any instance of the XWSSRRWO exit is processed and before the encryption of data flowing outbound on the Web services transport.

Pipeline processing exit XWSSRRWI
Use the XWSSRRWI exit to access containers on the current channel, with CICS acting as a secured Web services requester, after they have been processed by the transport as a Web services response. This exit runs after CICS processes the Web service response and after any instance of the XWSSRROI exit.

Pipeline processing exit XWSSRRWO
Use the XWSSRRWO exit to access containers on the current channel, with CICS acting as a secured Web services requester, before they are passed to the transport to be processed. This exit runs after CICS converts the application’s language structure into a Web services request body and before CICS processes the optional XWSSRROO exit point, and before being encrypted by the pipeline’s security handler.

New global user exit points added in CICS Transaction Server for z/OS, Version 3 Release 2

Application Associated Data exit XAPADMGR
Use the XAPADMGR exit for distributed transactions. XAPADMGR allows you to add user information to the association data of a task, at the point of origin of the distributed transaction. This information could be used later, for example, as a search key for processing carried out through CICSPlex SM.

CICS provides a sample global user exit program, DFH$APAD, for use at the XAPADMGR exit point. The exit program is called, if enabled, when nonsystem tasks for which no input Origin Descriptor Record is provided are attached.

HTTP client send exit XWBAUTH
With XWBAUTH, you can specify basic authentication credentials (user name and password) for a target server or service provider. XWBAUTH passes them to CICS on request, to create an Authorization header, which is forwarded using HTTP.

**Intersystem queues on IPIC connections exit XISQUE**

You can use the XISQUE exit to control queuing on IP interconnectivity (IPIC) connections.

Use the XISQUE exit to detect queuing problems (bottlenecks) early.

XISQUE enables allocate requests to be queued or rejected, depending on the length of the queue. It also allows an IPCONN on which there is a bottleneck to be ended and then reestablished.

**Pipeline processing exit XWSPRROO**

Use the XWSPRROO exit to access containers on the current channel after the Web services provider application issues the Web service response message and before CICS creates the body of the response message.

---

### Changes to task-related user exits

There are changes to the ways in which task-related user exit programs can be used in CICS Transaction Server for z/OS, Version 4 Release 2.

**Invocation by CICS context management**

You can now invoke task-related user exit programs at an additional invocation point. Currently, you can invoke a task-related user exit program from:

- An application program
- CICS SPI manager
- CICS syncpoint manager
- CICS task manager
- CICS termination manager
- The Execution Diagnostic Facility (EDF)

You can now also invoke a task-related user exit program from CICS context management.

A task-related user exit program signals that it wants to be invoked by CICS context management by setting a bit in the schedule flag word: see the CICS Customization Guide. It can set this bit when it is invoked by an application program or by the CICS task manager at start-of-task.

The only way to cause the exit program to be invoked by CICS context management is for the exit program itself, on a preliminary invocation, to set the bit in the schedule flag word. You can schedule calls by the CICS termination manager, for instance, can be scheduled by specifying the SHUTDOWN option on the EXEC CICS ENABLE command that enables the exit program. The EXEC CICS ENABLE command has no equivalent option to cause the exit program to be invoked by CICS context management. How to use options of the EXEC CICS ENABLE command to cause a task-related user exit program to be invoked for specific types of call is described in the CICS Customization Guide.

On invocation, the exit program is passed a context-related parameter list: see the CICS Customization Guide.
At the attach of the transaction started by the `EXEC CICS START` command, if a valid correlator is present, the monitoring domain passes it to the z/OS Workload Manager (WLM). The WLM does one of the following:

- Accepts the correlator as valid. In this case, the WLM returns a new correlator that is known as a *child correlator*.
- Rejects the correlator as invalid or unrecognized. In this case, the WLM treats this as an edge transaction, and generates a new edge correlator.

CICS uses it to identify the piece of work in any further WLM calls.

**Tracking information for programs called from CICS context management**

Extra parameters are added to the context-related parameter list that is passed when a task-related user exit program is called from CICS context management. The new parameters allow third party adapters to provide information on the origin of, and reason for, the transaction they are starting.

At the attach of the transaction started by the non-terminal EXEC CICS START command, if an adapter ID is provided by the task-related user exit, the adapter data is placed into the adapter fields in the origin data, providing a way of tracking work initiated by the adapter.

For information about the context-related parameter list for task-related user exit programs, see the *CICS Customization Guide*.

For information about origin data, see the *CICS Intercommunication Guide*.

---

**Changes to the exit programming interface (XPI)**

These changes to the exit programming interface (XPI) mean that you might have to change global user exit programs that contain XPI calls. Check whether or not your global user exit programs are affected by these changes to the XPI and modify your programs accordingly.

**New RELSENCALL call**

By replacing the CALL XPI parameter with the RELSENCALL XPI parameter, a XPI call assembled using the CICS TS 4.1 libraries will execute successfully on all currently supported CICS releases. The release sensitive XPI call alternative applies to all XPI commands.

For details of the XPI function, see the *CICS Customization Guide*.

**New INQUIRE_ACTIVATION call**

The new INQUIRE_ACTIVATION function is provided on the DFHBABRX macro call. You can use the INQUIRE_ACTIVATION call to obtain the activity name and the process type for the business transaction activity of the current transaction.

For details of the XPI function, see the *CICS Customization Guide*.

**Changed DFHNQEDX call**

A new ENQUEUE_TYPE option has been added to the ENQUEUE function.
ENQUEUE_TYPE (XPI | EXECSTRN | EXECADDR)

Specifies the type of resource being enqueued upon. XPI specifies the traditional DFHNQEDX behavior (the resource pool used is exclusive to XPI and cannot be accessed by the CICS API). Use EXECSTRN or EXECADDR to indicate that ENQUEUE_NAME1 specifies an enqueue resource, located in the same namespace, as the one being used by EXEC CICS ENQ. See CICS Problem Determination Guide for an explanation of EXECSTRN and EXECADDR.

A new ENQUEUE_TYPE option has been added to the DEQUEUE function.

ENQUEUE_TYPE (XPI | EXECSTRN | EXECADDR)

For details of the function, see the CICS Customization Guide.

Changed INQUIRE_SHORT_ON_STORAGE call

A new output parameter, SOS_ABOVE_THE_BAR, has been added to the INQUIRE_SHORT_ON_STORAGE storage control call.

SOS_ABOVE_THE_BAR(NO|YES),

Returns YES if CICS is currently short on 64-bit (above-the-bar) storage, and NO if not.
Chapter 12. Changes to the external CICS interface (EXCI)

The external CICS interface (EXCI) is an application programming interface that enables a non-CICS program (a client program) running in MVS to call a program (a server program) running in a CICS region and to pass and receive data by means of a communications area. The EXCI options table has some changes.

Changes to the EXCI options table

The EXCI options table, generated by the DFHXCOPT macro, enables you to specify a number of parameters that are required by the external CICS interface. A new option, XCFGROUP, is added to the EXCI options table.

**XCFGROUP={DFHIR000 | name}**

Specifies the name of the cross-system coupling facility (XCF) group to be joined by this client program.

**Note:** XCF groups allow CICS regions in different MVS images in the same sysplex to communicate with each other across multiregion operation (MRO) connections. For introductory information about XCF/MRO, and instructions on how to set up XCF groups, see the *CICS Intercommunication Guide*.

Each client program can join a maximum of one XCF group.

**DFHIR000**

The default XCF group name.

**name**

The group name must be eight characters long, padded on the right with blanks if necessary. The valid characters are A-Z, 0-9, and the national characters $, #, and @. To avoid using the names IBM uses for its XCF groups, do not begin group names with the letters A through C, E through I, or the character string “SYS”. Also, do not use the name “UNDESIG”, which is reserved for use by the system programmer in your installation.

You are recommended to use a group name beginning with the letters “DFHIR”.

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Chapter 13. Changes to user-replaceable programs

For each CICS release, you must reassemble all user-replaceable programs, whether or not you make any changes to them. Before reassembling the programs, check whether these changes to the user-replaceable program interface affect your own customized programs, and make any necessary changes. For example, there might be changes to the parameters passed to the programs or there might be new actions that the programs need to take. To help you to identify any code changes that are required, compare your customized programs with the sample code in the user-replaceable sample programs provided with this CICS release.

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

Changed user-replaceable programs

Check whether the changes listed for this release to the user-replaceable program interface affect your own customized programs, and make any necessary changes. For example, the parameters passed to the programs might be changed, or the programs might need to take new actions. To help you to identify any code changes that are required, compare your customized programs with the sample code in the user-replaceable sample programs provided with this CICS release.

Analyzer program for CICS Web support

New fields, \texttt{wbra\_client\_ipv6\_address} and \texttt{wbra\_server\_ipv6\_address}, handle IPv6 addressing. User replaceable modules will behave as before with all IPv4 connections and you do not need to recompile existing modules unless they use the new parameters. If you introduce an IPv6 connection, the \texttt{wbra\_client\_ip\_address} and \texttt{wbra\_server\_ip\_address} fields are populated with zeros.

Converter program for CICS Web support

New fields, \texttt{decode\_client\_ipv6\_address} and \texttt{decode\_client\_ipv6\_address\_string}, handle IPv6 addressing. User replaceable modules will behave as before with all IPv4 connections and you do not need to recompile existing modules unless they use the new parameters. If you introduce an IPv6 connection, the \texttt{decode\_client\_address} and \texttt{decode\_client\_address\_string} fields are populated with zeros.

Custom EP adapters

Your custom adapter programs must now honor the \texttt{EPAP\_RECOVER} flag in the \texttt{DFHEP\_ADAPTPARM} container to support synchronous event emission. You must review your custom EP adapter programs and update as necessary.

If the field \texttt{EPCX\_PROGRAM} in the \texttt{DFHEP\_CONTEXT} container is used by your custom EP adapter you must review and change your programs as required, because the field is not set for system events.
DFHDSRP, distributed routing program: DFHDYPDS copybook

There are changes to the copybook DFHDYPDS that defines the communication area for the CICS-supplied sample distributed routing program DFHDSRP.

- The following DFHDYPDS tokens are new:
  
  **DYRUOWAF**
  
  Indicates that callback is required at the end of the unit of work.

  **DYRFUNC 7 = End_UOW**
  
  Identifies that this call is for end of unit of work processing.

  **DYRLUOWID**
  
  Identifies the local unit of work. This token forms part of the key for the LOCKED affinity type.

  **DYNNUOWID**
  
  Identifies the network unit of work. This token forms part of the key for the LOCKED affinity type.

- The DYRVER token is incremented by 1 to indicate that this module has changed for this CICS TS release.

If you use your own routing program, you might have to make adjustments for these changes. Because the length of DFHDYPDS has changed, you must recompile your user-written dynamic routing and distributed routing programs if they check the length of DFHDYPDS as the CICS-supplied samples do.

**DFHDYP, dynamic routing program**

A threadsafe program can function ship a DPL request using dynamic routing to ship the request to another region. If the dynamic routing program DFHDYP is coded to threadsafe standards and defined CONCURRENCY(REQUIRED) or CONCURRENCY(THREADSAFE) there should be no or minimal penalty in terms of undesirable TCB switches to invoke DFHDYP.

**DFHJVMAT, JVM options**

DFHJVMAT is a user-replaceable program that you can use to override the options specified in a JVM profile. It can only be used for a single-use pooled JVM, and not for a continuous pooled JVM. The use of DFHJVMAT is not recommended for new development.

Only certain options in JVM profiles are available to DFHJVMAT. There are changes to the list of available options, as follows:

**CICS_HOME**

No longer available

**CICS_DIRECTORY**

No longer available

**CLASSCACHE_MSGLOG**

New

**CLASSPATH**

No longer available

**CLASSPATH_PREFIX, CLASSPATH_SUFFIX**

New, replace CLASSPATH
JAVA_DUMP_OPTS
New
LIBPATH
No longer available
LIBPATH_PREFIX, LIBPATH_SUFFIX
New, replace LIBPATH
TMPREFIX, TMSUFFIX
No longer available
Xresettable
No longer available

Several of the options available to DFHJVMAT are among the Java nonstandard options which have been undocumented. Information about these options can be found in the documentation for the IBM 64-bit SDK for z/OS, Java Technology Edition and other Java documentation.

DFHJVMRO, Language Environment runtime options

The DFHJVMRO program contains changed options to support the 64-bit Language Environment runtime options. Update your programs to use the following 64-bit options:

<table>
<thead>
<tr>
<th>Old option</th>
<th>New option</th>
</tr>
</thead>
<tbody>
<tr>
<td>HEAP</td>
<td>HEAP64</td>
</tr>
<tr>
<td>LIBHEAP</td>
<td>LIBHEAP64</td>
</tr>
<tr>
<td>STACK</td>
<td>STACK64</td>
</tr>
</tbody>
</table>

DFHPEP, program error program

A new field has been added to the supplied program error program to support the improvements in wild branch diagnosis.

* Breaking Event Address
* PEP_COM_BEAR DS AD Breaking Event Addr

New fields have been added to the supplied program error program to support the extended z/Architecture MVS linkage conventions.

* Additional register information
  * PEP COM_FLAG1 DS OD Force alignment
  * PEP COM GP64_REGS_AVAI EQU X'80' 64 bit register values available in
  * PEP_COM_ACCESS_REGS_AVAI EQU X'40' 64 bit register values available in
  * PEP_COM_ORIGINAL_FPR_AVAI EQU X'20' FPR 0, 2, 4 & 6 values available in
  * PEP_COM_ADDITIONAL_FPR_AVAI EQU X'10' All FPR available in

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DFHWBEP, Web error program

New fields, \texttt{wbep\_client\_ipv6\_address\_len}, \texttt{wbep\_client\_ipv6\_address}, \texttt{wbep\_server\_ipv6\_address\_len}, and \texttt{wbep\_server\_ipv6\_address} handle IPv6 addressing. User replaceable modules will behave as before with all IPv4 connections and you do not need to recompile existing modules unless they use the new parameters. If you introduce an IPv6 connection, the \texttt{wbep\_client\_address\_len}, \texttt{wbep\_client\_address}, \texttt{wbep\_server\_address\_len}, and \texttt{wbep\_server\_address} fields are populated with zeros.

If a URIMAP resource associated with the current HTTP request is disabled, error message DFHWB0763 is issued and the Web error program is started. This message is written to the CICS log each time the disabled URIMAP resource is encountered. Use the XMEOUT global user exit to suppress or reroute your messages if you do not want them to be written to the CICS log.

EYU9WRAM, dynamic routing program: EYURWCOM communication area

EYURWCOM is the communication area used by the dynamic routing user-replaceable module EYU9WRAM.

The following EYURWCOM tokens are new:

\texttt{WCOM\_DYRLUOW}
  Identifies the local unit of work for this request.

\texttt{WCOM\_DYRNUOW}
  Identifies the network unit of work for this request.

The following EYURWCOM tokens are changed:

- \texttt{WCOM\_AFF\_TYPE} has a new value of \texttt{WCOM\_AFF\_LOCKED}
- \texttt{WCOM\_AFF\_LIFE} has a new value of \texttt{WCOM\_AFF\_UOW}
If you have customized EYU9WRAM, you might have to make adjustments for these changes.

**EYU9XLOP, dynamic routing program: EYURWTRA communication area**

EYURWTRA is the communication area for the dynamic routing program EYU9XLOP.

The following EYURWTRA tokens are new:
- **WTRA_UOWOPT**
  Signifies that the exit requires callback processing at the end of the UOW.
- **WTRA_LOCUOWID**
  Identifies the local UOW token to be used.
- **WTRA_NETUOWID**
  Identifies the network UOW token to be used.

---

**New user-replaceable programs**

CICS Transaction Server for z/OS, Version 4 Release 2 includes user-replaceable programs to support new CICS functions.

**DFHISAIP**

DFHISAIP was introduced in CICS Transaction Server for z/OS, Version 3 Release 2. It manages the autoinstall of IP interconnectivity (IPIC) connections.

If IPCONN autoinstall is active, CICS installs the new IPIC connection using this information:
- The information in the connect flow
- The IPCONN template, optionally selected by the IPCONN autoinstall user program
- Values returned by the user program in its communications area
- CICS-supplied values

DFHISAIP, the assembler language version, is the default user program for autoinstall of IPIC connections. Sample COBOL, PL/I, and C versions are also supplied. The source for all the versions of the sample program is in the CICSTS42.CICS.SDFHSAMP library.

For more information about this program, see the *CICS Customization Guide*. 
Chapter 14. Changes to CICS utilities

Changes to CICS utilities in CICS Transaction Server for z/OS, Version 4 Release 2 relate to new, changed, or obsolete CICS functions. The existing utility programs DFHCS DUP, DFHSTUP, and DFH0 STAT support new resources, and the trace formatting utility program DFHTUxxx and IPCS dump exit routine DFHPDxxx support new resources and are renamed for the release.

DFH0STAT, sample statistics utility program

DFH0STAT, the sample statistics utility program, produces additional statistics reports for new resource types.

DFH0STAT uses the **INQUIRE TEMPSTORAGE** command, introduced in CICS TS for z/OS, Version 4.2. This command is subject to command security checking. If command security checking is active in a CICS region, user IDs that run DFH0STAT must have READ access to the **INQUIRE TEMPSTORAGE** command, through the RACF resource class that is specified on the **XCMD** system initialization parameter. Give access to user IDs that run the STAT transaction, and also to user IDs under which DFH0STAT is called during CICS shutdown by the PLTSD process.

To accommodate new statistics records added in CICS TS for z/OS, Version 4.1, DFH0STAT now has three panels for selecting reports to be printed. New COBOL modules for DFH0STAT are also provided, and some of the existing modules now print a different selection of statistics from those that they previously printed.

DFH0STAT now displays a 4-digit count for the hours in time fields instead of a 2-digit count, and also displays the time to six decimal places (down to one microsecond) instead of five decimal places. The new format for the time fields is **hhhh:mm:ss.000000**. The new format is used in the Dispatcher TCB Modes Report.

DFH0STAT now provides a new report for LIBRARY resources, which will provide details about the data sets in the concatenation as well as the LIBRARY statistics. The DFHRPL Analysis provided by DFH0STAT is revised to provide a DFHRPL and LIBRARY analysis showing the programs from the DFHRPL concatenation and those from LIBRARY resources.

There is a new distributed program link resource limit, DPLLIMIT, parameter in the DFH0STAT System Status Report.

DFH0STXD, new sample EXTRACT statistics utility program

The DFH0STXD sample extract program produces a basic report from the CICS statistics records for installed CICS resources. Each print line displays details for the resource listed including the resource type, the define source and the installation signature. For more information, see the **CICS Operations and Utilities Guide**.
DFHCSDUP, CSD utility program

The CSD utility program supports all the new and changed resource types and attributes. See Chapter 5, “Changes to resource definitions,” on page 35 for details of all the changes to CSD resource definitions that are supported by DFHCSDUP.

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.

DFHCSDUP ADD command

New BEFORE and AFTER options are added to DFHCSDUP ADD to control where a new group is placed.

After(groupname2)
   Specify AFTER to place the new group name after the existing group name. The group name is added at the end of the list if BEFORE or AFTER is not specified.

Before(groupname3)
   Specify BEFORE to place the new group name before the existing group name. The group name is added at the end of the list if BEFORE or AFTER is not specified.

DFHCSDUP LIST command

A new SIGSUMM option is added to DFHCSDUP LIST to produce a summary of definition signatures for all of the specified resources.

Sigsumm
   Shows the definition signatures for each of the resource definitions in the group specified.

DFHCSDUP MIGRATE command

Support for the DFHCSDUP MIGRATE command is withdrawn in CICS TS for z/OS, Version 4.1.

In previous versions of CICS, the DFHCSDUP MIGRATE command migrated the eligible DFHDCS, DFHRCT, DFHTCT and DFHTST macro resource definitions to the CICS system definition data set (CSD).

If you use any of these tables, you must migrate them to the CSD before you upgrade to CICS TS for z/OS, Version 4.1. To do so, you can use the DFHCSDUP MIGRATE command on any supported release up to CICS TS for z/OS, Version 3.2.

DFHCSDUP sample EXTRACT programs

These sample EXTRACT user programs for the DFHCSDUP utility program support the definition signature fields:
   DFH$CRFA, DFH$CRFP, and DFH0CRFC
   DFH$FORA, DFH$FORP, and DFH0FORC

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DFH0CBDC
DFH$DB2T and DFH$SQT

**DFHPD670, IPCS dump exit routine**

The dump formatting utility program is renamed to DFHPD670. Always ensure that you use the dump formatting program with the correct level number for the release of CICS TS that created the dump data set that you are formatting.

The dump exit routine for formatting CICS system dumps formats the control blocks for the new domains. To select or ignore dump data for any domains, specify the dump component keywords for those domains. The dump component keywords for use with the CICS IPCS dump exit routine are the same as the CETR trace component codes.

**DFHSTUP, statistics formatting utility program**

The statistics formatting utility program formats additional statistics reports for new and updated resource types. See Chapter 16, “Changes to statistics,” on page 163 for information about new keywords available on the SELECT TYPE and IGNORE TYPE parameters.

There is a new distributed program link resource limit, DPLLIMIT, parameter in the DFHSTUP Interval, End of Day, Requested and Summary reports for transaction resource monitoring.

**DFHTU670, trace formatting utility program**

The trace formatting utility program is renamed to DFHTU670. Always ensure that you use the trace program with the correct level number for the release of CICS TS that created the trace data set that you are formatting.

The program formats trace entries written by the new domains and functions. The new identifiers that you can specify to DFHTU670 on the TYPETR parameter for these functional areas are the same as the CETR trace component codes.

**New CICS JVM Application Isolation Utility**

The CICS JVM Application Isolation Utility helps system administrators and application developers to discover static variables in Java applications that they use or plan to use in their CICS regions. Application developers can review the findings of the utility and determine whether the application might exhibit unintended behavior when it runs in a continuous JVM. You can use the utility when moving Java workloads from resettable to continuous JVMs.

The CICS JVM Application Isolation Utility is a code analyzer tool, which inspects Java bytecodes in Java Archive (JAR) files and class files. It does not alter any Java bytecodes. It is provided as a means to help identify potential issues before they arise in a continuous JVM under CICS. The Java application does not have to be running in a CICS region when it is inspected.

The CICS JVM Application Isolation Utility is shipped with CICS as a JAR file named dfhjaiu.jar. It runs under z/OS UNIX System Services as a stand-alone utility.
Chapter 15. Changes to monitoring

Changes to CICS monitoring data might affect user-written and vendor-written utilities that analyze and print CICS SMF 110 monitoring records.

Check your utility programs that process CICS SMF records to ensure that they can still process SMF 110 records correctly. If you have utility programs provided by independent software vendors, you must ensure that they can 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.

- You can request a new type of monitoring data called identity data, which retrieves the distinguished name and realm for a transaction. This facility depends on the z/OS Identity Propagation function that is provided in z/OS, Version 1 Release 11.

- The length of a standard performance class monitoring record, as output to SMF, has increased to 2960 bytes. The length does not take into account any user data that you add or any system-defined data fields that you exclude by using a monitoring control table (MCT).

- The offsets have changed for a number of the default CICS dictionary entries in the dictionary data sections of CICS monitoring SMF 110 records.

- The length of a monitoring clock for performance class data, such as USRCPUT, has increased from 8 bytes to 12 bytes. For detailed information about the new format, see the Technote [Interpreting new 12 byte format of USRCPUT in SMF110 records](https://www.ibm.com/support/docview.wss?uid=swg21478894). This change affects all performance class data fields defined as TYPE-S and also affects any user-defined event-monitoring points (EMPs) that involve clocks. User clocks are defined in the monitoring control table (MCT) using DFHMCT TYPE=EMP macros. The monitoring clocks for transaction resource class data are not changed, and they remain at 8 bytes.

Data compression for SMF 110 monitoring records

CICS Transaction Server for z/OS, Version 3 Release 2 introduced a data compression facility for SMF 110 monitoring records, which can provide a significant reduction in the volume of data written to SMF. All monitoring records, except identity records, are compressed by default. If you do not want to compress monitoring records, you must change the compression option to COMPRESS=NO.

If you want to activate data compression for monitoring records, check that your utility programs handle data compression correctly. If you have utility programs provided by independent software vendors, make sure that the product can identify compressed CICS SMF 110 monitoring records and expand the data section using the z/OS Data Compression and Expansion Services, so that the monitoring records can be processed correctly. If the reporting tool cannot work in this way, consider using the CICS-supplied monitoring sample program DFHSMOLS, with the EXPAND control statement, to produce an output data set containing the SMF 110 monitoring records in their expanded format, with which the tool can work.

Changed monitoring data fields

Some existing data fields are changed in the performance class data, identity class data, transaction resource class data, and exception class data produced by CICS monitoring.
Performance class data fields changed in CICS Transaction Server for z/OS, Version 4 Release 1

Group DFHPROG: 071 (TYPE-C, 'PGMNAME', 8 BYTES)
   For web service applications, this field now contains the target application program name.

Group DFHSOCK: 318 (TYPE-C, 'CLIPADDR', 40 BYTES)
   This field replaces field 244, which was 16 bytes long.

Group DFHTASK: 007 (TYPE-S, 'USRDISPT', 12 BYTES)
   New TCB modes TP and T8 are added for this field.

Group DFHTASK: 008 (TYPE-S, 'USRCPUT', 12 BYTES)
   New TCB modes TP and T8 are added for this field.

Group DFHTASK: 164 (TYPE-A, 'TRANFLAG', 8 BYTES)
   Additions are made to the transaction flags field as follows:
   - In byte 4, Transaction origin type, the following value is added:
     X'14'  Event
   - In byte 5, Transaction status information, the following bits are added:
     Bit 0  The transaction origin
     Bit 2  Resource class record, or records, for this task
     Bit 3  Identity class record, or records, for this task

Group DFHTASK: 257 (TYPE-S, 'MSDISPT', 12 BYTES)
   New TCB modes TP and T8 are added for this field.

Group DFHTASK: 258 (TYPE-S, 'MSCPUT', 12 BYTES)
   New TCB modes TP and T8 are added for this field.

Group DFHTASK: 262 (TYPE-S, 'KY8DISPT', 12 BYTES)
   New TCB mode T8 is added for this field.

Group DFHTASK: 263 (TYPE-S, 'KY8CPUT', 12 BYTES)
   New TCB mode T8 is added for this field.

Group DFHWEBB: 224 (TYPE-A, 'WBREADCT', 4 BYTES)
   The number of READ QUERYPARM requests issued by the user task is added to the count for this field.

Group DFHWEBB: 235 (TYPE-A, 'WBTOTCT', 4 BYTES)
   The number of READ QUERYPARM requests issued by the user task is added to the count for this field.

Group DFHWEBB: 239 (TYPE-A, 'WBBRWCT', 4 BYTES)
   The number of EXEC CICS INVOKE SERVICE requests issued by the user task is added to the count for this field.

Performance class data fields changed in CICS Transaction Server for z/OS, Version 3 Release 2

Group DFHTASK: 164 (TYPE-A, 'TRANFLAG', 8 BYTES)
   Changes and additions are made to the transaction flags field as follows:
   - In byte 2, z/OS workload manager request (transaction) completion information, the following bit is added:
Bit 3  This transaction has been reported to the z/OS workload manager as completing abnormally because it has tried to access DB2 and a “connection unavailable” response has been returned. This occurs when all the following are true:
1. Bit 0 is set.
2. CICS is not connected to DB2.
3. The CICS-DB2 adapter is in standby mode (STANDBYMODE(RECONNECT) or STANDBYMODE(CONNECT)).
4. CONNECTERROR(SQLCODE) is specified, causing the application to receive a -923 SQL code.
   • In byte 4, Transaction origin type, the following value is added: X'13'    IPIC session
   • Byte 6, JVM information, which indicated when a JVM had been marked unresettable (Bit 0), is no longer set and is now reserved.

Group DFHTASK: 275 (TYPE=S, 'JVMRTIME', 12 BYTES)
Before CICS Transaction Server for z/OS, Version 3 Release 2, the JVMRTIME field (group name: DFHTASK, field id: 275) recorded the time spent resetting the JVM environment to its initial state between uses of the JVM. This time was only measurable for resetable JVMs, and usually registered as zero for continuous JVMs. The resetable mode is now withdrawn, but the precision of the CICS monitoring clocks has been increased, so the JVMRTIME field is now able to measure the time spent in JVM cleanup between uses of a continuous JVM. This time includes deleting local references for each task and handling any exception raised. It also includes the time taken to destroy the JVM when CICS ceases to require it.

Before CICS Transaction Server for z/OS, Version 3 Release 2, the JVMRTIME field also recorded the time spent on garbage collections scheduled by CICS. This type of garbage collection was included in the activity measurements for the transaction immediately before the garbage collection took place. Garbage collections scheduled by CICS now take place under a separate transaction, CJGC, and are not recorded in the JVMRTIME field for user transactions.

Exception class data fields changed in CICS Transaction Server for z/OS, Version 3 Release 2
EXCMNTRF (TYPE=C, 8 BYTES)
EXCMNTRF has changed to match the changes for field 164 (TRANFLAG) in performance data group DFHTASK.

New monitoring data fields
A number of new data fields are added in the performance class data, identity class data, transaction resource class data, and exception class data produced by CICS monitoring.

New identity class monitoring
You can request a new type of monitoring data called identity data, which retrieves the distinguished name and realm for a transaction. For more information, see Chapter 15, “Changes to monitoring,” on page 147.
Transaction resource class data for distributed program links

You can now request transaction resource class data for distributed program links, as well as for files and temporary storage queues.

The default is that transaction resource class data is not collected for distributed program links. To collect this data, you must assemble an MCT that specifies a suitable number of distributed program links to be monitored for each transaction.

New performance class data fields in group DFHCICS

351 (TYPE-C, 'OADID', 64 BYTES)
The adapter identifier added to the origin data by the adapter. This field is blank if the task was not started by using an adapter, or if it was and the adapter did not set this value.

352 (TYPE-C, 'OADATA1', 64 BYTES)
The data added to the origin data by the adapter. This field is blank if the task was not started by using an adapter, or if it was and the adapter did not set this value.

353 (TYPE-C, 'OADATA2', 64 BYTES)
The data added to the origin data by using the adapter. This field is blank if the task was not started by using an adapter, or if it was and the adapter did not set this value.

354 (TYPE-C, 'OADATA3', 64 BYTES)
The data added to the origin data by the adapter. This field is blank if the task was not started by using an adapter, or if it was and the adapter did not set this value.

360 (TYPE-C, 'OAPPLID', 8 BYTES)
The applid of the CICS region in which this work request (transaction) originated; for example, the region in which the CWXN task ran.

361 (TYPE-T, 'OSTART', 8 BYTES)
The time at which the originating task, for example, the CWXN task, was started.

362 (TYPE-P, 'OTRANNUM', 4 BYTES)
The number of the originating task; for example, the CWXN task.

363 (TYPE-C, 'OTRAN', 4 BYTES)
The transaction ID (TRANSID) of the originating task; for example, the CWXN task.

364 (TYPE-C, 'OUSERID', 8 BYTES)
The originating Userid-2 or Userid-1, for example, from CWBA, depending on the originating task.

365 (TYPE-C, 'OUSERCOR', 64 BYTES)
The originating user correlator.

366 (TYPE-C, 'OTCPSVCE', 8 BYTES)
The name of the originating TCPIPSERVICE.

367 (TYPE-A, 'OPORTNUM', 4 BYTES)
The port number used by the originating TCPIPSERVICE.

369 (TYPE-A, 'OCLIPORT', 4 BYTES)
The TCP/IP port number of the originating client or Telnet client.
370 (TYPE-A, 'OTRANFLG', 8 BYTES)
Origining transaction flags, a string of 64 bits used for signaling transaction definition and status information:

**Byte 0**
The facility-type of the originating transaction:
- Bit 0: None (X'80')
- Bit 1: Terminal (X'40')
- Bit 2: Surrogate (X'20')
- Bit 3: Destination (X'10')
- Bit 4: 3270 bridge (X'08')
- Bit 5: Reserved
- Bit 6: Reserved
- Bit 7: Reserved

**Byte 1**
Transaction identification information:
- Bit 0: System transaction (x'80')
- Bit 1: Mirror transaction (x'40')
- Bit 2: DPL mirror transaction (x'20')
- Bit 3: ONC/RPC Alias transaction (x'10')
- Bit 4: WEB Alias transaction (x'08')
- Bit 5: 3270 Bridge transaction (x'04')
- Bit 6: Reserved (x'02')
- Bit 7: CICS BTS Run transaction

**Byte 2**
Reserved.

**Byte 3**
Transaction definition information:
- Bit 0: Taskdatabloc = below (x'80')
- Bit 1: Taskdatakey = cics (x'40')
- Bit 2: Isolate = no (x'20')
- Bit 3: Dynamic = yes (x'10')
- Bits 4–7: Reserved

**Byte 4**
The type of the originating transaction:
- X'01': None
- X'02': Terminal
- X'03': Transient data
- X'04': START
- X'05': Terminal-related START
- X'06': CICS business transaction services (BTS) scheduler
- X'07': Transaction manager domain (XM)-run transaction
- X'08': 3270 bridge
| X'09' | Socket domain                      |
| X'0A' | CICS Web support (CWS)             |
| X'0B' | Internet Inter-ORB Protocol (IIOP) |
| X'0C' | Resource Recovery Services (RRS)   |
| X'0D' | LU 6.1 session                     |
| X'0E' | LU 6.2 (APPC) session              |
| X'0F' | MRO session                        |
| X'10' | External Call Interface (ECI) session |
| X'11' | IIOP domain request receiver       |
| X'12' | Request stream (RZ) instore transport |
| X'13' | IP interconnectivity session       |
| X'14' | Event                              |

**Byte 5**
Reserved.

**Byte 6**
Reserved.

**Byte 7**
Recovery manager information:
- Bit 0  Indoubt wait = no
- Bit 1  Indoubt action = commit
- Bit 2  Recovery manager - UOW resolved with indoubt action
- Bit 3  Recovery manager - shunt
- Bit 4  Recovery manager - unshunt
- Bit 5  Recovery manager - indoubt failure
- Bit 6  Recovery manager - resource owner failure
- Bit 7  Reserved

**371 (TYPE-C, 'OFCTYNME', 8 BYTES)**
The facility name of the originating transaction. If the originating transaction is not associated with a facility, this field is null. The transaction facility type, if any, can be identified using byte 0 of the originating transaction flags, OTRANFLG (370), field.

**372 (TYPE-C, 'OCLIPADR', 40 BYTES)**
The IP address of the originating client or Telnet client.

**373 (TYPE-C, 'PHNTWKID', 8 BYTES)**
The network identifier of the CICS system of an immediately previous task in another CICS system with which this task is associated.

**374 (TYPE-C, 'PHAPPLID', 8 BYTES)**
The APPLID from previous hop data. This is the APPLID of the CICS system of a previous task in another CICS system with which this task is associated.
See Previous hop data characteristics for more information about previous hop data.

**375 (TYPE-T, 'PHSTART', 8 BYTES)**
The start time of the immediately previous task in another CICS system with which this task is associated.

**376 (TYPE-P, 'PHTRANNO', 4 BYTES)**
The task number of the immediately previous task in another CICS system with which this task is associated.
377 (TYPE-C, 'PHTRAN', 4 BYTES)
The transaction ID (TRANSID) of the immediately previous task in another CICS system with which this task is associated.

378 (TYPE-A, 'PHCOUNT', 4 BYTES)
The number of times there has been a request from one CICS system to another CICS system to initiate a task with which this task is associated.

402 (TYPE-A, 'EICTOTCT', 4 BYTES)
The total number of EXEC CICS commands issued by the user task.

405 (TYPE-A, 'TIASKTCT', 4 BYTES)
The number of EXEC CICS ASKTIME commands issued by the user task.

406 (TYPE-A, 'TITOTCT', 4 BYTES)
The total number of EXEC CICS ASKTIME, CONVERTTIME, and FORMATTIME commands issued by the user task.

408 (TYPE-A, 'BFDGSTCT', 4 BYTES)
The total number of EXEC CICS BIF DIGEST commands issued by the user task.

409 (TYPE-A, 'BFTOTCT', 4 BYTES)
The total number of EXEC CICS BIF DEEDIT and BIF DIGEST commands issued by the user task.

415 (TYPE-A, 'ECSIGECT', 4 BYTES)
The number of EXEC CICS SIGNAL EVENT commands issued by the user task.

416 (TYPE-A, 'ECEFOPCT', 4 BYTES)
The number of event filter operations performed by the user task.

417 (TYPE-A, 'ECEVNTCT', 4 BYTES)
The number of events captured by the user task.

418 (TYPE-A, 'ECSEVCCT', 4 BYTES)
The number of synchronous emission events captured by the user task.

New performance class data fields in group DFHDATA

397 (TYPE-S, 'WMQASRBT', 12 BYTES)
The WebSphere MQ SRB time this transaction spent processing WebSphere MQ API requests. Add this field to the transaction CPU time field (USRCPUT) when considering the measurement of the total processor time consumed by a transaction. This field is zero for point-to-point messaging activity, but it is nonzero where WebSphere MQ API requests result in publish and subscribe type messaging.

Note: WebSphere MQ only returns this value to CICS when Class 3 accounting information is being collected in WebSphere MQ; if this information is not being collected, the field is always zero. To start collecting Class 3 accounting information, issue the command START TRACE(ACCTG) DEST(SMF) CLASS(3) in WebSphere MQ.

New performance class data fields in group DFHDOCH

223 (TYPE-A, 'DHDELCT', 4 BYTES)
The number of document handler DELETE requests issued by the user task.
New performance class data fields in group DFHSOCK

288 (TYPE-A, 'ISALLOCT', 4 BYTES)
The number of allocate session requests issued by the user task for sessions using IPIC.

300 (TYPE-S, 'ISIOWTT', 12 BYTES)
The elapsed time for which a user task waited for control at this end of an IPIC connection.

305 (TYPE-C, 'ISIPICNM', 8 BYTES)
The name of the IPIC connection for the TCP/IP service that attached the user task.

330 (TYPE-A, 'CLIPPORT', 4 BYTES)
The port number of the client or Telnet client.

New performance class data fields in group DFHTASK

283 (TYPE-S, 'MAXTDDL', 12 BYTES)
The elapsed time for which the user task waited to obtain a T8 TCB, because the CICS system reached the limit of available threads. The T8 mode open TCBs are used by a JVM server to perform multithreaded processing. Each T8 TCB runs under one thread. The thread limit is 1024 for each CICS region and each JVM server in a CICS region can have up to 256 threads. This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field ID: 014).

400 (TYPE-S, 'T8CPUT', 12 BYTES)
The processor time during which the user task was dispatched by the CICS dispatcher domain on a CICS T8 mode TCB. T8 mode TCBs are used by a JVM server to perform multithreaded processing. When a thread is allocated a T8 mode TCB, that same TCB remains associated with the thread until the processing completes. This field is a component of the total task CPU time field, USRCPUT (field ID 008 in group DFHTASK), and the task key 8 CPU time field, KY8CPUT (field ID 263 in group DFHTASK).

401 (TYPE-S, 'JVMTHDWT', 12 BYTES)
The elapsed time that the user task waited to obtain a JVM server thread because the CICS system had reached the thread limit for a JVM server in the CICS region. This field is a component of the task suspend time field, SUSPTIME (group name: DFHTASK, field ID: 014).

New performance class data fields in group DFHWEBB

380 (TYPE-C, 'WBURIMNM', 8 BYTES)
For CICS Web support, Atom feeds, and Web service applications, the name of the URIMAP resource definition that was mapped to the URI of the inbound request that was processed by this task.

381 (TYPE-C, 'WBPIPLNM', 8 BYTES)
For Web service applications, the name of the PIPELINE resource definition that was used to provide information about the message handlers that act on the service request processed by this task.

382 (TYPE-C, 'WBATMSNM', 8 BYTES)
For Atom feeds, the name of the ATOMSERVICE resource definition that was used to process this task.
For Web service applications, the name of the WEBSERVICE resource definition that was used to process this task.

For Web service applications, the first 64 bytes of the Web service operation name.

For CICS Web support, the name of the program from the URIMAP resource definition that was used to provide the application-generated response to the HTTP request processed by this task.

The number of EXEC CICS SOAPFAULT CREATE commands issued by the user task.

The total number of EXEC CICS SOAPFAULT ADD, CREATE, and DELETE commands issued by the user task.

The total number of SOAP faults received in response to the EXEC CICS INVOKE SERVICE and EXEC CICS INVOKE WSERVICE commands issued by the user task.

For Web service applications, the SOAP request body length.

For Web service applications, the SOAP response body length.

The CPU time taken to convert a document using the z/OS XML System Services parser. This field is a subset of the total CPU time as measured in the USRCPUT field (owner DFHTASK, field ID 008).

The total length of the documents that were parsed using the z/OS XML System Services parser.

The number of EXEC CICS TRANSFORM commands issued by the user task.

The number of EXEC CICS WSACONTEXT BUILD commands issued by the user task.

The number of EXEC CICS WSACONTEXT GET commands issued by the user task.

The number of EXEC CICS WSAEPR CREATE commands issued by the user task.

The total number of EXEC CICS WS-Addressing commands issued by the user task.

The network identifier of the CICS system of an immediately previous task in another CICS region with which this task is associated. For more information, see field 373 (PHNTWKID) in the DFHCICS performance data group.
The APPLID from previous hop data. This is the APPLID of the CICS system of a previous task in another CICS system with which this task is associated. For more information, see field 374 (PHAPPLID) in the DFHCICS performance data group. For more information about previous hop data, see Previous hop data characteristics.

**MNR_PHD_ATTACH_TIME (TYPE-T, 8 BYTES)**

The start time of the immediately previous task in another CICS system with which this task is associated. For more information, see field 375 (PHSTART) in the DFHCICS performance data group.

**MNR_PHD_TRANNUM (TYPE-P, 4 BYTES)**

The task number of the immediately previous task in another CICS system with which this task is associated. For more information, see field 376 (PHTRANNO) in the DFHCICS performance data group.

**MNR_PHD_TRANID (TYPE-C, 4 BYTES)**

The transaction ID (TRANSID) of the immediately previous task in another CICS system with which this task is associated. For more information, see field 377 (PHTRAN) in the DFHCICS performance data group.

**MNR_PHD_COUNT (TYPE-A, 4 BYTES)**

The number of times there has been a request from one CICS system to another CICS region to initiate a task with which this task is associated. For more information, see field 378 (PHCOUNT) in the DFHCICS performance data group.

**MNI_ID_TRNGRPID (TYPE-C, 28 BYTES)**

The transaction group ID of the originating task.

**New identity class data fields**

**MNI_ID_PHD_NTWKID (TYPE-C, 8 BYTES)**

The network identifier of the CICS system of an immediately previous task in another CICS system with which this task is associated. For more information, see field 373 (PHNTWKID) in the DFHCICS performance data group.

**MNI_ID_PHD_APPLID (TYPE-C, 8 BYTES)**

The APPLID from previous hop data. This is the APPLID of the CICS system of a previous task in another CICS system with which this task is associated. For more information, see field 374 (PHAPPLID) in the DFHCICS performance data group. For more information about previous hop data, see Previous hop data characteristics.

**MNI_ID_PHD_START_TIME (TYPE-T, 8 BYTES)**

The start time of the immediately previous task in another CICS system with which this task is associated. For more information, see field 375 (PHSTART) in the DFHCICS performance data group.

**MNI_ID_PHD_TRANNO (TYPE-P, 4 BYTES)**

The task number of the immediately previous task in another CICS system with which this task is associated. For more information, see field 376 (PHTRANNO) in the DFHCICS performance data group.

**MNI_ID_PHD_TRANID (TYPE-C, 4 BYTES)**

The transaction ID (TRANSID) of the immediately previous task in another CICS system with which this task is associated. For more information, see field 377 (PHTRAN) in the DFHCICS performance data group.
MNI_ID_PHD_COUNT (TYPE-A, 4 BYTES)
The number of times there has been a request from one CICS system to another CICS system to initiate a task with which this task is associated. For more information, see field 378 (PHCOUNT) in the DFHCICS performance data group.

**Effects of monitoring clock changes on performance data**

The monitoring clocks for performance class data now record dispatch time and CPU time much more precisely and over a longer period. When you upgrade to CICS Transaction Server for z/OS, Version 4 Release 2, you might see differences in the times reported in your performance class data.

The changes to the monitoring clock format should not themselves have any measurable impact on the performance of your transactions. However, because of the increased precision and capacity of the clocks, you might see some times for individual transactions being reported differently in your CICS performance class data.

Because the monitoring clocks are more precise, you might see a higher dispatch time or CPU time being reported for any transactions that suffered from under-reporting in previous CICS releases. This is caused because, when the monitoring clocks used units of 16 microseconds, the time recorded was rounded down to a multiple of 16 microseconds; that is, only completed 16-microsecond units were recorded. If a transaction was dispatched on a CICS TCB for 24 microseconds, 16 microseconds were added to the time on the clock, but the other 8 microseconds would go unreported. However, in CICS Transaction Server for z/OS, Version 4 Release 2, with the monitoring clocks recording every microsecond, the 24-microsecond dispatch for the same transaction is reported in full. You are most likely to notice an increase in the amount of dispatch time or CPU time reported when you have a transaction with a high level of TCB switching, such as a nonthreadsafe transaction that makes a number of DB2 requests.

Because the monitoring clocks have a greater capacity, you should see more useful reporting of times for long-running transactions. In previous CICS releases, transactions that ran for longer than the clock capacity of around 19 hours were not reported correctly in the performance class data, because the timer component and period count wrapped around after that time. In CICS Transaction Server for z/OS, Version 4 Release 2, the clock components are still not protected against wraparound, but, because of the increased clock capacity, it is unlikely to occur. Therefore the time used by long-running transactions can be presented accurately.

**Changes to the format of CICS SMF 110 monitoring records**

CICS SMF 110 monitoring records are divided into three parts: an SMF header, an SMF product section, and a CICS data section. If data compression is active, the CICS data section is compressed before the record is written to SMF and must be expanded before use. A new field in the SMF product section identifies a compressed monitoring record and gives its length after compression.
Effect of data compression

When data compression is active, CICS uses the standard z/OS Data Compression and Expansion Services, CSRCESRV, to compress the CICS data section of each monitoring record before writing it to SMF. The SMF header and SMF product section of records are not compressed.

When CICS SMF 110 monitoring records have been compressed, they must be identified, and the data section must be expanded using the z/OS Data Compression and Expansion Services, before the records can be processed by SMF 110 reporting tools.

Data compression applies only to SMF 110 records written by CICS monitoring, with subtype X'0001' in the record subtype field in the SMF header. It does not apply to the other types of SMF 110 records created by CICS; that is, records written by CICS journaling, CICS statistics, the TS data sharing server, the coupling facility data table (CFDT) server, and the named counter sequence number server.

New product header field SMFMNCRL

The new field SMFMNCRL in the SMF product section of monitoring records identifies where data compression has been used for a monitoring record and gives the compressed length of the CICS data section:

```
SMFMNCRL DS XL2 COMPRESSED RECORD LENGTH
```

A zero value in this field indicates that the CICS data section in the record does not contain compressed data. A nonzero value in this field indicates that the CICS data section in the record does contain compressed data, and that the z/OS Data Compression and Expansion Services must be used to expand the data section before processing.

The value of the field shows the length of the CICS data section after compression. The maximum expanded length of the data section is 32598 bytes.

Changes to the monitoring sample program DFH$MOLS

DFH$MOLS is a sample program that you can modify or adapt to your own purposes. It shows you how you can code your own monitoring utility program to produce reports from the data collected by the CICS monitoring domain (MN) and written to SMF data sets.

From CICS Transaction Server for z/OS, Version 3 Release 2, DFH$MOLS can identify any SMF 110 monitoring records that have been compressed and expand them using the z/OS Data Compression and Expansion Services, CSRCESRV, before printing reports.

New options

A new DPL option is added to the DFH$MOLS RESOURCE control statement to control the printing of the distributed program link resource monitoring data.

DFH$MOLS now contains an IDN option on the PRINT control statement to allow you produce a report of the new identity class records. The DFH$MOLS totals report page also includes information about the number of identity records processed.
New monitoring clock field format

DFHS$MOLS now reports clock fields in the format ddd hh:mm:ss.000000, showing a count for days, hours, minutes, and seconds, followed by six decimal places (down to one microsecond).

New EXPAND control statement

Use this option if some or all of the input monitoring records were compressed, and you want to create an output data set with these records in their expanded format and the records that were not compressed.

EXPAND

Specifies that the monitoring data is written to an output data set, including any compressed SMF 110 monitoring records in their expanded format, with the monitoring records that were never compressed. For more information about record types processed by DFHS$MOLS, see note 12 in Sample job stream for DFHS$MOLS in Reference -> Utilities. The output data set of SMF 110 monitoring records can be used by reporting tools that cannot use the z/OS Data Compression and Expansion Services (CSRCESRV) to expand compressed records.

A monitoring record with a compressed data section is identified by the compressed record length in the SMFMNCRL field in the SMF product section, which is present only for a compressed record.

If you want to just print reports, or to unload the monitoring records into a fixed-length format, you do not need to specify the EXPAND option. DFHS$MOLS identifies and expands any compressed monitoring records automatically before working with them. You only need to specify the EXPAND option when you want to create an output data set of SMF 110 monitoring records.

DDNAME=name

Specifies the ddname for the output data set to hold the SMF 110 monitoring records. If you do not code this keyword, the default ddname SYSUT2 is used, and your job stream must include a SYSUT2 DD statement. If you code this keyword to specify a different ddname, your job stream must include the corresponding DD statement.

NEWDCB

To ignore the DCB information from the original data set, specify NEWDCB. Supply the new DCB information on the JCL for the output data set.

Note:

1. When the EXPAND control statement is specified, the only parameter for IGNORE and SELECT statements that operates during creation of the output data set is the APPLID option. The PRCSTYPE, TASKNO, TERMID, TRANID, and USERID parameters are ignored while the output data set is being produced. You can also select monitoring records for the output data set by date, using the DATE parameter, or by time, using the TIME parameter.

2. Monitoring data is not automatically printed when the EXPAND control statement is specified. If this statement is specified, and you also want to print monitoring data, you must specify the PRINT control statement explicitly. When you specify the PRINT statement to print monitoring
records, all the selection parameters on your IGNORE and SELECT statements now operate for the selection of the monitoring records for printing.

New messages

The following new messages are produced by DFH$MOLS if problems are encountered in expanding compressed monitoring data records.

118: UNABLE TO EXPAND A COMPRESSED RECORD, RC='nn'; REPORT IS TERMINATED

The DFH$MOLS program was unable to expand the compressed data section for an SMF 110 monitoring record. This abend is issued when the z/OS Data Compression and Expansion service CSRCESRV FUNCTION=EXPAND was unable to expand the data section in the SMF record. For more information on the return codes issued by the CSRCESRV service, see the z/OS MVS Assembler Services Reference ABE-HSP.

This message is followed by an MVS abend U118 with a dump.

119: UNABLE TO OPEN DDNAME 'xxxxxxxx'; REPORT IS TERMINATED

The DFH$MOLS program was unable to open the data set specified on the DD statement used for the EXPAND control statement. ‘xxxxxxxx’ is either SYSUT2, which is the default, or the ddname specified by the DDNAME= parameter on the EXPAND control statement. Ensure that the JCL for the job was correct.

This message is followed by an MVS abend U119 without a dump.

120: UNEXPECTED CSRCESRV QUERY ERROR, RC='nn'; REPORT IS TERMINATED

The DFH$MOLS program received an unexpected (non-zero) return code from the z/OS Data Compression and Expansion service CSRCESRV FUNCTION=QUERY. For more information on the return codes issued by the CSRCESRV service, see the z/OS MVS Assembler Services Reference ABE-HSP.

This message is followed by an MVS abend U118 with a dump.

Monitoring sample program DFH$MOLS: support for data for earlier CICS releases

The CICS Transaction Server for z/OS, Version 4 Release 2 release of DFH$MOLS processes monitoring data for earlier supported CICS releases, but the UNLOAD control statement has additional restrictions.

In CICS Transaction Server for z/OS, Version 4 Release 2, DFH$MOLS can process SMF 110 monitoring data records for the following supported releases:
- CICS Transaction Server for z/OS, Version 4 Release 2
- CICS Transaction Server for z/OS, Version 4 Release 1
- CICS Transaction Server for z/OS, Version 3 Release 2
- CICS Transaction Server for z/OS, Version 3 Release 1

However, the UNLOAD control statement (which unloads performance class monitoring data into a fixed length record format) can be used only with
monitoring data for CICS Transaction Server for z/OS, Version 3 Release 2 onwards. Any version or release of DFH$MOLS cannot process monitoring data for a version or release later than itself, so you must always use the DFH$MOLS from the highest version or release available to you.
Chapter 16. Changes to statistics

CICS statistics records contain changes because of new domains or because of enhancements to CICS. New statistics types are added and some statistics types have new or changed fields. You might have to recompile application programs using the changed DSECTs.

New statistics types

Table 5. New statistics types

<table>
<thead>
<tr>
<th>Copybook</th>
<th>Functional area</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHDHDDS</td>
<td>Document template statistics</td>
</tr>
<tr>
<td>DFHECCDS</td>
<td>CAPTURESPEC resource statistics</td>
</tr>
<tr>
<td>DFHECGDS</td>
<td>EVENTBINDING global statistics</td>
</tr>
<tr>
<td>DFHECRDS</td>
<td>EVENTBINDING resource statistics</td>
</tr>
<tr>
<td>DFHEPRDS</td>
<td>Event processing global statistics</td>
</tr>
<tr>
<td>DFHISRDS</td>
<td>IPCCONN resource statistics</td>
</tr>
<tr>
<td>DFHLDBDS</td>
<td>LIBRARY resource statistics</td>
</tr>
<tr>
<td>DFHMLRDS</td>
<td>XMLTRANSFORM resource statistics</td>
</tr>
<tr>
<td>DFHMNIDS</td>
<td>Identity class statistics</td>
</tr>
<tr>
<td>DFHMQGDS</td>
<td>WebSphere MQ Connection statistics</td>
</tr>
<tr>
<td>DFHPGDDS</td>
<td>Program definition statistics</td>
</tr>
<tr>
<td>DFHRLRDS</td>
<td>BUNDLE resource statistics</td>
</tr>
<tr>
<td>DFHSJSDS</td>
<td>JVMSERVER resource statistics</td>
</tr>
<tr>
<td>DFHW2RDS</td>
<td>Atom feed statistics</td>
</tr>
</tbody>
</table>

Changed statistics types

Table 6. Changed statistics types

<table>
<thead>
<tr>
<th>Copybook</th>
<th>Functional area</th>
</tr>
</thead>
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<tr>
<td>DFHA03DS</td>
<td>z/OS Communications Server global statistics</td>
</tr>
<tr>
<td>DFHA14DS</td>
<td>Connection resource statistics</td>
</tr>
<tr>
<td>DFHA17DS</td>
<td>File resource statistics</td>
</tr>
<tr>
<td>DFHDHDDS</td>
<td>DOCTEMPLATE resource statistics</td>
</tr>
<tr>
<td>DFHDSGDS</td>
<td>Dispatcher statistics</td>
</tr>
<tr>
<td>DFHD2GDS</td>
<td>DB2 connection statistics</td>
</tr>
<tr>
<td>DFHD5RDS</td>
<td>MVS TCB resource statistics</td>
</tr>
<tr>
<td>DFHD2RDS</td>
<td>DB2ENTRY resource statistics</td>
</tr>
<tr>
<td>DFHDSTDS</td>
<td>MVS TCB global statistics</td>
</tr>
<tr>
<td>DFHECCGDS</td>
<td>EVENTBINDING global statistics</td>
</tr>
<tr>
<td>DFHEJRDS</td>
<td>CorbaServer resource statistics</td>
</tr>
<tr>
<td>DFHEPRGDS</td>
<td>Event processing global statistics</td>
</tr>
</tbody>
</table>
Table 6. Changed statistics types (continued)

<table>
<thead>
<tr>
<th>Copybook</th>
<th>Functional area</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHIIRDS</td>
<td>Requestmodel resource statistics</td>
</tr>
<tr>
<td>DFHISRDS</td>
<td>IP connection resource statistics</td>
</tr>
<tr>
<td>DFHLDBDS</td>
<td>LIBRARY resource statistics</td>
</tr>
<tr>
<td>DFHLGDGDS</td>
<td>Loader statistics</td>
</tr>
<tr>
<td>DFHLDRDS</td>
<td>Loader statistics for programs</td>
</tr>
<tr>
<td>DFHMNGDS</td>
<td>Monitor global statistics</td>
</tr>
<tr>
<td>DFHMNTDS</td>
<td>Transaction performance monitoring resource statistics. Data is not written to SMF</td>
</tr>
<tr>
<td></td>
<td>by DFHMNTDS. It is relevant only when used through the COLLECT STATISTICS</td>
</tr>
<tr>
<td></td>
<td>interface.</td>
</tr>
<tr>
<td>DFHMQGDS</td>
<td>WebSphere MQ connection statistics</td>
</tr>
<tr>
<td>DFHPIRDS</td>
<td>PIPELINE resource statistics</td>
</tr>
<tr>
<td>DFHPIWDS</td>
<td>Web service resource statistics</td>
</tr>
<tr>
<td>DFHPGRDS</td>
<td>The JVM program statistics</td>
</tr>
<tr>
<td>DFHSJGDS</td>
<td>The JVM pool global statistics</td>
</tr>
<tr>
<td>DFHSJRD5</td>
<td>JVM profiles</td>
</tr>
<tr>
<td>DFHSJSDS</td>
<td>JVMSERVER resource statistics</td>
</tr>
<tr>
<td>DFHSMSDS</td>
<td>Storage manager statistics</td>
</tr>
<tr>
<td>DFHSMSDS</td>
<td>Storage above 16 MB</td>
</tr>
<tr>
<td>DFHSORDS</td>
<td>TCP/IP service resource statistics</td>
</tr>
<tr>
<td>DFHTQRDS</td>
<td>Transient data queue resource statistics</td>
</tr>
<tr>
<td>DFHTSGDS</td>
<td>Temporary storage global statistics</td>
</tr>
<tr>
<td>DFHWBGDS</td>
<td>URIMAP global statistics</td>
</tr>
<tr>
<td>DFHWBRDS</td>
<td>URIMAP resource statistics</td>
</tr>
<tr>
<td>DFHXMCD5</td>
<td>Tranclass resource statistics</td>
</tr>
<tr>
<td>DFHXMRS5</td>
<td>Transaction resource statistics</td>
</tr>
</tbody>
</table>

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

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

The changes to the other changed DSECTs listed are such that the old DSECTS are not compatible with the new DSECT, and you must recompile application programs using these DSECTs.

New or changed statistics types might increase the amount of statistics data that is written to the MVS systems management facility (SMF). To avoid any problems caused by multiple CICS regions writing increased interval statistics to the SMF at the same time, you can use the DFH$STED sample utility program. This program
varies the statistics interval occurrence time for each CICS region. For more information, see [Stagger end-of-day time sample utility program (DFHSSTED)] in the CICS Operations and Utilities Guide.

**New values in DFHSTIDS (statistics record identifiers)**

The new DSECTs have corresponding values in the common statistics record copybook, DFHSTIDS. The revised list of the statistics record identifiers is shown in [CICS statistics data section] in the CICS Customization Guide.

The new value for CICS Transaction Server for z/OS, Version 4 Release 2 is as follows:

```
STIEPR  144  DFHEPRDS  EPADAPTERs (Resource) id
```

The new values for CICS Transaction Server for z/OS, Version 4 Release 1 were as follows:

```
STIRLR  100  DFHRLRDS  BUNDLEs (resource) id
STIMWZ  110  DFHW2RDS  ATOMSERVICE (resource) id
STIMLR  113  DFHMLRDS  XMLTRANSFORM (resource) id
STISJS  116  DFHSJSDS  JVMSERVER stats (resource) id
STIPGD  120  DFHPGDDS  PROGRAMDEF stats (resource) id
STIIEG  140  DFHIEGDS  EVENTBINDINGS (global) id
STIECR  141  DFHIECRDS  EVENTBINDINGS (resource) id
STIEPG  142  DFHEPGDS  EVENTPROCESS (global) id
STIECC  143  DFHECCDS  CAPTURESPECS (resource) id
```

The new values for CICS Transaction Server for z/OS, Version 3 Release 2 were as follows:

```
STILDB  31   DFHLDBDS  LIBRARY (resource) id
STIMQG  74   DFHMQGDS  MQ connection stats (global) id
STIISR  109  DFHISRDS  IPCONN (resource) id
STIDHD  112  DFHDHDDS  DOCTEMPLATE (resource) id
```

**The statistics formatting utility program, DFHSTUP**

The statistics formatting utility program now formats additional statistics reports for the new statistics. You can code new resource types on the SELECT TYPE and IGNORE TYPE parameters using these keywords:

- ATOMSERVICE
- BUNDLE
- CAPTURESPEC
- EPADAPTER
- EVENTBINDING
- EVENTPROCESS
- JVMSERVER
- LIBRARY
- MQCONN
- PROGRAMDEF
- XMLTRANSFORM

**CEMT and EXEC CICS statistics commands**

You can retrieve all the new statistics described in this topic using the **EXEC CICS EXTRACT STATISTICS** command, the **EXEC CICS PERFORM STATISTICS RECORD** command, and the **CEMT PERFORM STATISTICS** command.
The list of resources supported by the `EXEC CICS COLLECT STATISTICS` command is now closed. All new resources introduced from CICS Transaction Server for z/OS, Version 3 Release 1 onwards are supported by the `EXEC CICS EXTRACT STATISTICS` command, which operates in the same way.
Chapter 17. Changes to sample programs

CICS Transaction Server for z/OS, Version 4 Release 2 has a number of changes to the samples provided to demonstrate the use of different CICS functions. Unless otherwise stated, sample programs are supplied in the SDFHSAMP library.

**DFHSW2S1 (C) and DFH0W2F1 (COBOL), Atom feed samples**

The C language sample service routine, DFHSW2S1, shows you how to respond to requests for Atom entries by reading the parameters in the DFHATOMPARMS container, updating the character containers, and updating and returning the DFHATOMPARMS container.

DFH0W2F1 is a COBOL sample service routine that shows you how to handle POST, PUT, and DELETE requests for Atom collections. DFH0W2F1 is an updated version of the sample service routine DFH0W2FA that was provided in SupportPac CA8K. CICS provides sample URIMAP and ATOMSERVICE resources in the DFH$WEB2 group that you can use to run DFH0W2F1. The resources are both named DFHSW2P1.

**DFHSWB1A and DFHSWB1C, verification samples**

The sample programs for verifying the operation of CICS Web support, DFHSWB1A (assembler language) and DFHSWB1C (C), are updated to use the EXEC CICS WEB commands. In addition, a new sample URIMAP definition DFH$URI1 can be used to access DFHSWB1A. The CICS-supplied sample analyzer, DFHWBADX, can be used to access both DFHSWB1A and DFHSWB1C.

The PROGRAM resource definition for DFHSWB1C, and the URIMAP definition DFH$URI1, are in the new DFH$WEB resource definition group. DFHSWB1A is provided in the DFHWEB resource definition group, which is installed as part of DFHLIST.

**DFHSWBHA and DFHSWBCA (Assembler), DFHSWBHC and DFHSWBCC (C), DFH0WBHO and DFH0WBCO (COBOL), chunking samples**

New sample programs DFHSWBCA (assembler language), DFHSWBCC (C), and DFH0WBCO (COBOL) demonstrate how CICS, as an HTTP client, can send a request in sections or chunks to an HTTP server and receive a chunked message in response. New sample programs DFHSWBHA (assembler language), DFHSWBHC (C), and DFH0WBHO (COBOL) demonstrate how CICS, as an HTTP server, can receive a request in chunks from an HTTP client and send a chunked response.

The sample programs send and receive requests between CICS regions in which CICS Web support is running. The client chunking samples, DFHSWBCA, DFHSWBCC, and DFH0WBCO, are handled by DFHSWBHA, the assembler language server chunking sample. You can update the server URIMAP to point at a different server program if required. The PROGRAM resource definitions for the chunking sample programs, and the URIMAP definitions DFH$URI3 and DFH$URI4, are provided in the DFH$WEB resource definition group.
DFH$WBPA (assembler language), DFH$WBPC (C), and DFH0WBPO (COBOL), pipelining samples

New sample programs are provided to demonstrate how CICS can pipeline client requests to an HTTP server. The sample programs use the sample client URIMAP definition, DFH$URI2, to pipeline requests to a CICS region that has been set up as an HTTP server, to be handled there by the verification sample program DFH$WB1C.

The PROGRAM resource definitions for the pipelining sample programs, and the URIMAP definition DFH$URI2, are in the new DFH$WEB resource definition group.

DFH$WUUR and DFH$WUTC, CICS system management client API samples

DFH$WUUR and DFH$WUTC are new sample resource definitions to help you set up the CICS system management client API.

DFH$WUUR is a sample URI Map definition. The URI map uses transaction CWWU and calls program DFHWBA to analyze the CICS web request. DFH$WUTC is sample TCP/IP service definition.

The sample definitions are supplied in group DFH$WU. You must install definitions like these before you can use the API.

DFH$XISL, IPIC sample

A new sample global user exit program, DFH$XISL, has been added. You can use the XISQLCL sample global user exit program, DFH$XISL, to control the queueing of START NOCHECK requests that are scheduled for an IPIC connection.

DFH0EPAC (COBOL) and DFH0STEP, event processing samples

The sample custom EP adapter is provided in the COBOL language. It is shipped as source code in the CICSTS42.CICS.SDFHSAMP library, and also as a load module.

- The source code and load module are named DFH0EPAC.
- Group DFH$EPAG is defined in DFHCURDS.DATA. The group defines program DFH0EPAC and transaction ID EPAT to include in your event binding to run the DFH0EPAC program.
- The sample program DFH0EPAC formats most data types. However, as a COBOL language sample, DFH0EPAC cannot format binary floating point (BFP) or decimal floating point (DFP) items; in this case, DFH0EPAC fills the data area with asterisks (*).

The sample custom EP adapter demonstrates how a custom EP adapter handles synchronous and asynchronous emission events. This is achieved by honoring the EPAP-RECOVER flag setting in the DFHEP.ADAPTPARM container by checking whether the temporary storage queue is recoverable or not.

Your custom EP adapter programs must now also honor the EPAP_RECOVER flag in the DFHEP.ADAPTPARM container to support synchronous event emission.

DFH0STEP is changed to collect and print EPADAPTER statistics and to support the new command options for the INQUIRE CAPTURESPEC command.
The DFH0EPAC sample has been changed to set the default CICS temporary storage queue (TSQ) for system events to userid.SYSTEM. Your custom EP adapter programs must also be changed to define a default TSQ for system events.

**DFHOSGI, DFHJVMAX, and DFHAXRO, JVM server samples**

DFHOSGI is a JVM profile file that specifies the options for initializing the JVM server, including the 64-bit options, for OSGi applications. The JVMSERVER resource defines the name of the JVM profile. Its location is determined by the JVMPROFILEDIR system initialization parameter.

DFHJVMAX is a JVM profile file that specifies the options for initializing the JVM server, including the 64-bit options, for Axis2 applications. The JVMSERVER resource defines the name of the JVM profile. Its location is determined by the JVMPROFILEDIR system initialization parameter.

DFHAXRO is a sample program that provides default values for configuring the 64-bit Language Environment enclave of a JVM server. Modify and recompile this program to change the Language Environment enclave for a JVM server. The JVMSERVER resource defines the name of the program that controls the options for the Language Environment enclave. Each JVM server can use a different version of the runtime options if required. The program must be in the hlq.SDFHLOAD library.

**DFH$APDT, adapter tracking sample**

A new sample task-related user exit (TRUE) program, DFH$APDT, has been added. You can use the DFH$APDT sample TRUE to learn how to use adapter data fields for transaction tracking.
Chapter 18. Changes to problem determination

CICS provides information to help you diagnose problems relating to new functions.

Part 5, “Changes to CICS messages and codes,” on page 323 lists messages and abend codes that have been removed, changed, and added for CICS Transaction Server for z/OS, Version 4 Release 2.

New component codes

The following component codes are added to support new functions in CICS TS for z/OS, Version 4.2:

<table>
<thead>
<tr>
<th>Component code</th>
<th>Component keyword</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC</td>
<td>None</td>
<td>Event capture domain</td>
</tr>
<tr>
<td>EP</td>
<td>EVENTPROC</td>
<td>Event processing domain</td>
</tr>
<tr>
<td>ML</td>
<td>None</td>
<td>Markup language domain</td>
</tr>
<tr>
<td>RL</td>
<td>RESLIFEMGR</td>
<td>Resource life cycle domain</td>
</tr>
<tr>
<td>RS</td>
<td>REGIONSTAT</td>
<td>Region status domain</td>
</tr>
<tr>
<td>WU</td>
<td>WEBRESTMGR</td>
<td>Application domain: RESTful API component</td>
</tr>
<tr>
<td>W2</td>
<td>WEB2</td>
<td>Web 2.0 domain</td>
</tr>
</tbody>
</table>

You can use the component codes to specify the following options:

- The level of standard and special tracing in each component. You specify standard and special tracing by any of the following methods:
  - The CETR transaction.
  - The STNTRxx and SPCTRxx system initialization parameters.
  - The INQUIRE TRACETYPE and SET TRACETYPE system programming commands. If a component keyword is present, you can use it instead of the component codes in these commands.
- The areas of CICS storage that you want to be included in a formatted dump and the amount of data that you want formatted.
- The trace entries that you want to be included in a formatted dump and in the output from the trace utility program.

On output, CICS uses the component codes to identify messages and trace entries.

Changes to the global trap exit DFHTRAP

The global trap exit DFHTRAP can be invoked when the CICS trace domain is called to write a trace entry. DFHTRAP is intended for use only with the guidance of IBM Service personnel.

DFHTRAP now runs in AMODE(64). It includes new fields that you use to trace data in 64-bit storage (above the bar). The DFHTRAP work area is now allocated in 64-bit storage.
Changes to HTTP status codes for Atom feed support

When serving Atom feeds, CICS issues some new HTTP status codes, and some status codes that CICS previously issued are now issued for new reasons. The new status codes that are issued by CICS are as follows:

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>201 Created</td>
<td>Issued in response to a request with the POST method. A new object has been created. The new URL for the object is returned in the Location header.</td>
</tr>
<tr>
<td>409 Conflict</td>
<td>When issued in response to a request with the POST method, this status code means that an existing object already exists with the specified URL, so the new object is not created.</td>
</tr>
</tbody>
</table>

These status codes were previously issued by CICS, but are now issued for new reasons:

<table>
<thead>
<tr>
<th>Status Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>400 Bad Request</td>
<td>When issued in response to a request with the PUT method, this status code might mean that a PUT request without an If-Match header was received. A client that wants to update an object without knowing the current entity tag must specify If-Match: *. The status code is also issued for a markup or data problem in the Atom entry submitted by the Web client for a POST or PUT request.</td>
</tr>
</tbody>
</table>
| 403 Forbidden | Now issued when the current user is not authorized to access one of the following:
- The alias transaction specified in the TRANSACTION attribute of the URIMAP resource definition
- The ATOMSERVICE resource definition
- The CICS resource specified in the ATOMSERVICE resource definition
- Any CICS resource or command accessed by a program that is specified in the ATOMSERVICE resource definition |
| 404 Not Found | Now issued when any of the following items cannot be found:
- The ATOMSERVICE resource definition specified in the URIMAP resource definition
- The CICS resource specified in the Atom configuration file
- The selected record in the CICS resource |
| 412 Precondition Failed | Now issued in response to a request with the PUT method, when the entity tag value on the If-Match header does not match the entity tag for the object being updated. The current contents of the object are returned in the response body, and the Etag header contains the new entity tag value. |
| 500 Resource Error | Now issued for some errors involving a resource for an Atom feed, such as an error producing XML markup from a resource record for use as Atom entry content. |
| 503 Service Unavailable | Now issued when either a requested ATOMSERVICE resource definition, or the CICS resource that it references, is disabled. |

Changes to problem determination for CICS-MQ, CICS-DBCTL, and CICS-DB2

CICS-MQ components are now shipped with CICS. As a result, tracing has changed for CICS-MQ, CICS-DBCTL, and CICS-DB2.

- All trace entries produced by the CICS-MQ components use the CICS trace domain. If you have user tracing enabled for WebSphere MQ tracing only, you can turn off user tracing, saving the overhead of application trace.
• The CICS-DBCTL Attach and CICS-DB2 Attach change to use RA (Resource Manager Adapter) Level 1 and Level 2 tracing, instead of FC (File Control) Level 1 and Level 2 tracing.

CICS-MQ messages are changed from CSQCxxx to DFHMQ0xxx. Ensure that your message retrieval applications cope with this change.
Part 2. Upgrading CICS Transaction Server

To upgrade your CICS regions to CICS Transaction Server for z/OS, Version 4 Release 2, carry out the tasks described here. There are some general upgrading tasks which you must always perform. There are also upgrading tasks for some specific functional areas where there is a need for special considerations.
Chapter 19. Upgrade procedures for all CICS regions

Complete these tasks when you upgrade any CICS Transaction Server region to CICS Transaction Server for z/OS, Version 4 Release 2.

Redefining and initializing the local and global catalogs

When you upgrade to a new CICS release, delete, redefine, and initialize the CICS local catalog and global catalog.

Procedure
1. Delete your existing local catalog and global catalog.
2. Define and initialize new local and global catalogs, following the instructions in the CICS System Definition Guide. When you initialize the catalogs, make sure that you use the CICS Transaction Server for z/OS, Version 4 Release 2 versions of the DFHRMUTL and DFHCCUTL utility programs and the sample jobs.
3. When you start the CICS region for the first time after upgrading, make sure that it is an initial start with the START=INITIAL parameter.

Enabling z/OS conversion services

To obtain the benefits of z/OS conversion services for data conversion, perhaps because your system requires support for the conversion of UTF-8 or UTF-16 data to EBCDIC, you must enable the z/OS conversion services and install a conversion image that specifies the conversions that you want CICS to perform.

For information on how to set up and configure conversions supported through the operating system services, see z/OS Support for Unicode: Using Conversion Services.

If z/OS conversion services are not enabled, CICS issues a message. You can suppress that message if you do not need these services. If the message is encountered when starting a CICS region that is expected to make use of these services, an IPL is necessary to enable the z/OS conversion services.

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

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

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

If you want to enter the command from SDSF, add a / to the beginning of the command.
Upgrading the CSD for CICS-supplied and other IBM-supplied resource definitions

Upgrade the CICS-supplied resource definitions using the UPGRADE function of the CSD utility program DFHCSDUP. If you have resource definitions in your CSD that support other IBM products, such as z/OS, you might need to upgrade these also.

About this task

If you need to share your upgraded CSD with different CICS releases, see “CSD compatibility between different CICS releases” on page 181.

Procedure

1. Run the DFHCSDUP utility program, specifying the UPGRADE command, to upgrade the CICS-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. To help estimate the space you need in your CSD for definition records, see the CICS System Definition Guide.

2. If you have resource definitions in your CSD that support other IBM products, upgrade these as required. For example, if your Language Environment® resource definitions are not at the correct z/OS level, you should delete and replace the CSD group containing these. The Language Environment resource definitions are in the SCEESAMP library in member CEECCSD. “Sample job for additional CSD modification” has an example job to delete and replace the CSD group containing these.

Sample job for additional CSD modification

If you need to upgrade the Language Environment resource definitions in your CSD, you can use a job like this.
Upgrading user-modified CICS-supplied resource definitions

When you run the UPGRADE function of the CSD utility program DFHCSDUP, ensure that you manually upgrade any CICS-supplied definitions that you have modified in earlier releases.

About this task

It is important to upgrade your modified definitions to ensure that they are defined correctly with nondefault values for attributes that are new. If you fail to upgrade modified definitions, CICS assigns default values to any new attributes, and these might be inappropriate for CICS-supplied resource definitions.

Procedure

- If you are not sure whether your CSD contains any modified CICS-supplied definitions, use the DFHCSDUP SCAN command to compare the CICS-supplied resource definitions with any user-modified versions. The DFHCSDUP SCAN command searches for the CICS-supplied version of a specified resource name of a specific resource type and compares it with any other resource definition of the same name and type. DFHCSDUP reports any differences it finds between the CICS-supplied definition and a user-modified version. If you have copied and changed the name of a CICS-supplied definition, the SCAN command enables you to specify the changed name as an alias.

- The safest way to upgrade your definitions is to copy the upgraded CICS-supplied definitions and reapply your modifications. This action is necessary because the UPGRADE command does not operate on your own groups or on CICS groups that you have copied.

- If the CICS region uses CICSPlex SM, manually upgrade any of the dynamically created CICSPlex SM resource definitions that you modified in your previous
release, using the equivalents in Version 4.2. The dynamically created resource definitions and their attributes are in the following members of the SEYUSAMP sample library:

- EYUSCDEF contains the default resource definitions for a CMAS.
- EYUSMDEF contains the default resource definitions for a MAS.
- EYUSWDEF contains the default resource definitions for a WUI server.

**Upgrading copies of CICS-supplied resource definitions**

If you have made copies of CICS-supplied resource definitions, you might need to change your copies to match the changes that have been made to the supplied definitions for this release. To help you, member DFH$CSDU in library SDFHSAMP contains ALTER commands that you can apply using the CSD utility program DFHCSDUP.

**Procedure**

1. Review your resource definitions to determine if you have copied any CICS-supplied definitions.
2. Review DFH$CSDU to determine if the changes that it contains should apply to your resource definitions.
3. Make any necessary changes to DFH$CSDU. It is advisable to make a copy of DFH$CSDU and apply any changes to the copy.
4. Run DFHCSDUP using your modified version of DFH$CSDU as input. As supplied, the ALTER commands in DFH$CSDU specify GROUP(*), which means that DFHCSDUP attempts to change resources in the CICS-supplied groups. This action is not permitted and results in message DFH5151. You can ignore this message.

**Example**

JVMPROFILE(DFHJVMCD) is added to the definition of program DFHADJR. Therefore, DFH$CSDU contains the following command:

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

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

**DSA size limits**

Setting the size of individual dynamic storage areas (DSAs) is not usually necessary and is not recommended. However, you can set the size of some of the DSAs using the system initialization parameters CDSASZE, UDSASZE, SDSASZE, RDSASZE, ECDSASZE, EUDSASZE, ESDASZE, and ERDSASZE.

For example, CDSASZE sets the size of the CDSA, and ECDSASZE specifies the size of the ECDSA. The default value for these parameters is 0, indicating that the size of the DSA can change dynamically. If you specify a nonzero value, the DSA size is fixed.

If you specify DSA size values that in combination do not allow sufficient space for the remaining DSAs, CICS fails to initialize. The limit on the storage available for the DSAs is specified by the EDSALIM and DSALIM system initialization parameters. You must allow at least 1 MB for each DSA in 31-bit storage (above the
CSD compatibility between different CICS releases

Most releases of CICS change the CICS-supplied groups of resource definitions that are included in the DFHLIST group list. 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.

When you have upgraded a CSD, if you plan to share the CSD with earlier releases of CICS, include the appropriate DFHCOMPx compatibility groups in your startup group list to provide the required support for earlier releases. Table 7 shows you which DFHCOMPx groups you must include for the earlier releases. Do not attempt to share a CSD with a CICS region running at a higher level than the CSD.

Table 7. Required compatibility groups for earlier releases of CICS

<table>
<thead>
<tr>
<th>Shared with CICS</th>
<th>CICS TS 4.2 CSD</th>
<th>CICS TS 4.1 CSD</th>
<th>CICS TS 3.2 CSD</th>
<th>CICS TS 3.1 CSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>TS 4.2</td>
<td>None</td>
<td>Do not share</td>
<td>Do not share</td>
<td>Do not share</td>
</tr>
<tr>
<td>TS 4.1</td>
<td>DFHCOMPE</td>
<td>None</td>
<td>Do not share</td>
<td>Do not share</td>
</tr>
<tr>
<td>TS 3.2</td>
<td>DFHCOMPE DFHCOMPD</td>
<td>DFHCOMPD</td>
<td>None</td>
<td>Do not share</td>
</tr>
<tr>
<td>TS 3.1</td>
<td>DFHCOMPE DFHCOMPD DFHCOMPC</td>
<td>DFHCOMPD DFHCOMPC</td>
<td>DFHCOMPC</td>
<td>None</td>
</tr>
</tbody>
</table>

Compatibility group DFHCOMPE

Group DFHCOMPE is required for compatibility with release CICS TS 4.1.

Table 8. Contents of compatibility group DFHCOMPE

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPELINE</td>
<td>DFHWSATP DFHWSATR</td>
</tr>
<tr>
<td>PROGRAM</td>
<td>DFHMIRS DFHCN CV DFHUCNV DSNTIAC DSNTIA1 DFHEDP DFHDBAT DFHDBUEX</td>
</tr>
</tbody>
</table>

Compatibility group DFHCOMPD

Group DFHCOMPD is required for compatibility with release CICS TS 3.2.

Table 9. Contents of compatibility group DFHCOMPD

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>TDQUEUE</td>
<td>CPLI CPLD</td>
</tr>
<tr>
<td>PIPELINE</td>
<td>DFHWSATP DFHWSATR</td>
</tr>
</tbody>
</table>
Table 9. Contents of compatibility group DFHCOMPD (continued)

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROGRAM</td>
<td>DFHSJJML</td>
</tr>
<tr>
<td></td>
<td>DFHPIVAL</td>
</tr>
<tr>
<td></td>
<td>IXM4C56</td>
</tr>
<tr>
<td></td>
<td>IXMI33UC</td>
</tr>
<tr>
<td></td>
<td>IXMI33DA</td>
</tr>
<tr>
<td></td>
<td>IXMI33D1</td>
</tr>
<tr>
<td></td>
<td>IXMI33IN</td>
</tr>
<tr>
<td>TRANSACTION</td>
<td>CJMJ</td>
</tr>
</tbody>
</table>

Compatibility group DFHCOMPC

Group DFHCOMPC is required for compatibility with release CICS TS 3.1.

Table 10. Contents of compatibility group DFHCOMPC

<table>
<thead>
<tr>
<th>Resource type</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>PIPELINE</td>
<td>DFHWSATP</td>
</tr>
<tr>
<td></td>
<td>DFHWSATR</td>
</tr>
</tbody>
</table>

CICS TS for z/OS 4.2: Upgrading from CICS TS Version 3.1
Chapter 20. Upgrading application programs

CICS translator support for pre-Language Environment compilers is withdrawn. Runtime support is provided for existing application programs that were developed using these compilers, except for OS/VS COBOL and OO COBOL programs, which do not have runtime support.

Withdrawal of support for pre-Language Environment compilers

CICS translator support is withdrawn for the following compilers:

- OS/VS COBOL (5740-CB1, 5740-LM1, and 5734-CB4)
- VS COBOL II (5668-958 and 5688-023)
- OS PL/I Version 1 (5734-PL1)
- OS PL/I Version 2 (5668-910 and 5668-909)
- SAA AD/Cycle C/370™ (5688-216)

For details of the compilers that are supported by CICS, see High-level language support.

The following JCL procedures that were supplied in earlier releases for translating, compiling, and link-editing using the unsupported compilers are also withdrawn:

**COBOL**

- The DFHEITVL, DFHEXTVL, DFHEBTVL, DFHEITCL, and DFHEXTCL procedures.

**PL/I**

- The DFHEITPL, DFHEXTPL, and DFHEBTPL procedures.

**C**

- The DFHEITDL and DFHEXTDL procedures.

CICS now supplies the following procedures only, for use with compilers that conform to Language Environment:

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

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

- ANSI85
- LANGVLVL
- FE
The CICS translators ignore these translator options and issue a return code 4
warning message.

**Runtime support for programs developed using pre-Language Environment compilers**

Although application program development support for obsolete compilers is withdrawn, CICS usually continues to provide runtime support for your existing application programs that were developed using these old compilers. However, to apply maintenance to these application programs, use one of the supported compilers that conforms to Language Environment.

Applications compiled and linked with pre-Language Environment compilers usually run successfully using the runtime support provided by Language Environment. These applications do not usually need to be recompiled or re-link-edited. If required, adjust Language Environment runtime options to allow these applications to run correctly. See the z/OS Language Environment Run-Time Application Migration Guide, and the Compiler and Run-Time Migration Guide for the language in use, for further information. Because pre-Language Environment compilers are not Language Environment-conforming, programs compiled by these compilers cannot take advantage of all Language Environment facilities in a CICS region.

Runtime libraries provided by Language Environment replace the runtime libraries that were provided with older compilers such as VS COBOL II, OS PL/I, and C/370. The runtime libraries provided with pre-Language Environment compilers are not supported. Language libraries, other than the Language Environment libraries, must not be present in your CICS startup JCL.

**Withdrawal of runtime support for OS/VS COBOL**

Runtime support for OS/VS COBOL programs is withdrawn. If you try to use an OS/VS COBOL program, CICS issues the abend code ALIK, abnormally terminates the task, and disables the program.

**Withdrawal of runtime support for OO COBOL**

In this CICS release, you cannot use COBOL class definitions and methods (object-oriented COBOL). This restriction includes both Java classes and COBOL classes.

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

**Upgrading routing programs to tolerate channels**

If you use a user-written dynamic routing program or distributed routing program for workload management, rather than CICSPlex SM, you must modify your program to handle the new values that it might be passed in the DYRLEVEL, DYRTYPE, and DYRVER fields of the DFHDYPDS communications area. This is required whether or not you plan to implement channels and containers in your own applications.
Chapter 21. Upgrading file control

The use of VSAM nonshared resources (NSR) is not supported with transaction isolation, so if CICS writes to files where the VSAM data set associated with the file uses NSR, you must change your resource definitions to avoid receiving an AFDK abend. Also, the maximum number of LSR pools available in a CICS region is increased from 8 to 255.

VSAM nonshared resources (NSR)

If transaction isolation is active, and a program attempts to issue a file control write or update request against a file where the VSAM data set associated with the file uses VSAM nonshared resources (NSR), the program abends with the abend code AFDK. Requests to read or browse the file that do not attempt to update the file in any way do not result in an abend.

To avoid this situation, choose one of the following solutions:

- If the file requires transaction isolation, change the FILE resource definition so that the file uses either VSAM record-level sharing (RLS) or VSAM local shared resources (LSR). RLSACCESS(YES) specifies that CICS opens the file in RLS mode. LSRPOOLNUM(number) specifies the number of an LSR pool to be used by the VSAM data set associated with the file.
- If the file does not require transaction isolation, change the TRANSACTION resource definition to specify ISOLATE(NO). Setting this value causes the individual transaction to run without transaction isolation.

Increased number of LSR pools

LSR pools are an effective means to improve performance when accessing VSAM files, and increasing the number of pools provides a method of optimizing your system. In CICS TS for z/OS, Version 4.1 and earlier releases, you specified the number of the LSR (local shared resource) pool in FILE and LSRPOOL resource definitions using the LSRPOOLID attribute, which has values in the range 1 - 8. From CICS TS for z/OS, Version 4.2, the value specified for LSRPOOLID in existing FILE and LSRPOOL resource definitions is transferred to the new option LSRPOOLNUM, which has values in the range 1 - 255.

Existing programs that use the commands EXEC CICS CREATE FILE, EXEC CICS CREATE LSRPOOL, EXEC CICS CSD DEFINE FILE, EXEC CICS CSD DEFINE LSRPOOL, EXEC CICS CSD ALTER FILE, or EXEC CICS CSD ALTER LSRPOOL with the LSRPOOLID attribute continue to work correctly. CICS substitutes the value in LSRPOOLNUM for the value in LSRPOOLID when the command is run.

Batch jobs that use the CICS system definition utility program (DFHCSDUP) and issue the commands ALTER FILE, DEFINE FILE, ALTER LSRPOOL, or DEFINE LSRPOOL with the LSRPOOLID attribute continue to work correctly. When compatibility mode is used, CICS uses the value in the LSRPOOLID attribute as the number of LSR pools. When compatibility mode is not used, CICS substitutes the value in LSRPOOLNUM for the value in LSRPOOLID.

CICS TS for z/OS, Version 4.1 and earlier releases only recognize the LSRPOOLID attribute, which has values in the range 1 - 8. You can use the compatibility mode
in CEDA and DFHCSDUP to set a value for LSRPOOLID if you are sharing the CSD with earlier releases of CICS. If you specify a value for LSRPOOLNUM, it is only used in CICS TS 4.2.

In CICSPlex SM Business Application Services (BAS), if you install a FILE or LSRPOOL definition that specifies an LSR pool number greater than 8 into CICS TS for z/OS, Version 4.1 or earlier, the default value of 1 is used. You can use CICSPlex SM to specify a number in the range 1 - 8.
Chapter 22. Upgrading Business Transaction Services (BTS)

When you upgrade your BTS environment to CICS Transaction Server for z/OS, Version 4 Release 2, you might need to migrate the DFHLRQ data set. Be aware that even if you are not explicitly making use of BTS services in your applications, it is possible that they are being exploited by vendor code or IBM-supplied products executing within your CICS environment.

Migrating the DFHLRQ data set

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

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

If you have outstanding BTS activities for BTS processes in CICS, you must migrate the contents of your DFHLRQ data set as part of the upgrade. You can use a utility such as IDCAMS COPY to update the CICS TS for z/OS, Version 4.2 DFHLRQ data set with the contents of the DFHLRQ data set from your previous CICS release.

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

Repository data sets

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

To use BTS, you must define at least one BTS repository data set to MVS. You may decide to define more than one, assigning a different set of process-types to each. One reason for doing this might be storage efficiency, for example, if some of your process-types tend to produce longer records than others.

If you operate BTS in a sysplex, several CICS regions may share access to one or more repository data sets. This sharing enables requests for the processes and activities stored on the data sets to be routed across the participating regions. As you upgrade your CICS releases, you may therefore still share older versions of repository data sets. The expectation is that you define and use different repository data sets whenever you want to assign different sets of process-types, rather than because a CICS upgrade has occurred.
Chapter 23. Upgrading to extended addressing for ESDS

Restriction: Data sets that are used internally by CICS, such as DFHDMPA, DFHDMPB, DFHINTRA, and DFHTEMP do not use extended ESDS. Do not migrate these data sets.

To use an extended ESDS data set, upgrade the data set and convert existing CICS application programs that use 32-bit relative byte addressing (RBA) to 64-bit extended relative byte addressing (XRBA).

Upgrading a standard ESDS to an extended addressing ESDS

Before upgrading a standard ESDS data set to use extended addressing, if your dataset is defined to use forward recovery you must upgrade your forward recovery product to one that can read the new log records written for extend addressing ESDS data sets. If you use CICS VR, the release required is CICS VSAM Recovery for z/OS V4.2.

To convert an existing standard ESDS to an extended addressing ESDS, re-create the data set as follows:

1. If you want to continue to use the contents of the existing data set, take a copy of its contents. You can use the AMS REPRO function to do this.
2. Delete the existing data set.
3. Create a new data set. You can base the AMS definition of the new data set on that of the old data set. The only mandatory change is that the DATACLAS parameter of the definition of the new data set must name an SMS data class that specifies both extended format and extended addressing. The DFSMS Storage Administration Reference manual describes how to define SMS data classes.
4. If necessary, restore the contents of the data set from the copy taken previously.

Upgrading a program from 32-bit RBA to 64-bit XRBA

To convert an existing program from using 32-bit RBA to 64-bit extended relative byte addressing (XRBA):

1. Replace the RBA keyword with the XRBA keyword on all the following commands:
   - EXEC CICS READ
   - EXEC CICS READNEXT
   - EXEC CICS READPREV
   - EXEC CICS RESETBR
   - EXEC CICS STARTBR
   - EXEC CICS WRITE
2. Replace all 4-byte areas used for keys with 8-byte areas. This step is very important.
   If you change "RBA" to "XRBA" but do not change the length of the key areas:
   - On STARTBR and READ commands, CICS treats your 4-byte RBAs as being the top half of 8-byte XRBAs. In most cases this produces a huge XRBA number. You can track down this error because the program immediately receives a "no record at RBA" response.
• WRITE commands might produce more subtle, and therefore probably more serious, errors. The command feeds back an 8-byte XRBA, which overwrites the 4 bytes immediately following the key area.

Using RBA-insensitive programs to access extended ESDS data sets

You can reuse existing 32-bit RBA programs that do not make use of the RBAs to access 64-bit extended ESDS data sets.

For example, a common type of application has records that are first written sequentially and later browsed sequentially from the beginning. Although RBAs are passed between CICS and the program, the program makes no use of them. The program only reads or writes the next record. Such programs are “RBA-insensitive”. Other programs, such as those that directly read or update records at named RBAs, are “RBA-sensitive”.

Existing 32-bit RBA-insensitive programs can access 64-bit extended ESDS data sets without change. Both RLS and non-RLS modes are supported.

Thirty-two-bit RBA-sensitive programs cannot access 64-bit extended ESDS data sets, even if the data set contains less than 4 GB of data.

Connecting a back-level AOR to a CICS TS for z/OS, Version 4.2 FOR

In this scenario, old-style 32-bit RBA programs try to access files on a CICS TS for z/OS, Version 4.2, file-owning region (FOR). This is successful in either of the following cases:
• The target file in the FOR has not been converted from conventional ESDS to extended addressing ESDS.
• The target file has been converted to extended addressing ESDS but the program is RBA-insensitive.

If the target file has been converted to extended addressing ESDS, a 32-bit RBA-sensitive program running in the AOR cannot access it. The program receives an ILLOGIC response.

Connecting a CICS TS for z/OS, Version 4.2 AOR to a back-level FOR

In this scenario, new-style 64-bit XRBA programs try to access files on a back-level file-owning region.

Because the target region supports only 32-bit RSAs, it does not understand a 64-bit XRBA. The program receives an ILLOGIC response.
Chapter 24. Migrating connections to IP interconnectivity

If you do not want to use IPIC connections, you do not need to do anything about them when upgrading. Existing MRO, APPC, and LUTYPE6.1 connections continue to operate as before. If you do want to migrate APPC or MRO connections to IPIC, follow the steps described here.

Procedure
1. Install support for IPIC. IP interconnectivity (IPIC) in the CICS Transaction Server for z/OS Installation Guide describes how to do this.
2. Migrate your existing connections to IPIC. CICS supplies the DFH0IPCC migration utility to help you do this.

The DFH0IPCC migration utility

The DFH0IPCC utility program that is provided with CICS converts existing APPC and MRO connections to IP connections (IPCONNs). DFH0IPCC is a sample program for use with the DFHCSDUP system definition utility program. The utility generates a set of statements that form the input to DFHCSDUP.

The DFH0IPCC program takes input supplied in a table that you can edit, called an APPLID table. This table is used to store the APPLIDs of all the regions in the relevant setup, with the corresponding HOST name of the region and the listening PORT of the TCPIPSERVICE definition used to deal with inbound TCP/IP connections.

The DFH0IPCC program examines lists and resource groups in the CSD for CICS regions, collecting information about the CONNECTION and SESSIONS definitions it finds. For each APPC or MRO pair of CONNECTION and SESSIONS definitions, it creates an IPCONN definition. Where appropriate, the attributes of the IPCONN definition are taken from the CONNECTION and SESSIONS definitions, with the values of the remaining attributes taken from the APPLID table or allowed to take their default values. When the utility program has completed an IPCONN definition, it writes a series of DEFINE statements, which form the SYSIN for your resulting DFHCSDUP invocation JCL.

IPCONN attribute mapping

This table summarizes how the DFH0IPCC utility program maps the CONNECTION attributes to the IPCONN definition.

<table>
<thead>
<tr>
<th>IPCONN definition attribute</th>
<th>Migrated From or Created By</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLID</td>
<td>CONNECTION (NETNAME)</td>
<td>Direct migration</td>
</tr>
<tr>
<td>AUTOCONNECT</td>
<td>CONNECTION (AUTOCONNECT)</td>
<td>Direct migration. But, if ALL, set the new value to YES.</td>
</tr>
<tr>
<td>CERTIFICATE</td>
<td>N/A</td>
<td>Blank</td>
</tr>
<tr>
<td>CIPHERS</td>
<td>N/A</td>
<td>Blank</td>
</tr>
</tbody>
</table>
### Table 11. IPCONN attribute mapping (continued)

<table>
<thead>
<tr>
<th>IPCONN definition attribute</th>
<th>Migrated From or Created By</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>DESCRIPTION</td>
<td>N/A</td>
<td>Blank. Not migrated. You can add this in the DFH0IPCC output.</td>
</tr>
<tr>
<td>GROUP</td>
<td>CONNECTION (GROUP) SESSIONS (GROUP)</td>
<td>Not changed</td>
</tr>
<tr>
<td>HOST</td>
<td>APPLID table</td>
<td>Must be specified in the APPLID table.</td>
</tr>
<tr>
<td>INSERVICE</td>
<td>CONNECTION (INSERVICE)</td>
<td>Direct migration</td>
</tr>
<tr>
<td>IPCONN</td>
<td>CONNECTION (CONNECTION)</td>
<td>Direct migration. See &quot;IPCONN names.&quot;</td>
</tr>
<tr>
<td>MAXQTIME</td>
<td>CONNECTION (MAXQTIME)</td>
<td>Direct migration</td>
</tr>
<tr>
<td>NETWORKID</td>
<td>APPLID table</td>
<td>No equivalent. Leave blank if not specified in the APPLID table or if using the default.</td>
</tr>
<tr>
<td>PORT</td>
<td>APPLID table</td>
<td>Must be specified in the APPLID table.</td>
</tr>
<tr>
<td>QUEUELIMIT</td>
<td>CONNECTION (QUEUELIMIT)</td>
<td>Direct migration</td>
</tr>
<tr>
<td>RECEIVECOUNT</td>
<td>Sum of SESSIONS (MAXIMUM)</td>
<td>Direct migration from the MRO SESSIONS equivalent setting, or derived from the APPC SESSIONS MAXIMUM setting.</td>
</tr>
<tr>
<td>SENDCOUNT</td>
<td>Sum of SESSIONS (MAXIMUM)</td>
<td>Direct migration from the MRO SESSIONS equivalent setting, or derived from the APPC SESSIONS MAXIMUM setting.</td>
</tr>
<tr>
<td>SSL</td>
<td>N/A</td>
<td>Left blank. You can modify this in the DFH0IPCC output.</td>
</tr>
<tr>
<td>TCPIPSERVICE</td>
<td>APPLID table</td>
<td>Always “DFHIPIC” or as in the APPLID table. See “TCPIPSERVICE names.”</td>
</tr>
<tr>
<td>XLNACTION</td>
<td>CONNECTION (XLNACTION)</td>
<td>Direct migration</td>
</tr>
</tbody>
</table>

### IPCONN names

The IPCONN names are generated to avoid duplicates. The DFH0IPCC utility program uses the name of the CONNECTION definition because there is a one-to-one relationship between a CONNECTION definition and the IPCONN definition created from it. The coexistence of same-name CONNECTION and IPCONN definitions is fully supported by CICS provided that the CONNECTION NETNAME and IPCONN APPLID are the same. In this instance, CICS selects the IPCONN definition instead of the CONNECTION definition for routing of supported function.

### TCPIPSERVICE names

Because an IPCONN definition cannot determine the TCPIPSERVICE name of a partner region, the utility cannot produce TCPIPSERVICE definitions; you must
define them manually. The utility works in such a way that all TCPIPSERVICE names in regions for which the utility produces IPCONN definitions must be the same.

All IPCONN definitions created by the DFH0IPCC utility program have the default attribute, TCPIPSERVICE(DFHIPIC), unless you supply a different name using the .DEFAULT row in the APPLID file. If you specify another name, use that name for all TCPIPSERVICE definitions that you create.

Migrating APPC and MRO connections to IPIC
You can migrate your existing MRO, APPC, and LUTYPE6.1 connections to IPIC connections. Existing connections continue to operate as before. The IPCONN definition takes precedence over the CONNECTION definition; that is, if an IPCONN and a CONNECTION have the same name, CICS uses the IPCONN.

Before you begin
If you want to migrate APPC or MRO connections to IPIC, you must have installed support for IPIC. The CICS Transaction Server for z/OS Installation Guide describes how to do this.

About this task
The DFH0IPCC migration utility converts existing APPC and MRO connections to IPIC. To migrate your existing connections to IPIC using the DFH0IPCC utility, complete the following steps.

Procedure
1. Create a TCPIPSERVICE resource definition in each of the interconnected regions.
   a. Specify PROTOCOL(IPIC).
   b. Specify TCPIPSERVICE(DFHIPIC) or TCPIPSERVICE(servicename). If you specify a user-defined name, use this same name for all the TCPIPSERVICE definitions that you create.
   c. Specify other options, such as PORTNUMBER, according to the requirements of the region where the TCPIPSERVICE definition is to be installed.
2. Put each TCPIPSERVICE definition in a resource definition group of its own.
3. Add one or more resource groups to each CICS system definition file (CSD) used by the interconnected regions, the number depending on the number of CICS regions the CSD serves and the number of unique TCPIPSERVICE definitions that they require.
4. Install one TCPIPSERVICE, named DFHIPIC, or user-defined service name, in each of the interconnected regions.
5. Complete an APPLID table for the interconnected CICS regions, as shown in Example 1 below.
   a. Create the table as a fixed-block, 80-byte record format.
   b. Fill the table using any method: manually, for example, or by a utility, such as a spreadsheet or script. You must preserve the fixed-length format.
      • You can remove or omit any of the provided comments or header lines in the table.
• The table must contain the application identifiers (APPLIDs), network IDs, where applicable, TCP/IP port numbers, and host names of all the interconnected CICS regions.

• If the previously defined TCPIPSERVICE definitions were named anything other than DFHIPIC, the table must contain a .DEFAULT record with TCPIPSERVICE=servicename in the HOST column.

6. Copy your APPLID table to every system that contains a CSD used by the interconnected regions.

7. Create JCL that can be used to invoke DFH0IPCC through DFHCSDUP, like that shown in Example 2 below. Specify the lists and resource groups that you want DFH0IPCC to search for information about CONNECTION and SESSIONS definitions. The JCL issues a DFHCSDUP EXTRACT command, passing the utility program as the USERPROGRAM.

8. On one of the CSD-owning systems, use your customized JCL file to invoke the DFH0IPCC utility program. The utility program collects information about CONNECTION and SESSIONS definitions, creates IPCONN definitions, and writes a series of DEFINE statements, which form the SYSIN for your resulting DFHCSDUP invocation JCL.

9. Review the output produced by the utility program.
   a. Check that the IPCONN definitions are correct for your installation. You might want to modify the default SSL settings to add greater security controls for a particular connection.
   b. Modify the USER, PASSWORD, and library names in the generated JCL, to match those used by your location.

10. Run the generated JCL to add the new IPCONN resources to your CSD file.
11. Repeat steps 8, 9, and 10 for each CSD file used by the interconnected CICS regions.

Example

This example of an APPLID table shows the format that you must use. The table following the example has reference information for the table format.
Figure 2. Example 1: APPLID table

Table 12. Format of APPLID table

<table>
<thead>
<tr>
<th>Column</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>APPLID</td>
<td>char 8</td>
<td>Unique identifier or .DEFAULT. Use .DEFAULT to specify default values for NETID or TCPIPSERVICE. The leading dot prevents the word DEFAULT being used as a valid APPLID. Only one .DEFAULT row is allowed in the table.</td>
</tr>
<tr>
<td>Separator</td>
<td>char 1</td>
<td>Any alphanumeric character.</td>
</tr>
</tbody>
</table>
Table 12. Format of APPLID table (continued)

<table>
<thead>
<tr>
<th>Table column</th>
<th>Length</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NETID</td>
<td>char 8</td>
<td>Network identifier. When left blank, the default NETID specified by the .DEFAULT row is used.</td>
</tr>
<tr>
<td>Separator</td>
<td>char 1</td>
<td>Any alphanumeric character.</td>
</tr>
<tr>
<td>PORT</td>
<td>char 5</td>
<td>Listening port number</td>
</tr>
<tr>
<td>Separator</td>
<td>char 1</td>
<td>Any alphanumeric character.</td>
</tr>
<tr>
<td>HOST</td>
<td>char 55</td>
<td>TCP/IP host name</td>
</tr>
<tr>
<td>Continuation column</td>
<td>char 1</td>
<td>Normally blank. Any nonblank character in this field indicates that the host name is longer than 55 characters and continues in the HOST column in the following row.</td>
</tr>
</tbody>
</table>

You can use this example JCL to invoke DFH0IPCC through DFHCSDUP.

```
//IPCJOB  JOB user,CLASS=A,USER=user,PASSWORD=pass
/*ROUTE PRINT user
//CSDUPJOB EXEC PGM=DFHCSDUP,REGION=0M
//STEPLIB  DD DSN=loadlibrary,DISP=SHR
//           DD DSN=loadlibrary,DISP=SHR
//DFHCSDD  DD DSN=csdfilename,DISP=SHR
//SYSPRINT DD SYSOUT=A
//CSDCOPY  DD UNIT=V10
//APPLTABL DD DSN=applidtablename,
//           DISP=SHR,UNIT=SYSDA,SPACE=(CYL,(2,1)),
//           DCB=(RECFM=FB,BLKSIZE=15360,LRECL=80)
//LOGFILE  DD DSN=logfilename,
//           DISP=(MOD,CATLG,CATLG),UNIT=SYSDA,SPACE=(CYL,(2,1)),
//           DCB=(RECFM=FB,BLKSIZE=15360,LRECL=80)
//OUTFILE  DD DSN=outputfilename,
//           DISP=(MOD,CATLG,DELETE),UNIT=SYSDA,SPACE=(CYL,(2,1)),
//           DCB=(RECFM=FB,BLKSIZE=15360,LRECL=80)
//SYSUDUMP  DD SYSOUT=A
//SYSSBEND  DD SYSOUT=A
//SYSSIN   DD *
EXTRACT GR(group1) USERPROGRAM(DFH0IPCC) OBJECTS
EXTRACT GR(group2) USERPROGRAM(DFH0IPCC) OBJECTS
EXTRACT GR(list1) USERPROGRAM(DFH0IPCC) OBJECTS
EXTRACT GR(list2) USERPROGRAM(DFH0IPCC) OBJECTS
/*
```

Figure 3. Example 2: JCL to invoke DFH0IPCC through DFHCSDUP

**Equivalent attributes on IPCONN definitions**

If you want to migrate your APPC and MRO connections manually, instead of running the DFH0IPCC migration utility, these tables show the attributes of CONNECTION and SESSION resource definitions for MRO and APPC connections and the equivalent attributes on IPCONN definitions.
### APPC connections

**Table 13. Migrating APPC connections to IPIC. CONNECTION options and their IPCONN equivalents**

<table>
<thead>
<tr>
<th>CONNECTION options</th>
<th>APPC possible values</th>
<th>IPCONN equivalent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESSMETHOD</td>
<td>SNA</td>
<td>Not applicable</td>
</tr>
<tr>
<td>ATTACHSEC</td>
<td>LOCAL</td>
<td>IDENTIFY</td>
</tr>
<tr>
<td>AUTOCONNECT</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>BINDSECURITY</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>DATASTREAM</td>
<td>USER</td>
<td>Not applicable</td>
</tr>
<tr>
<td>INDSYS</td>
<td>Not applicable (indirect connections only)</td>
<td>Not applicable (indirect connections only)</td>
</tr>
<tr>
<td>INSERVICE</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>MAXQTIME</td>
<td>NO</td>
<td>0 - 9999</td>
</tr>
<tr>
<td>NETNAME</td>
<td>The SNA APPLID of the remote region. (For XRF, the generic APPLID. For connections to an SNA generic resource, either the APPLID or generic resource name.)</td>
<td>Combination of APPLID and NETWORKID</td>
</tr>
<tr>
<td>PROTOCOL</td>
<td>APPC</td>
<td>Not applicable</td>
</tr>
<tr>
<td>PSRECOVERY</td>
<td>SYSDEFAULT</td>
<td>NONE</td>
</tr>
<tr>
<td>QUEUELIMIT</td>
<td>NO</td>
<td>0 - 9999</td>
</tr>
<tr>
<td>RECORDFORMAT</td>
<td>U</td>
<td>Not applicable</td>
</tr>
<tr>
<td>REMOTENAME</td>
<td>Name (sysid) by which the remote system is known to itself</td>
<td>Not applicable</td>
</tr>
<tr>
<td>REMOTESYSNET</td>
<td>APPLID of the remote system that owns the remote resource, if the link to the remote system is indirect</td>
<td>Not applicable</td>
</tr>
<tr>
<td>REMOTESYSTEM</td>
<td>Name (sysid) of the remote system, or sysid of the next system in the path, if the link to the remote system is indirect</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SECURITYNAME</td>
<td>RACF ID of the remote system</td>
<td>As is</td>
</tr>
<tr>
<td>SINGLESESS</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>USEDFLTTUSER</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>XLNACTION</td>
<td>KEEP</td>
<td>FORCE</td>
</tr>
</tbody>
</table>

**Table 14. Migrating APPC connections to IPIC. SESSIONS options and their IPCONN equivalents**

<table>
<thead>
<tr>
<th>SESSIONS options</th>
<th>APPC possible values</th>
<th>IPCONN equivalent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOCONNECT</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>BUILDCHAIN</td>
<td>YES</td>
<td>Not applicable</td>
</tr>
<tr>
<td>CONNECTION</td>
<td>Name of CONNECTION to which this SESSION definition applies to</td>
<td>Not applicable</td>
</tr>
<tr>
<td>DISCREQ</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>JOAREALEN</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>MAXIMUM</td>
<td>1 - 999, 0 - 999</td>
<td>SENDCOUNT &amp; RECEIVECOUNT</td>
</tr>
<tr>
<td>MODENAME</td>
<td>Name of an SNA LOGMODE</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
### Table 14. Migrating APPC connections to IPIC. SESSIONS options and their IPCONN equivalents (continued)

<table>
<thead>
<tr>
<th>SESSIONS options</th>
<th>APPPC possible values</th>
<th>IPCONN equivalent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEPCLASS</td>
<td>Transaction class for the node error program</td>
<td>Not applicable</td>
</tr>
<tr>
<td>NETNAMEQ</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>PROTOCN</td>
<td>APPC</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RECEIVECOUNT</td>
<td>Not applicable</td>
<td>Derived from MAXIMUM</td>
</tr>
<tr>
<td>RECEIVEPFX</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RECEIVESIZE</td>
<td>RU size to receive: 1 - 30720</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RECOVEROPTION</td>
<td>SYSDEFAUT</td>
<td>CLEARCONV</td>
</tr>
<tr>
<td>RELREQ</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>SENDCOUNT</td>
<td>Not applicable</td>
<td>Derived from MAXIMUM</td>
</tr>
<tr>
<td>SENDPFX</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SENDSIZE</td>
<td>RU size to send: 1 - 30720</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SESSNAME</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SESSPRIORITY</td>
<td>0 - 255</td>
<td>Not applicable</td>
</tr>
<tr>
<td>USERAREALEN</td>
<td>Length of TCTTE user area: 0 - 255</td>
<td>Not applicable</td>
</tr>
<tr>
<td>USERID</td>
<td>ID for sign on</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

### MRO connections

MRO connections are all CICS-to-CICS connections between regions in the same sysplex. For this type of connection, MRO might be more useful than IPIC because it supports all the base CICS intercommunication functions, whereas IPIC supports a subset.

### Table 15. Migrating MRO connections to IPIC. CONNECTION options and their IPCONN equivalents

<table>
<thead>
<tr>
<th>CONNECTION options</th>
<th>MRO possible values</th>
<th>IPCONN equivalent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACCESSMETHOD</td>
<td>IRC</td>
<td>XM</td>
</tr>
<tr>
<td>ATTACHSEC</td>
<td>LOCAL</td>
<td>IDENTIFY</td>
</tr>
<tr>
<td>AUTOCONNECT</td>
<td>Not applicable</td>
<td>NO</td>
</tr>
<tr>
<td>BINDSECURITY</td>
<td>Not applicable</td>
<td>SSL NO</td>
</tr>
<tr>
<td>DATASTREAM</td>
<td>USER</td>
<td>Not applicable</td>
</tr>
<tr>
<td>INDSYS</td>
<td>Not applicable (indirect connections only)</td>
<td>Not applicable (indirect connections only)</td>
</tr>
<tr>
<td>INSERVICE</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>MAXQTIME</td>
<td>NO</td>
<td>0 - 9999</td>
</tr>
<tr>
<td>NETNAME</td>
<td>The APPLID specified in the SIT of the remote region</td>
<td>host.domain.country[:port]</td>
</tr>
<tr>
<td>PROTOCN</td>
<td>Blank</td>
<td>Not applicable</td>
</tr>
<tr>
<td>PSRECOVERY</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>QUEUELIMIT</td>
<td>NO</td>
<td>0 - 9999</td>
</tr>
<tr>
<td>RECORDFORMAT</td>
<td>U</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
Table 15. Migrating MRO connections to IPIC. CONNECTION options and their IPCONN equivalents (continued)

<table>
<thead>
<tr>
<th>CONNECTION options</th>
<th>MRO possible values</th>
<th>IPCONN equivalent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>REMOTENAME</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>REMOTESYSNET</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>REMOTESYSTEM</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SECURITYNAME</td>
<td>Not applicable</td>
<td>As is</td>
</tr>
<tr>
<td>SINGLESESS</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>USEDDEFAULTUSER</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>XLNACTIO</td>
<td>KEEP</td>
<td>FORCE</td>
</tr>
</tbody>
</table>

Table 16. Migrating MRO connections to IPIC. SESSIONS options and their IPCONN equivalents

<table>
<thead>
<tr>
<th>SESSIONS options</th>
<th>MRO possible values</th>
<th>IPCONN equivalent value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUTOCONNECT</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>BUILDCHAIN</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>CONNECTION</td>
<td>Name of CONNECTION to which this SESSION definition applies</td>
<td>Not applicable</td>
</tr>
<tr>
<td>DISCREQ</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>IOAREALEN</td>
<td>Default TIOA size: 0 - 32767 , 0 - 32767</td>
<td>Not applicable</td>
</tr>
<tr>
<td>MAXIMUM</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>MODENAME</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>NEPCLASS</td>
<td>Transaction class for the node error program</td>
<td>Not applicable</td>
</tr>
<tr>
<td>NETNAMEQ</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>PROTOCOL</td>
<td>LU61</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RECEIVECOUNT</td>
<td>Number of receive sessions: 1 - 999</td>
<td>As is</td>
</tr>
<tr>
<td>RECEIVEPFX</td>
<td>Termid prefix</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RECEIVESIZE</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RECOVOPTION</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>RELREQ</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SENDCOUNT</td>
<td>Number of send sessions: 1 - 999</td>
<td>As is</td>
</tr>
<tr>
<td>SENDPFX</td>
<td>Termid prefix</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SENDSIZE</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SESSNAME</td>
<td>Not applicable</td>
<td>Not applicable</td>
</tr>
<tr>
<td>SESSPRIORITY</td>
<td>0 - 255</td>
<td>Not applicable</td>
</tr>
<tr>
<td>USERAREALEN</td>
<td>Length of TCTTE user area: 0 - 255</td>
<td>Not applicable</td>
</tr>
<tr>
<td>USERID</td>
<td>ID to sign in</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>
If both an APPC or MRO connection and an IPIC connection exist between two CICS regions, and both have the same name, the IPIC connection takes precedence. However, if your terminal-owning region (TOR) and application-owning region (AOR) are in CICS systems that are using different levels of CICS, the rules can differ.

An APPC or MRO connection is defined using the CONNECTION resource. An IPIC connection is defined using the IPCONN resource.

If both CONNECTION resources and IPCONN resources are active in a CICS region, CICS searches for an IPIC connection first, so that when resources with the same name exist, the preference for an IPCONN resource can be maintained. However, if an IPCONN resource is not available, CICS attempts to route over an APPC or MRO connection using a CONNECTION resource. If the request fails, a SYSID error is returned to the application that scheduled the request. For more information about how IPIC overrides default connections, see Changes to resource definitions in Upgrading.

Table 17 and Table 18 on page 202 show how the resources are used depending on the level of CICS installed at the communicating regions, the availability of resources, and the intercommunication method that is being used.

**Table 17. Selection behavior for IPCONN and CONNECTION resources with TOR and AOR communications**

<table>
<thead>
<tr>
<th>Version of CICS in TOR or routing region</th>
<th>CICS TS 3.2 AOR</th>
<th>CICS TS 4.1 AOR</th>
<th>CICS TS 4.2 AOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status of IPCONN resource</td>
<td>Asynchronous processing and transaction routing</td>
<td>Enhanced Routing</td>
<td>Asynchronous processing and transaction routing</td>
</tr>
<tr>
<td>DPL</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>Acquired</td>
<td>IPIC connection</td>
<td>IPIC connection</td>
<td>IPIC connection</td>
</tr>
<tr>
<td>CICS TS 3.2</td>
<td>Request rejected</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>Acquired</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>Released</td>
<td>IPIC connection</td>
<td>IPIC connection</td>
<td>IPIC connection</td>
</tr>
<tr>
<td>CICS TS 4.1</td>
<td>Request rejected</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>Acquired</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>Released</td>
<td>IPIC connection</td>
<td>IPIC connection</td>
<td>IPIC connection</td>
</tr>
<tr>
<td>CICS TS 4.2</td>
<td>Request rejected</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
</tbody>
</table>
## Table 18. Selection behavior for IPCONN and CONNECTION resources with AOR and ROR communications

<table>
<thead>
<tr>
<th>Version of CICS in the AOR</th>
<th>Status of IPCONN resource</th>
<th>CICS TS 3.2 or 4.1 ROR</th>
<th>CICS TS 4.2 ROR</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>File control</td>
<td>Transient data</td>
</tr>
<tr>
<td>CICS TS 3.2</td>
<td>Acquired</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td></td>
<td>Released</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>CICS TS 4.1</td>
<td>Acquired</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td></td>
<td>Released</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td>CICS TS 4.2</td>
<td>Acquired</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
<tr>
<td></td>
<td>Released</td>
<td>APPC or MRO connection</td>
<td>APPC or MRO connection</td>
</tr>
</tbody>
</table>
Chapter 26. Migrating to IPv6 addressing

You need a minimum level of CICS TS 4.1 to communicate using IPv6. The CICS region must be running in a dual-mode (IPv4 and IPv6) environment and the client or server with which CICS is communicating must also be running in a dual-mode environment. Explicitly defined IP version 4 (IPv4) connections in either single-mode or dual-mode environments continue to operate as before.

Before you begin

Ensure that you have an existing TCP/IP network configured and available and that you have existing TCP/IP resources defined and installed.

Procedure

Follow these steps to migrate CICS network resources from an earlier release and to enable IPv6 addressing:

1. Copy your existing resource definitions to the system definition data set (CSD) for the new release system. For information on migrating CICSPlex SM CSD structures, see the CICSPlex System Manager Concepts and Planning.

2. Inquire on the new resources to verify that they have been defined correctly.

3. If you are running in a dual-mode environment and you are connecting to another CICS Transaction Server for z/OS, Version 4 region that is running in a dual-mode environment and you have specified HOST(ANY) or IPADDRESS(ANY) in your TCPIPSERVICE definition, you do not have to make any updates to receive IPv6 traffic. If you have defined a specific IPv4 address in the TCPIPSERVICE definition, you will need to change this address to receive IPv6 traffic.

4. Make sure that new application programs that manipulate IP addresses use the options that support IPv6 addressing:
   a. If you are using the EXTRACT WEB, WEB EXTRACT, WEB OPEN, or WEB PARSE URL commands, the HOST option allows you to specify IP address information
   b. If you are using EXTRACT TCPIP, new client and server options return IPv6 address information.

You do not have to recompile existing application programs that return IPv4 addressing information.

Results

Existing IPv4 connections continue to function correctly and your IPv6 resources are defined and ready for network traffic.

What to do next

If you are having problems with your connection, see the CICS Problem Determination Guide.
Chapter 27. Upgrading multiregion operation (MRO)

To upgrade CICS multiregion operation (MRO) support, install the latest DFHIRP and DFHCSVC modules in the MVS link pack area (LPA) and carry out tests.

About this task

For MRO, the interregion communication program DFHIRP is installed in the link pack area (LPA). The CICS TS for z/OS, Version 4.2 DFHIRP module is compatible with earlier releases, and works with all releases of CICS. However, the CICS TS for z/OS, Version 4.2 version of DFHIRP, required for multiple XCF group support, can be used only on z/OS Version 1.7 or later.

DFHIRP can be used only from the LPA. Therefore in an MVS image you can have only 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.

In 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 still be installed from the highest release of CICS running in that MVS image. For example, a CICS TS 3.2 DFHIRP can communicate with a CICS TS for z/OS, Version 4.2 DFHIRP across XCF/MRO, but the CICS regions running in the MVS with the CICS TS 3.2 DFHIRP cannot be later than CICS TS 3.2.

These steps are a guide to the upgrading process for MRO, to install the latest DFHIRP and DFHCSVC modules 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 Installing CICS modules in the MVS link pack area in the CICS Transaction Server for z/OS Installation Guide. These steps assume that RACF is your external security manager (ESM).

Procedure

1. Install the CICS 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, coexistence is not recommended or necessary: DFHCSVC is compatible with earlier releases and the latest CICS TS version supports all the earlier releases of CICS.

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

3. Install the CICS interregion communication program, DFHIRP, in a suitable LPA library, and IPL MVS with the CLPA option. Do not use the dynamic LPA function to replace DFHIRP for upgrading between releases, because you might cause incompatibility between control blocks, resulting in abend situations.

4. 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 the required DFHAPPLapplid 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. 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. With the production regions running successfully under the CICS 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.

### Using multiple CICS XCF groups

XCF group limit relief allows multiple XCF groups to contain CICS regions. Although a CICS region can still join only one XCF group, that group need not be DFHIR000. Thus, although each group is still limited to 2047 members, an absolute limit no longer applies to the number of CICS regions that a sysplex can support. The effective limit of 2047 CICS regions that a single sysplex can support has been lifted.

If you are not constrained by the limit of 2047 members of an XCF group, you do not need to take any action. You can continue to use the default DFHIR000 XCF group; you do not have to specify DFHIR000 explicitly on the XCFGROUP parameter of the system initialization table and DFHXCOPT EXCI table.

### Upgrading to multiple CICS XCF groups

If you are constrained by the limit of 2047 XCF group members, you must determine how to split your CICS regions into related groups. Typically, you do not want to create a large number of XCF groups. An obvious method of partitioning many regions puts the production regions in a different group from the development and test regions.

Even if you are not constrained by the 2047 limit, you can use the XCF group feature to isolate your development and test regions from your production regions.

If you decide to have multiple XCF groups, note these recommendations:

- Put your production regions in a different XCF group from your development and test regions.
- Do not create more XCF groups than you need; two, separated as described, may be sufficient.
- Try not to move regions between XCF groups.
- Try not to add or remove regions from existing XCF groups.

Releases of CICS earlier than CICS TS for z/OS, Version 3.2 can join only the DFHIR000 group, so you must first upgrade to CICS TS for z/OS, Version 3.2 or a later release those systems that need a different XCF group; for example, the production systems.

For details of how to set up and configure XCF/MRO, see [Generating XCF/MRO support](#).
Chapter 28. Upgrading the Java environment

When you upgrade to a new CICS release, you might require changes to your JVM profiles and to other aspects of your Java environment. You might also require changes to your Java applications and enterprise beans.

**Earlier versions of Java**

Java programs that ran under CICS Transaction Server for z/OS, Version 3 can also run under CICS Transaction Server for z/OS, Version 4.

When you upgrade from one version of Java to another, check for compatibility issues between the Java APIs, and compatibility issues specific to the IBM SDK for z/OS. You can find this information at [Java Standard Edition Products on z/OS](http://www.ibm.com/systems/z/os/zos/tools/java/).

To avoid potential problems with deprecated APIs, develop all new Java programs for CICS Transaction Server for z/OS, Version 4 Release 2 using an application development environment that supports the same version of Java as the environment used by CICS. You can run code compiled with an older version of Java in a new runtime environment, if the environment does not use APIs that have been removed in the newer version of Java.

In CICS Transaction Server for z/OS, Version 3 Release 2, support for resetable JVMs, which were reset between each use, was withdrawn. Any Java programs that ran in resetable JVMs must be migrated to run in continuous JVMs. Continuous JVMs generally perform better and are more consistent with other versions of Java. The migration process involves ensuring that the Java programs behave as expected when a continuous JVM is reused by a subsequent program.

**JVM profiles**

If you already have JVM profiles that you set up in a previous CICS release, upgrade these profiles. Settings that are suitable for use in JVM profiles can change from one CICS release to another, so check the CICS documentation for any significant changes, and compare your existing JVM profiles to the latest CICS-supplied samples. Changes to the JVM profile options are described in “Changes to options in JVM profiles” on page 210. A list of suitable options for this release is in *Java Applications in CICS*. Use the new samples supplied with CICS Transaction Server for z/OS, Version 4 Release 2 to help you create new profiles, rather than upgrading your existing files.

Copy your JVM profiles to a new location on z/OS UNIX to use with the new CICS release, and make the changes that are required to upgrade them. Do not try to use JVM profiles with more than one CICS release at the same time, because the settings are not compatible.

Ensure that the JVM profiles that you want to use are in the z/OS UNIX directory that is specified by the **JVMPROFILEDIR** system initialization parameter.

The JVM profiles DFHJVMAX, DFHOSGI, DFHJVMPR, and DFHJVMCD must always be available to CICS and configured so that they can be used in your CICS
Key changes to CICS support for Java applications

You must be aware of significant changes that can affect your Java environment when you upgrade to CICS Transaction Server for z/OS, Version 4 Release 2.

- All JVMs run in a 64-bit environment. Although you can continue to use a supported SDK to build your Java applications, you must use the IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6.0.1, to run your Java workloads. When you are upgrading CICS, you must perform the following steps to make sure your Java applications work in a 64-bit environment:
  - Ensure that CICS has enough memory available to run 64-bit JVMs. To do this, set a suitable value for the z/OS **MEMLIMIT** parameter before you start your CICS regions. You must allow for other CICS facilities that use 64-bit storage. For more information, see Estimating, checking, and setting **MEMLIMIT** in the Performance Guide.
  - Ensure that any Java Native Interface (JNI) code can run in a 64-bit environment. You might have to recompile or rewrite application code if it uses JNI. You must also check that any third-party products that have JNI can run in a 64-bit environment.
- CICS provides two runtime environments for Java applications. The pool of JVMs still provides support for Java applications. These JVMs are called **pooled JVMs**. However, you can move your applications to run in a JVM server if they are threadsafe. The JVM server can handle multiple requests for Java applications concurrently in a single JVM, saving on the number of JVMs that are required in the CICS region. JVM servers can use class caches, but these class caches are not managed by CICS interfaces, such as the SPI and CEMT. For more information about these runtime environments, see JVM servers and pooled JVMs in Java Applications in CICS.
- The JVM server can run different Java workloads. A JVM server can either run Java applications that comply with the OSGi specification or use Axis2 for SOAP processing. Axis2 is an open source web services engine from the Apache foundation that supports a number of the web service specifications and provides a programming model to create Java applications that can run in Axis2. Two sample JVM profiles are supplied, DFHOSGI and DFHJVMAX. DFHOSGI configures the JVM server to support OSGi and DFHJVMAX configures the JVM server to support SOAP processing using Axis2.
- The JCICS API packaging has changed. The **dfjcics.jar** and **dfjoutput.jar** files have been replaced by a set of OSGi bundles that can run in both a JVM server and pooled JVMs. Any existing Java applications that use JCICS can continue to run in pooled JVMs without requiring recompilation. However, if you want to change your Java applications, you must change the class path to use the new JAR files before recompiling the application.

The following OSGi bundles are provided with CICS:

<table>
<thead>
<tr>
<th>File name</th>
<th>OSGi bundle symbolic name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File name</td>
<td>OSGi bundle symbolic name</td>
<td>Description</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------</td>
<td>-----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>com.ibm.record.jar</td>
<td>com.ibm.record</td>
<td>The Java API for legacy programs that use IByteBuffer from the Java Record Framework that came with VisualAge. Previously in the dfjcics.jar file.</td>
</tr>
</tbody>
</table>

You must import the com.ibm.cics.server.jar and com.ibm.record.jar files for existing Java applications.

- Resettable JVMs, which were reset between each use, are no longer supported. Any Java programs that ran in resettable JVMs must run in continuous pooled JVMs instead. Resettable JVMs had the option REUSE=RESET in their JVM profiles (or the older option Xresettable=YES). All the CICS-supplied sample JVM profiles for pooled JVMs now specify the option REUSE=YES, rather than REUSE=RESET.

- The class-sharing function, first introduced with Java 5, has a number of changes that are important if you are upgrading from Java 1.4.2:
  - The Version 6.0.1 shared class cache contains all application classes, with no distinction between shareable and nonshareable application classes. All the application classes are placed on the standard class path in the JVM profiles, and they are all eligible to be loaded into the shared class cache. In some exceptional scenarios, some classes might not be eligible to be loaded into the shared class cache. The parameter for the shareable application class path in the JVM properties file (-Dibm.jvm.shareable.application.class.path), which was used with the Version 1.4.2 shared class cache, is obsolete.
  - The Version 6.0.1 shared class cache does not contain compiled classes produced by just-in-time (JIT) compilation. These classes are stored in individual JVMs, not in the shared class cache, because the compilation process can vary for different workloads. The Version 1.4.2 shared class cache did contain compiled classes, so you might find that your Version 6.0.1 shared class cache uses less storage.
  - The Version 6.0.1 shared class cache updates its contents automatically if you change any application classes or JAR files, or add new items to the class paths in your JVM profiles, and restart the appropriate JVMs. You do not have to stop and restart the shared class cache as well, as you did with the Version 1.4.2 shared class cache.
  - If the Version 6.0.1 shared class cache becomes full, JVMs can continue to use the classes that are already present in it, and any further classes are loaded into the individual JVMs. A warning message is issued if you have requested verbose output, but the JVMs can continue to run applications as they did before.
  - The Version 6.0.1 shared class cache is persistent across warm and emergency CICS starts, except in some circumstances such as an IPL of z/OS, so there is no startup cost to the first JVM in the CICS region at those times. The Version 6.0.1 shared class cache is destroyed on only a cold or initial start, and normally starts again automatically when it is required. The Version 1.4.2 shared class cache was terminated each time CICS shut down.
  - The Version 6.0.1 shared class cache does not have a master JVM, so you do not have to specify the JVMCCPROFILE system initialization parameter or configure a master JVM profile. CICS uses the CICS-supplied sample profile DFHJVMCD to initialize and terminate the Version 6.0.1 shared class cache for pooled JVMs. No additional changes are required to this profile to use the shared class cache for pooled JVMs.
JVMs that use the Version 6.0.1 shared class cache do not inherit values for JVM options from a master JVM, and you do not have to place classes on the library path and shareable application class path in a JVM profile or JVM properties file for a master JVM. All the JVM options and classes are specified in the JVM profiles for the individual JVMs. So, with the Version 6.0.1 shared class cache, the JVM options for a JVM that uses the shared class cache and a JVM that does not are the same. Except for the CLASSCACHE option, the JVM profiles are set up in the same way, and the same class paths are used. Therefore, with Java 6.0.1, reusable JVMs that use the shared class cache are no longer called worker JVMs.

- If required, pooled JVMs that use the Version 6.0.1 shared class cache can be single-use JVMs (REUSE=NO) instead of continuous JVMs (REUSE=YES), and they can also be used for debugging.

- The format for the JVM trace point ID, which appears in the CICS trace entries SJ 4D01 and SJ 4D02, is different with Java 6.0.1. Again, this change was first introduced in Java 5.
  - With Java 1.4.2, the JVM trace point ID was in the format TPID_xxxxxx, where xxxxxx represents the hex JVM trace point ID. This format is fixed length, so the Java 1.4.2 trace point ID always ended at offset 8 in the data.
  - With Java 6.0.1, the JVM trace point ID is in the format TPID_componentId.number, where componentId is the name of the JVM component that issued the trace point, and number is the unique identifying number in the component. This format is variable length.

For more information, see the topics about tracing Java applications and the JVM in the [Java Diagnostics Guide](http://www.ibm.com/support/docview.wss?uid=swg27020857).

**Java and IBM MQ**

If your CICS Java applications use the IBM MQ Java APIs, IBM MQ Version 7.0.1 or later is required. Also, for IBM MQ Version 7.0.1, the PTFs for APARs PM34082 and PM32344 must be applied. These requirements are because CICS now uses 64-bit Java and requires an IBM MQ version with a 64-bit driver.

For more information about the service that you must apply to ensure that CICS TS installs correctly, see the system requirements at [http://www.ibm.com/support/docview.wss?uid=swg27020857](http://www.ibm.com/support/docview.wss?uid=swg27020857).

## Changes to options in JVM profiles

A reference for changes to options in JVM profiles.

### Table 19. Changed options in JVM profiles

<table>
<thead>
<tr>
<th>Option</th>
<th>Status</th>
<th>CICS and Java launcher action</th>
<th>Replace with</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>REUSE=RESET</td>
<td>Obsolete</td>
<td>JVM does not start</td>
<td>REUSE=YES</td>
<td>CICS issues message DFHSJ0524 if found.</td>
</tr>
<tr>
<td>Xresettable=YES</td>
<td>Obsolete</td>
<td>JVM does not start</td>
<td>REUSE=YES</td>
<td>CICS issues message DFHSJ0525 if found.</td>
</tr>
<tr>
<td>ibm.jvm.crossheap. events</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>n/a</td>
<td>Only used in resetable JVM.</td>
</tr>
<tr>
<td>ibm.jvm.events.output</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>n/a</td>
<td>Only used in resetable JVM.</td>
</tr>
</tbody>
</table>
Table 19. Changed options in JVM profiles (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Status</th>
<th>CICS and Java launcher action</th>
<th>Replace with</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>ibm.jvm.reset.events</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>n/a</td>
<td>Only used in resettable JVM.</td>
</tr>
<tr>
<td>ibm.jvm.resettrace.events</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>n/a</td>
<td>Only used in resettable JVM.</td>
</tr>
<tr>
<td>ibm.jvm.unresettable.events.level</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>n/a</td>
<td>Only used in resettable JVM.</td>
</tr>
<tr>
<td>Xinitacsh</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>Add value to -Xms</td>
<td>Only used in resettable JVM.</td>
</tr>
<tr>
<td>Xinitth</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>Add value to -Xms</td>
<td>Only used in resettable JVM.</td>
</tr>
<tr>
<td>Xinitsh</td>
<td>Obsolete</td>
<td>Java launcher ignores</td>
<td>Add value to -Xms</td>
<td>Only used in resettable JVM.</td>
</tr>
<tr>
<td>TMPREFIX</td>
<td>Obsolete</td>
<td>CICS prefixes to standard class path</td>
<td>CLASSPATH_PREFIX</td>
<td>CICS issues message DFHSJ0521 if found. Move classes with care.</td>
</tr>
<tr>
<td>TMSUFFIX</td>
<td>Obsolete</td>
<td>CICS places on standard class path</td>
<td>CLASSPATH_SUFFIX</td>
<td>CICS issues message DFHSJ0522 if found.</td>
</tr>
<tr>
<td>MAX_RESETS_TO_GC</td>
<td>Obsolete</td>
<td>CICS ignores and uses default for GC_HEAP_THRESHOLD</td>
<td>GC_HEAP_THRESHOLD</td>
<td>CICS issues message DFHSJ0528 if found.</td>
</tr>
<tr>
<td>-Dibm.jvm.shareable.application.class.path</td>
<td>Obsolete</td>
<td>CICS adds entries to standard classpath</td>
<td>CLASSPATH_SUFFIX</td>
<td>Obsolete for Java 5 and later versions</td>
</tr>
<tr>
<td>-generate (for STDOUT, STDERR)</td>
<td>Enhanced</td>
<td>Accepted</td>
<td>n/a</td>
<td>Now adds unique JVM number to generated output file names, in addition to CICS region applid, time stamp and suffix.</td>
</tr>
<tr>
<td>CICS_DIRECTORY</td>
<td>Obsolete</td>
<td>Java launcher uses the value of the USSHOME system initialization parameter</td>
<td>USSHOME system initialization parameter</td>
<td>Do not specify. CICS issues message DFHSJ0534 if found.</td>
</tr>
<tr>
<td>CICS_HOME</td>
<td>Obsolete</td>
<td>Java launcher uses the value of the USSHOME system initialization parameter</td>
<td>USSHOME system initialization parameter</td>
<td>Do not specify. CICS issues message DFHSJ0527 if found.</td>
</tr>
<tr>
<td>LIBPATH</td>
<td>Replaced by new equivalents</td>
<td>CICS treats as LIBPATH_ SUFFIX</td>
<td>LIBPATH_SUFFIX (LIBPATH_PREFIX also available)</td>
<td>CICS issues message DFHSJ0538 if found. You do not need to specify directories for base library path, only directories that you add.</td>
</tr>
</tbody>
</table>
### Table 19. Changed options in JVM profiles (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Status</th>
<th>CICS and Java launcher action</th>
<th>Replace with</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASSPATH</td>
<td>Replaced by new equivalents</td>
<td>CICS treats as CLASSPATH_SUFFIX</td>
<td>CLASSPATH_SUFFIX (CLASSPATH_PREFIX also available)</td>
<td>CICS issues message DFHSJ0523 if found.</td>
</tr>
<tr>
<td>VERBOSE</td>
<td>Withdrawn from sample profiles</td>
<td>Accepted</td>
<td>-verbose:gc</td>
<td>Works as before if specified in old format.</td>
</tr>
<tr>
<td>Xcheck (JVM default is NO)</td>
<td>Withdrawn from sample profiles</td>
<td>Accepted</td>
<td>-Xcheck</td>
<td>Only specify this if other than JVM default.</td>
</tr>
<tr>
<td>Xdebug (JVM default is NO)</td>
<td>Withdrawn from sample profiles</td>
<td>Accepted</td>
<td>-Xdebug (no value) to set debug on</td>
<td>Only specify this if other than JVM default.</td>
</tr>
<tr>
<td>Xnoclassgc (JVM default is NO)</td>
<td>Withdrawn from sample profiles</td>
<td>Accepted</td>
<td>-Xnoclassgc (no value) to specify no class garbage collection</td>
<td>Only specify this if other than JVM default.</td>
</tr>
<tr>
<td>Xverify (JVM default is remote)</td>
<td>Withdrawn from sample profiles</td>
<td>Accepted</td>
<td>n/a</td>
<td>Do not specify, use JVM default.</td>
</tr>
<tr>
<td>IDLE_TIMEOUT</td>
<td>New</td>
<td>Defaults to 30 minutes</td>
<td>n/a</td>
<td>Specifies the timeout threshold.</td>
</tr>
<tr>
<td>GC_HEAP_THRESHOLD</td>
<td>New</td>
<td>Defaults to 85%</td>
<td>n/a</td>
<td>Specifies heap utilization limit for CICS-scheduled garbage collection</td>
</tr>
<tr>
<td>CLASSPATH_PREFIX, CLASSPATH_SUFFIX</td>
<td>New, replace CLASSPATH</td>
<td>Preferred</td>
<td>n/a</td>
<td>Specifies the standard class path.</td>
</tr>
<tr>
<td>LIBPATH_PREFIX, LIBPATH_SUFFIX</td>
<td>New, replace LIBPATH</td>
<td>Preferred</td>
<td>n/a</td>
<td>Specifies the library path.</td>
</tr>
<tr>
<td>JAVA_DUMP_OPTS</td>
<td>Withdrawn from sample profiles</td>
<td>Accepted</td>
<td>-Xdump</td>
<td>Deprecated in Java 5.</td>
</tr>
<tr>
<td>JAVA_DUMP_TDUMP_PATTERN</td>
<td>New for CICS sample profiles</td>
<td>Accepted</td>
<td>n/a</td>
<td>Specifies location for Java dumps.</td>
</tr>
<tr>
<td>DISPLAY_JAVA_VERSION</td>
<td>New for CICS sample profiles</td>
<td>Accepted</td>
<td>n/a</td>
<td>Shows JVM version in CICS MSGUSR log.</td>
</tr>
<tr>
<td>JAVA_PIPELINE</td>
<td>New for CICS sample profiles</td>
<td>Accepted</td>
<td>n/a</td>
<td>Adds the required JAR files to the class path for Java-based SOAP pipelines. Used only in JVM servers.</td>
</tr>
<tr>
<td>OSGI_BUNDLES</td>
<td>New for CICS sample profiles</td>
<td>Accepted</td>
<td>n/a</td>
<td>Specifies a list of middleware OSGi bundles. Used only in JVM servers.</td>
</tr>
<tr>
<td>OSGI_FRAMEWORK_TIMEOUT</td>
<td>New for CICS sample profiles</td>
<td>Accepted</td>
<td>n/a</td>
<td>Specifies a timeout in seconds for the JVM server initialization and shutdown. Used only in JVM servers.</td>
</tr>
</tbody>
</table>
### Table 19. Changed options in JVM profiles (continued)

<table>
<thead>
<tr>
<th>Option</th>
<th>Status</th>
<th>CICS and Java launcher action</th>
<th>Replace with</th>
<th>Notes*</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Xdump</td>
<td>New for CICS sample profiles</td>
<td>Preferred</td>
<td>n/a</td>
<td>Examples provided in comments.</td>
</tr>
<tr>
<td>-Xcheck</td>
<td>New for CICS sample profiles</td>
<td>Preferred</td>
<td>n/a</td>
<td>Examples provided in comments.</td>
</tr>
<tr>
<td>-Dibm.c1.verbose</td>
<td>New for CICS sample profiles</td>
<td>Preferred</td>
<td>n/a</td>
<td>Examples provided in comments.</td>
</tr>
<tr>
<td>-verbose</td>
<td>New for CICS sample profiles</td>
<td>Preferred</td>
<td>n/a</td>
<td>Examples provided in comments.</td>
</tr>
</tbody>
</table>

### Undocumented options

Table 19 on page 210 lists only the options which were formerly used in the CICS-supplied sample files, together with the new options. Some options for JVM profiles and JVM properties files did not appear in the CICS-supplied sample files in previous CICS releases, but were documented in the CICS documentation. Some of these options have now been removed from the CICS documentation.

The java.compiler option has been undocumented because its primary use was to disable the Java just-in-time (JIT) compiler during the development process for applications in a resetable JVM. In a continuous JVM, this option is not required for that purpose.

The remaining undocumented options are still valid, but they can now be specified in the standard Java way (rather than in a special way for CICS), and so the documentation for the IBM 64-bit SDK for z/OS, Java Technology Edition and other Java documentation can be used. If you have any of these options in an existing JVM profile for CICS, they are still accepted.

The main categories of valid options which have been undocumented are:

- The options relating to assertions. You can find more information about programming with assertions, and about turning assertions on and off, at the [Oracle Technology Network Java website](https://www.oracle.com/technetwork/java/index-jsp.html).
- Various Java nonstandard options (beginning with -X), including -Xmaxe, -Xmaxf, -Xmine, -Xminf, -Xruntime and -Xrs. You can find more information about these options in the Java SDK documentation, which is available from [Resource Information for Java](https://docs.oracle.com/javase/8/docs/technotes/guides/vmoptions.html).
- Various JVM system properties, most of which must not be changed by users of the IBM JVM with CICS.

### -Xquickstart option

In some earlier versions of CICS, you could use the -Xquickstart option (specified using the ${Xservice} option) in a JVM profile to reduce the startup time for the JVM. However, with improvements in JVM technology, the -Xquickstart option is now permanently enabled, and specifying -Xquickstart in a JVM profile has no effect.
New symbol &JVM_NUM;

When you use the &JVM_NUM; symbol in a JVM profile (for example, as part of the file name for a Java dump), CICS substitutes the unique JVM number for it at run time. The symbol can be specified for any type of output from the JVM, and it can be used in combination with the &APPLID; symbol (which provides the CICS region APPLID). The -generate option for stdout and stderr files also now adds the unique JVM number automatically.

New symbol &JVMSERVER;

When you use the &JVMSERVER; symbol in a JVM profile, the name of the JVMSERVER resource is substituted at run time. Use this symbol to create unique output or dump files for each JVM server.

Migrating from resettable to continuous JVMs

From CICS Transaction Server for z/OS, Version 3 Release 2 onwards, resettable JVMs are not supported. You must migrate any Java programs that ran in resettable JVMs, to run in continuous JVMs. The migration process involves checking for certain actions in the program code, and then changing some options in your JVM profiles.

Procedure

1. Check that your Java programs do not contain any code that might have an unwanted effect on serial isolation when the continuous JVM is reused by a subsequent program. Carry out these checks:
   a. Check for any code that changes the state of the JVM; for example, changing the default time zone. Ensure that the program resets the JVM to the original state. If you need to control any application actions in the continuous JVM, use the Java security manager to do this.
   b. Check that any DB2 connections, or other task lifetime system resources, opened by the application are closed or released.
   c. Use the CICS JVM Application Isolation Utility to check for the use of any static variables in your Java programs. The use of static variables might cause Java programs that were designed to execute in a resettable JVM to exhibit changed behavior when they execute in a continuous JVM. Possible Java application behavior changes in continuous JVMs explains potential problems. Review the findings of the utility and make any code changes that are necessary to preserve the original behavior. Auditing Java applications for the use of static variables tells you how to use the utility.

2. Examine the existing JVM profiles and JVM properties files for your applications. You can either make a new copy of your existing files and make changes to the options specified in them, or transfer the relevant settings from your existing files to new files based on the samples provided with CICS Transaction Server for z/OS, Version 4 Release 2. There are a number of changes to the options that you can specify in JVM profiles and JVM properties files, so you are recommended to use the new samples to help you create new files, rather than migrating your existing files.

3. Compare your existing JVM profiles and JVM properties files with the new CICS-supplied samples and with the table of changed options in “Changes to options in JVM profiles” on page 210. Identify the options and system properties that you customized in your existing files, and note any that are now obsolete or that you must specify differently.
4. Transfer the relevant settings from your existing files to new files based on the new CICS-supplied samples.
   a. Set the correct Java home directory to match your CICS Transaction Server for z/OS, Version 4 Release 2 installation. The CICS-supplied samples already specify the correct directories.
   b. Change REUSE=RESET to REUSE=YES or replace Xresettable with REUSE=YES.
   c. Add the paths to classes that were specified on class paths in your existing files to the appropriate class path in the new files. There are a number of changes to the way class paths are specified in CICS Transaction Server for z/OS, Version 4 Release 2. 
      “Changes to class paths in JVM profiles” on page 221 explains how to handle each of the changed class paths.
   d. Migrate your storage settings from the existing files to the new files. The way in which a continuous JVM uses storage differs in some respects from the way a resettable JVM uses storage. Migrating storage settings in JVM profiles from resettable JVMs explains how to specify suitable storage settings as a starting point for your continuous JVMs.

When you use the JVM profiles, if you have omitted any key changes, CICS issues warning messages to explain what changes are still required.

Possible Java application behavior changes in continuous JVMs

Because there is no reset operation in the continuous JVM, applications that were designed to execute in a resettable JVM might exhibit changed behavior when they execute in a continuous JVM. You might have to make changes to an application to preserve its original behavior while running in a continuous JVM.

In a resettable JVM, the state of the JVM was reset after each use, so that no application transaction (that is, code other than trusted middleware code) could affect the operation of subsequent transactions. The JVM reset cleaned up the JVM’s storage heaps, reinitialized shareable application classes, and discarded and reloaded nonshareable application classes, meaning that no objects other than trusted static middleware objects could persist in the JVM from one use of the JVM to the next.

The continuous JVM does not reset the JVM’s state between uses. This continuity enables the persistence of static objects across tasks, which can be a powerful tool when used deliberately. For example, an application developer can use caching techniques to avoid reinitializing objects on each use. It can also, however, be a source of unexpected and erroneous behavior unless it is handled carefully.

Example 1: Altering static variables

The most common type of state change that an application can make is to alter the value of a static variable. Static variables are shared by all instances of a class, unlike non-static variables, which are allocated separately for each instance.

In a resettable JVM, when a class is first loaded, the JVM takes a copy of the initial value of each static variable and uses it to restore the variable to its original state at the end of each transaction. Consider the following trivial case:

```java
public class HelloWorld
{
    public static int count = 0;
}`
public static void main(String args[]) {
    count++;
    System.out.println("Hello World, count is " + count);
}
}

In a resetable JVM, the static variable count is reset to zero by the JVM after each invocation of the HelloWorld main() method. The message therefore shows that count is 1 each time HelloWorld is invoked.

In a continuous JVM, however, count is not reset to its original value before the next invocation of the main() method, and the old, shared, value persists. The message therefore shows the count increasing by 1 on each invocation in subsequent transactions.

To preserve the original behavior while running in a continuous JVM, the HelloWorld class could be changed to make count an instance variable and initialise it on each invocation in a constructor:

```java
class HelloWorld {
    private int count = 0;

    public static void main(String[] args) {
        HelloWorld hw = new HelloWorld();
        hw.count++;
        System.out.println("Hello World, count is " + hw.count);
    }

    HelloWorld() {
        count = 0;
    }
}
```

**Example 2: Altering the contents of static objects**

A more subtle type of issue can arise when the static variable is an object reference whose internal state might change, as in this example:

```java
import java.util.Hashtable;
import java.util.Enumeration;

class StaticHash {
    private static final Hashtable myHashtable = new Hashtable();

    public static void main(String[] args) {
        int count = myHashtable.size();
        myHashtable.put("key" + count, "value" + count);

        Enumeration keys = myHashtable.keys();
        while (keys.hasMoreElements()) {
            Object key = keys.nextElement();
            System.out.println("Found this key in the Hashtable: " + key);
        }
    }
}
```
In a resettable JVM, a new instance of myHashtable is created every time the JVM is reset, and it will only ever contain a single key, “key0”. In a continuous JVM, however, only one instance of myHashtable is created, and each time the class is run, a new key is added to it.

You can solve the problem in a similar manner to the first example, by making myHashtable an instance variable and creating the new Hashtable in a constructor. Alternatively, myHashtable could be left as a static reference and be reset each time by adding a constructor containing an invocation of myHashtable.clear().

**Auditing Java applications for the use of static variables**

The CICS JVM Application Isolation Utility helps system administrators and application developers to discover static variables in Java applications that they use or plan to use in their CICS regions. Application developers can review the findings of the utility and determine whether the application might exhibit unintended behavior when it runs in a continuous JVM. You can use the utility when moving Java workloads from resettable to continuous JVMs.

**About this task**

The CICS JVM Application Isolation Utility is shipped with CICS as a JAR file named dfhjaiu.jar. It runs under z/OS UNIX System Services as a stand-alone utility.

The CICS JVM Application Isolation Utility is a code analyzer tool, which inspects Java bytecodes in Java Archive (JAR) files and class files. It does not alter any Java bytecodes. It is provided as a means to help identify potential issues before they arise in a continuous JVM under CICS. The Java application does not have to be running in a CICS region when it is inspected.

To inspect Java applications using the CICS JVM Application Isolation Utility, follow the steps in the procedure:

**Procedure**

1. Confirm that the dfhjaiu.jar file is present in the /utils/isolation subdirectory of the home directory for CICS files on z/OS UNIX. The default directory is /usr/lpp/cicsts/cicsts42/, where cicsts42 is defined by the USSDIR installation parameter when you installed CICS. You can add the /utils/isolation directory to the PATH environment variable in z/OS UNIX System Services, so that you do not have to give the full path to the file when you run the utility.

2. Confirm that the shell script DFHIsoUtil, which is used to run the CICS JVM Application Isolation Utility, is also present in the /utils/isolation subdirectory. Check that the script file specifies the correct value for the CICS_HOME environment variable, and edit the file to change this value if required.

3. Identify the class files or JAR files that you want to specify to the utility for inspection:
   - A Java application can involve classes and JAR files that are specified on several different class paths in the JVM profile or JVM properties file. Make sure that you include all of them in your inspections.
   - You can use wildcard characters in the file names, to inspect all the class files or JAR files in a given directory.
When you specify a JAR file for inspection, the utility inspects all the classes contained in the JAR file.

If you specify an individual class file for inspection, the utility inspects only the named class. If the class includes inner classes, the utility does not automatically inspect these classes. Specifying JAR files, or using wildcards to inspect a whole directory, ensures that any inner classes are included in the inspection.

4. Log in to a z/OS UNIX System Services shell, and enter the command

   `DFHIsoutil [-verbose] filename [filename ... filename]`

   In this command:
   - DFHIsoutil is the name of the script file which runs the CICS JVM Application Isolation Utility. If you have not set an appropriate PATH environment variable and you are not working in the directory containing the script file, give the full path to the file, for example `/usr/lpp/cicsts/cicsts42/utils/isolation/DFHIsoutil`.
   - The `-verbose` option makes the utility provide additional information. See "The `-verbose` option" on page 219.
   - `filename` specifies the names of one or more class files or JAR files that you have identified for the utility to inspect. Separate each file name with a space. Give the full path to the files if necessary. You can use wildcard characters in the file names.

   For example, to inspect the class file HelloWorld and obtain the standard report (not the verbose report), enter the command

   `DFHIsoutil HelloWorld.class`

5. The report produced by the CICS JVM Application Isolation Utility is written to `System.out`. You can redirect it to another destination as required.

6. Review the findings of the utility and then examine the source code for your Java applications. The reports produced by the utility identify some potential issues, but you must check if these issues affect the behavior of the application when it runs in a continuous JVM.

   **Example 1: Report showing alteration of static variables**

   When the CICS JVM Application Isolation Utility is used to inspect the HelloWorld class file used in Example 1 in "Possible Java application behavior changes in continuous JVMs" on page 215, the report looks like this:

   ```
   CicsIsoutil: CICS JVM Application Isolation Utility
   Copyright (C) IBM Corp. 2006
   Reading Class File: HelloWorld.class
   Method: public static void main(java.lang.String[])
   Static fields written in this method:
   public static int count
   Method: <clinit> (Class Initialization)
   Static fields written in this method:
   public static int count
   Number of methods inspected : 3
   Total static writes for this class: 2
   Number of Jar Files inspected : 0
   Number of Class Files inspected : 1
   ```
The report shows that the static field count is written to during Class Initialization and in the main() method. The report indicates that count might behave differently when the class is used in a continuous JVM, rather than in a resetable JVM. The application programmer must examine the source code to decide whether count really does behave differently.

**Example 2: Report showing alteration of the contents of static objects**

When the CICS JVM Application Isolation Utility is used to inspect the StaticHash class file used in Example 2 in “Possible Java application behavior changes in continuous JVMs” on page 215, the report looks like this:

```plaintext
CicsIsoUtil: CICS JVM Application Isolation Utility

Reading Class File: StaticHash.class

Method: <clinit> (Class Initialization)
  Static fields written in this method:
    private static final java.util.Hashtable myHashtable

  Number of methods inspected : 3
  Total static writes for this class: 1

Number of Jar Files inspected : 0
Number of Class Files inspected : 1

Note that the static variable myHashtable is only written to during Class Initialization, but the internal state of the Hashtable changes on each invocation.

This problem is more difficult to assess. The output of the utility identifies that a static object exists. In this case, the object is a hash table; other items such as arrays might also be in this situation. The application developer must check the source code of the application to ensure that the state of the static object is not changed in a way that unintentionally affects subsequent invocations of the class in a continuous JVM.

You must also check the entire graph of other objects that might be referenced from the original static object. Any static object can contain state of its own. This state can include further objects that are not defined as static, but are included within the static context of the parent object. A large graph of objects can be built up in this way, where only the root object is declared as static, but state held in any of the objects might be available for use by subsequent applications, because of the static root object. The application developer must check for application isolation problems at every level of the object graph, in addition to checking at the root level.

**The -verbose option**

Normally, the CICS JVM Application Isolation Utility does not print details of methods which do not write to static variables, or details of static final String variables. With the -verbose option specified, the utility does print these extra details and also lists all static method invocations made.

This additional information can identify other potential problems with your applications. For example, this extract from a report shows code relating to the resetable JVM:
Static methods invoked by this method:

```java
boolean isResettableJVM()
(defined in class: com.ibm.jvm.ExtendedSystem)
```

All methods in the com.ibm.jvm.ExtendedSystem class are related to the resettable JVM. They are all deprecated, and you should remove them from any application code.

**Migrating storage settings in JVM profiles from resettable JVMs**

You will probably need to adjust and tune the storage-related options in your JVM profiles when you migrate applications to run in continuous JVMs.

When you migrate an application from a resettable JVM to run in a continuous JVM, initially deal with each storage option that you have specified in the JVM profile as shown in Table 20.

**Table 20. Migrating storage options in JVM profiles**

<table>
<thead>
<tr>
<th>Option (if specified)</th>
<th>Description</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Xmx</td>
<td>Maximum Java heap size</td>
<td>Keep the setting in the resettable JVM profile</td>
</tr>
<tr>
<td>-Xinitth</td>
<td>Initial transient heap size</td>
<td>Comment out (no longer used)</td>
</tr>
<tr>
<td>-Xms</td>
<td>Initial Java heap size</td>
<td>Take the setting in the resettable JVM profile and increase it by the values of -Xinitth and -Xinitacsh from the resettable JVM profile</td>
</tr>
<tr>
<td>-Xinitacsh</td>
<td>Initial application-class system heap size</td>
<td>Comment out (no longer used)</td>
</tr>
<tr>
<td>-Xinitsh</td>
<td>Initial system heap size</td>
<td>Comment out (no longer used)</td>
</tr>
</tbody>
</table>

These suggestions assume that the continuous JVM is running the same application or applications as the resettable JVM; that is, you are changing an existing resettable JVM profile to become a continuous JVM profile. If the mix of applications running in the continuous JVM is different, your choice of storage settings will not fit this model.

These suggestions also assume that the storage settings for the resettable JVM were correctly tuned for the needs of your applications. If that is not the case, migrating the storage settings according to this model will not improve that situation.

Use your new settings as a starting point for the continuous JVM. The way in which storage is used in a continuous JVM differs in some respects from the way it is used in a resettable JVM. In particular, bear in mind that the storage heaps in continuous JVMs are not automatically cleaned up after each program invocation. Because of this, depending on the application design and the extent to which each program cleans up after itself, compared to a resettable stand-alone JVM running the same workload, the continuous JVM might require either larger storage heap sizes or more frequent garbage collection.
Changes to class paths in JVM profiles

There are a number of changes to the way class paths are specified in CICS Transaction Server for z/OS, Version 4 Release 2. Identify an appropriate class path for each of the items that you specified on class paths in your existing JVM profiles and optional JVM properties files, and transfer the items to the correct class paths.

To help you to upgrade, if you continue to specify items on class paths using the old options, CICS accepts these options and builds them into an appropriate class path. The class paths for the JVM are built automatically using the directories specified by the USSHOME system initialization parameter and the JAVA_HOME option in the JVM profile.

You must use IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6 for Java support with CICS Transaction Server for z/OS, Version 4 Release 2. Two class paths are built using the options in the order shown here:

**Library path for Java 6**
1. LIBPATH_PREFIX
2. CICS-supplied DLL files in the USSHOME/1ib and USSHOME/ctg directories
3. IBM SDK-supplied DLL files in the JAVA_HOME/bin/j9vm directory
4. LIBPATH (old option)
5. LIBPATH_SUFFIX

**Standard class path for Java 6**
1. TMPREFIX (old option)
2. CLASSPATH_PREFIX
3. CICS-supplied jar files in the USSHOME/1ib directory
4. IBM SDK-supplied jar files in the JAVA_HOME/standard directory
5. TMSUFFIX (old option)
6. ibm.jvm.shareable.application.class.path (old option)
7. CLASSPATH (old option)
8. CLASSPATH_SUFFIX

Changes to class paths in JVM profiles: library path

From CICS Transaction Server for z/OS, Version 3 Release 2 onwards, the base library path is not visible in the JVM profile. You specify only any additional dynamic link library (DLL) files that you added to the library path. The option to use for specifying additional files is LIBPATH_SUFFIX.

The base library path for the JVM is built automatically using the directories specified by the USSHOME system initialization parameter and the JAVA_HOME option in the JVM profile. The path includes all the DLL files required to run the JVM, and the native libraries used by CICS. In previous CICS releases, you specified the base library path explicitly in the JVM profile, but now that is not required.

The LIBPATH option in the JVM profile is no longer used. To help you to upgrade, it is still accepted, but CICS issues a warning message when it is found (DFHSJ0538). If you leave any classes specified on this option, they are placed on the library path after the base library path.
You can extend the library path by using the LIBPATH_SUF option. When CICS builds the library path, these items are placed on the library path after the base library path directories. When you are creating, changing, or upgrading JVM profiles, any items that you added to the library path in previous CICS releases, such as the DLL files required to use the DB2-supplied JDBC drivers, you now specify using LIBPATH_SUF. The CICS-supplied /lib and /ctg directories, and the IBM JVM-supplied /bin and /bin/classic directories, which you specified on the library path in the CICS-supplied sample JVM profiles in earlier CICS releases, are not now specified explicitly in the JVM profile. These directories are now part of the base library path.

The option LIBPATH_PREFIX is available if you need to place items before the base library path, but use this option only under the guidance of IBM support.

Changes to class paths in JVM profiles: middleware classes

In a continuous JVM, you now place the classes that were formerly treated as middleware classes on the same class path as user application classes. You specified these middleware classes on the trusted middleware class path options TMPREFIX and TMSUFFIX in the JVM profile.

To help you to upgrade, the trusted middleware class path options TMPREFIX and TMSUFFIX are still accepted, but CICS issues a warning message when they are used.

When you are creating, changing, or upgrading JVM profiles, place the classes that were formerly treated as middleware classes on the standard class path. The standard class path is defined by the CLASSPATH_SUF option in the JVM profile for the JVM where the application will run. When you have placed the classes on the standard class path, remove the TMPREFIX and TMSUFFIX options from your JVM profiles.

Changes to class paths in JVM profiles: standard class path

From CICS Transaction Server for z/OS, Version 3 Release 2 onwards, use the CLASSPATH_SUF option to specify any nonshareable application classes on the standard class path.

CICS builds a base standard class path for the JVM using the /lib subdirectories of the directories specified by the USSHOME system initialization parameter and the JAVA_HOME option in the JVM profile. This standard class path contains the JAR files supplied by CICS and by the JVM. It is not visible in the JVM profile.

The CLASSPATH option in the JVM profile is no longer used. To help you to upgrade, it is still accepted, but CICS issues a warning message when it is found (DFHSJ0523).

Use the CLASSPATH_SUF option to place classes on the standard class path. When you are creating, changing, or upgrading JVM profiles, specify any items that you added to the standard class path in previous CICS releases using CLASSPATH_SUF.

If you are changing JVM profiles from resettable (REUSE=RESET) to continuous (REUSE=YES), place application classes on the standard class path. With IBM 64-bit SDK for z/OS, Java Technology Edition Version 6.0.1, there is no shareable application class path, so you must use the standard class path. Classes on the standard class path are placed into the shared class cache. The shareable
application class path was the recommended choice for a resettable JVM, because it
enabled the classes to be cached in the JVM and reinitialized when the JVM was
reset, whereas classes on the standard class path were discarded and reloaded.
However, in a continuous JVM, classes on the standard class path are cached in the
JVM and kept across reuses.

**Changes to class paths in JVM profiles: shareable application
class path**

In Java 6, the shareable application class path is not used for class sharing. To
share Java classes when using Java 6, place the classes on the standard class path
for the JVM.

When you upgrade to using Java 6 in a CICS region, if you have any classes on the
shareable application class path in your JVM profiles, you must put them on the
standard class path. CICS still accepts the shareable application class path but
places the classes on the standard class path instead.

With Java 6, the shared class cache does not have a special shareable application
class path. If you request class sharing to take place with Java 6 JVMs, all of the
classes in the JVMs are shared, and all must be placed on the standard class path,
which is defined by the CLASSPATH_SUFIX option in the JVM profile.

---

**Upgrading from IBM SDK for z/OS, Java Technology Edition, Version 1.4.2**

If you are using Java Version 1.4.2, you must upgrade to Version 6.0.1 because
Version 1.4.2 is no longer supported.

**About this task**

If you have implemented workload balancing for enterprise beans and you have a
logical EJB server that consists of cloned CICS regions that listen for and fulfill IIOP
enterprise bean requests, upgrade all the CICS regions in the logical EJB server to
CICS TS 4.2 and Java 6.0.1 at the same time. In a logical EJB server, IIOP messages
from a single client process might be handled in different CICS regions, and, if the
CICS regions are using different versions of Java, application errors might occur in
some circumstances.

CICS runs Java applications using the IBM 64-bit SDK for z/OS, Java Technology
Edition. CICS supports only the 64-bit version of the SDK and not the 31-bit
version.

**Procedure**

If you have one or more CICS regions at CICS TS 3.2 or earlier, with existing Java
workloads supported by Version 1.4.2 of the IBM SDK for z/OS, follow these steps
to upgrade your Java environment:

1. Check your Java programs against the information at [Java Standard Edition
   Products on z/OS, on the IBM Systems web site](http://www.ibm.com/
   systems/z/os/zos/tools/java/) for compatibility issues between the IBM SDK
   for z/OS, V6 and the IBM SDK for z/OS, V1.4.2 and V5. The information
   includes links to Java compatibility and deprecated API information. Make
   any changes that are required to enable your programs to run with the Java 6
   API and the IBM SDK for z/OS, V6.0.1.
2. Check that any Java programs that use the Java Native Interface (JNI), including vendor products, can run using the 64-bit version of the SDK.

3. Download and install the IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6.0.1 on your z/OS system. You can download the product, and find out more information about it, at the IBM Systems web site (http://www.ibm.com/systems/z/os/zos/tools/java/).

4. If you want to upgrade the JVM profiles and JVM properties files that you used with your previous CICS release, copy them to a new location on z/OS UNIX. The full path to this location, including the directory name, must be 240 characters or less, so that you can specify it on the JVMPROFILEDIR system initialization parameter for CICS. You might want to use the new samples rather than upgrading your existing files, because a number of changes have been made to the options.

5. If you do not want to use the JVM profiles and JVM properties files from the previous CICS release, copy the new sample JVM profiles to a new location on z/OS UNIX. JVM properties files are not supplied with CICS TS 4.2. The samples are in the /usr/lpp/cicsts/cicsts42/JVMProfiles directory, where the /usr/lpp/cicsts/cicsts42 directory is the installation directory for CICS files on z/OS UNIX. This value is specified by the USSDIR parameter in the DFHISTAR installation job.

6. If you want to upgrade JVM profiles for JVMs that use the shared class cache (known as worker JVMs in Version 1.4.2), make the following changes to the copies of your JVM profiles:
   a. Locate the JVM profile for your Version 1.4.2 master JVM (DFHJVMCC or a profile modeled on it), and its associated JVM properties file (dfjvmcc.props or a file modeled on it).
   b. Copy the JAVA_HOME and REUSE options and their values from the master JVM profile into each of the profiles for JVMs that use the shared class cache (worker JVM profiles).
   c. Change the JAVA_HOME option in each of the profiles for JVMs that use the shared class cache to specify the location where you installed Version 6.0.1 of the IBM 64-bit SDK for z/OS, Java Technology Edition. /usr/lpp/java/J6.0.1_64/ is the default install location for the product.
   d. Copy the LIBPATH_PREFIX and LIBPATH_SUFFIX options and their values from the master JVM profile into each of the profiles for JVMs that use the shared class cache. Native C dynamic link library (DLL) files specified on the library path are not stored in each of the individual JVMs, and they are not stored in the shared class cache; a single copy of each DLL file is used by all the JVMs that need it.
   e. If the CLASSPATH_PREFIX and CLASSPATH_SUFFIX options, or the older CLASSPATH option, are included in any of your profiles for JVMs that use the shared class cache, check whether the classes that they specify must be isolated to JVMs with that particular profile or whether they can safely be placed in the shared class cache. With Version 1.4.2, classes specified in this way were not loaded into the shared class cache, but with Version 6, all the classes on the standard class path are now eligible for sharing. If you want to exclude classes from the shared class cache, you must make the JVM profile that contains them into a stand-alone JVM by specifying CLASSCACHE=NO instead of CLASSCACHE=YES in the profile.
   f. Copy the classes specified by the -Dibm.jvm.shareable.application.class.path system property in the JVM properties file for the master JVM, and specify them as values for the
CLASSPATH_SUFFIX option in each of the profiles for JVMs that use the shared class cache. The shareable application class path in the master JVM properties file contained the shareable application classes for all the applications which ran in your worker JVMs. With Version 6.0.1, all these classes are placed on the standard class path in the individual JVM profiles.

g. If you have a number of profiles for JVMs that use the shared class cache, and you can identify which classes on the shareable application class path belong to each of your Java applications and which of the JVM profiles each application uses, you can delete unwanted items from each CLASSPATH_SUFFIX option so that each class is specified only in the appropriate JVM profiles. If you cannot determine the unwanted items, keep all the classes in every JVM profile. Keeping all the classes does not use any additional storage because the JVMs are sharing the class cache, but if you make changes to a class, you must restart more JVMs than if the classes were correctly arranged.

h. To check the results of your changes, you can compare your JVM profiles with the supplied sample JVM profile DFHJVMPR, for a JVM that uses the shared class cache.

i. When you have finished transferring the options from the master JVM profile to the profiles for JVMs that use the shared class cache, remove the master JVM profile from the folder of profiles where you are working. The master JVM profile is not used for the Version 6.0.1 shared class cache.

7. For any other JVM profiles that you want to upgrade, including the default supplied JVM profiles, DFHJVMPR and DFHJVMCD, if you have made copies of your versions of these profiles from a previous CICS release, change the JAVA_HOME option to specify the installation location for IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6.0.1. /usr/lpp/java/J6.0.1_64/ is the default installation location for the product.

8. Check all the JVM profiles that you have upgraded against the listing of changes to JVM options in “Changes to options in JVM profiles” on page 210 and make any further required changes.

9. If you have chosen to make copies of the sample JVM profiles supplied with CICS TS 4.2 and to use these instead of your existing JVM profiles, you can edit the profiles using the documentation in Enabling applications to use a JVM in Java Applications in CICS.

10. Give all your CICS regions the following access permissions on z/OS UNIX:
   • Read and execute access to the files for the IBM 64-bit SDK for z/OS, V6.0.1 installation.
   • Read access to your new or modified JVM profiles and optional JVM properties files.

11. Change the JVMPROFILEDIR system initialization parameter in all the CICS regions that you are upgrading to specify the location on z/OS UNIX where you placed the CICS TS 4.2 JVM profiles.

12. Set the MEMLIMIT parameter to ensure that there is enough storage for the 64-bit JVMs. You must allow for other CICS facilities that use 64-bit storage. For more information, see Estimating, checking, and setting MEMLIMIT in the Performance Guide.

13. When you have completed any other necessary upgrade tasks for the CICS regions, start one region and run your Java workload in it as a test region. Make these checks:
   a. Confirm that you can start JVMs with each of your JVM profiles successfully and can use them to run applications. You can use the CICS
Explorer to browse the JVMs in a CICS region, identify their JVM profiles, and see when they are allocated to a task.

b. Confirm that the shared class cache (if used) has been started successfully. You can use the CICS Explorer to see the status of the shared class cache and the number of JVMs that are using it.

c. Check that the behavior of your application is the same as when you used Version 1.4.2 of the SDK.

d. If you are using class sharing, check that the amount of storage specified for the shared class cache (by the JVMCCSIZE system initialization parameter) and for the individual JVMs (in the JVM profiles) is right for the new mix of items stored in each location. Compiled classes produced by just-in-time (JIT) compilation are now stored in individual JVMs, not in the shared class cache. However, classes that were on the standard class path in a Version 1.4.2 JVM profile are now stored in the shared class cache, not individual JVMs.

14. If you encounter any problems in the test CICS region, make these checks:
   a. Check that your Version 6.0.1 SDK installation was successful, that you gave the CICS region the correct permissions to access it, and that the JAVA_HOME option in your JVM profiles correctly specifies the Version 6.0.1 SDK installation. If you try to start a JVM using a profile that specifies the Version 1.4.2 SDK, CICS issues message DFHSJ0900 and abend ASJJ occurs. Abend ASJJ also occurs if CICS cannot access the Java directory or if the installation appears to be invalid.
   b. Check that the directory specified by the JVMPROFILEDIR system initialization parameter is the directory containing the correct JVM profiles, and that the CICS region has permissions for this directory and the files.
   c. If you are unable to start the shared class cache, check that the supplied JVM profile DFHJVMCD is available in the directory specified by the JVMPROFILEDIR system initialization parameter, is set up correctly for use in your CICS region, and correctly specifies the Version 6.0.1 SDK installation. With Version 6.0.1, CICS uses this JVM profile to initialize and terminate the shared class cache.
   d. If you had JVM profiles for Version 1.4.2 worker JVMs that you upgraded for use with Version 6.0.1, check that all the items listed in 6 on page 224 have been transferred correctly from the master JVM profile to the individual JVM profiles.
   e. Check that you have correctly addressed any compatibility issues between Java 1.4.2 and Java 6.0.1.
   f. Adjust the size of the shared class cache or the storage specified in the JVM profiles, as appropriate for your new storage use. Use the PERFORM CLASSCACHE command to phase in a new, larger, or smaller shared class cache while CICS is running, and set the JVMCCSIZE system initialization parameter to specify the new size permanently. To change the maximum size of the storage heap for a JVM, increase or decrease the value of the -Xmx option in the JVM profile for the JVM, and use the PERFORM JVMPOOL command to stop and restart the JVMs that use the changed profile.

15. Start the remaining upgraded CICS regions and use them for your Java workload.

16. If you did not use the shared class cache supplied by the IBM SDK for z/OS, V1.4.2, consider using the shared class cache supplied by Version 6.0.1 of the SDK. This shared class cache requires minimal setup and administration, updates itself automatically when classes or JAR files change or when new ones are added, and is persistent across warm starts of CICS.
Results


What to do next

- When you have completed these steps to upgrade your existing Java workloads to run in pooled JVMs, investigate moving your applications to run in a JVM server. The JVM server is the strategic runtime environment for Java applications in CICS. The JVM server can handle multiple requests for Java applications concurrently in a single JVM, saving on the number of JVMs that are required in the CICS region. For information about this runtime environment, see [JVM servers and pooled JVMs in Java Applications in CICS](http://www.ibm.com/ibm/cics/).
- You might want to perform additional tuning to ensure that your Java workloads are configured for optimal performance. For more information, see [Improving Java performance in Java Applications in CICS](http://www.ibm.com/ibm/cics/).

### Upgrading from IBM SDK for z/OS, Java Technology Edition, Version 5

If you are using Java 5, you must upgrade to Version 6.0.1 because Java 5 is no longer supported.

**About this task**

If you have implemented workload balancing for enterprise beans and you have a logical EJB server that consists of cloned CICS regions that listen for and fulfill IIOP enterprise bean requests, upgrade all the CICS regions in the logical EJB server to CICS TS 4.2 and Java 6.0.1 at the same time. In a logical EJB server, IIOP messages from a single client process might be handled in different CICS regions, and, if the CICS regions are using different versions of Java, application errors might occur in some circumstances.

CICS runs Java applications using the IBM 64-bit SDK for z/OS, Java Technology Edition. CICS supports only the 64-bit version of the SDK and not the 31-bit version.

**Procedure**

If you have one or more CICS regions at CICS TS 3.2 or earlier, with existing Java workloads supported by Version 5 of the IBM SDK for z/OS, follow these steps to upgrade your Java environment:

1. **Check your Java programs against the information at Java Standard Edition Products on z/OS, on the IBM Systems web site** (http://www.ibm.com/systems/z/os/zos/tools/java/) for compatibility issues between the IBM SDK for z/OS, V6.0.1 and the IBM SDK for z/OS, V5. Make any changes that are required to enable your programs to run with the Java 6 API and the IBM SDK for z/OS, V6.0.1.
2. Check that any Java programs that use the Java Native Interface (JNI), including vendor products, can run using the 64-bit version of the SDK.
4. If you want to upgrade the JVM profiles and JVM properties files that you used with your previous CICS release, copy them to a new location on z/OS UNIX. The full path to this location, including the directory name, must be 240 characters or less, so that you can specify it on the JVMPROFILEDIR system initialization parameter for CICS.

5. If you do not want to use the JVM profiles and JVM properties files from the previous CICS release, copy the new sample JVM profiles to a new location on z/OS UNIX. Sample JVM properties files are not supplied with CICS TS 4.2. The JVM profile samples are in the /usr/lpp/cicsts/cicsts42/JVMProfiles directory, where the /usr/lpp/cicsts/cicsts42 directory is the installation directory for CICS files on z/OS UNIX. This value is specified by the USSDIR parameter in the DFHISTAR installation job.

6. If you want to upgrade JVM profiles for JVMs that use the shared class cache, make the following changes to the copies of your JVM profiles:

   a. Locate the JVM profile.

   b. Copy the JAVA_HOME and REUSE options and their values into each of the profiles for JVMs that use the shared class cache.

   c. Change the JAVA_HOME option in each of the profiles for JVMs that use the shared class cache to specify the location where you installed Version 6.0.1 of the IBM 64-bit SDK for z/OS, Java Technology Edition. /usr/lpp/java/J6.0.1_64/ is the default installation location for the product.

   d. Copy the LIBPATH_PREFIX and LIBPATH_SUFFIX options and their values into each of the profiles for JVMs that use the shared class cache. Native C dynamic link library (DLL) files specified on the library path are not stored in each of the individual JVMs, and they are not stored in the shared class cache; a single copy of each DLL file is used by all the JVMs that need it.

   e. If the CLASSPATH_PREFIX and CLASSPATH_SUFFIX options, or the older CLASSPATH option, are included in any of your profiles for JVMs that use the shared class cache, check whether the classes that they specify must be isolated to JVMs with that particular profile or whether they can safely be placed in the shared class cache. With Version 6.0.1, as with Java 5 all the classes on the standard class path are now eligible for sharing. If you want to exclude classes from the shared class cache, you must make the JVM profile that contains them into a stand-alone JVM by specifying CLASSCACHE=NO instead of CLASSCACHE=YES in the profile.

   f. If you have not already done so, copy the classes specified by the -Dibm.jvm.shareable.application.class.path system property, and specify them as values for the CLASSPATH_SUFFIX option in each of the profiles for JVMs that use the shared class cache.

   g. If you have a number of profiles for JVMs that use the shared class cache, and you can identify what classes on the shareable application class path belong to each of your Java applications and which of the JVM profiles each application uses, you can delete unwanted items from each CLASSPATH_SUFFIX option so that each class is specified only in the appropriate JVM profiles. If you cannot determine the unwanted items, keep all the classes in every JVM profile. Keeping all the classes does not use any additional storage because the JVMs are sharing the class cache, but, if you make changes to a class, you must restart more JVMs than if the classes were correctly arranged.

   h. To check the results of your changes, you can compare your JVM profiles with the CICS TS 4.2 supplied sample JVM profile DFHJVMPR, for a JVM that uses the shared class cache.
When you have finished transferring options and their values from the master JVM profile to the profiles for JVMs that use the shared class cache, remove the master JVM profile from the folder of profiles where you are working, because it is not used for the Version 6 shared class cache.

For any other JVM profiles that you want to upgrade, including the default supplied JVM profiles, DFHJVMPR and DFHJVMCD, if you have made copies of your versions of these profiles from a previous CICS release, change the JAVA_HOME option to specify the installation location for IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6.0.1. /usr/lpp/java/J6.0.1_64/ is the default installation location for the product.

Check all the JVM profiles that you have upgraded against the listing of changes to JVM options in "Changes to options in JVM profiles" on page 210 and make any further required changes.

If you have chosen to make copies of the new sample JVM profiles and to use these instead of your existing JVM profile, edit the profiles using the documentation in Enabling applications to use a JVM in Java Applications in CICS.

Give all your CICS regions the following access permissions on z/OS UNIX:
- Read and execute access to the files for the IBM 64-bit SDK for z/OS, V6.0.1 installation.
- Read access to your new or modified JVM profiles and optional JVM properties files.

Change the JVMPROFILEDIR system initialization parameter in all the CICS regions that you are upgrading to specify the location on z/OS UNIX where you placed the CICS TS 4.2 JVM profiles.

Set the MEMLIMIT parameter to ensure that there is enough storage for the 64-bit JVMs. You must allow for other CICS facilities that use 64-bit storage. For more information, see Estimating, checking, and setting MEMLIMIT in the Performance Guide.

When you have completed any other necessary upgrading tasks for the CICS regions, start one region and run your Java workload in it as a test region. Make these checks:
- Confirm that you can start JVMs with each of your JVM profiles successfully and can use them to run applications. You can use the CICS Explorer to browse the JVMs in a CICS region, identify their JVM profiles, and see when they are allocated to a task.
- Confirm that the shared class cache (if used) has been started successfully. You can view the status of the shared class cache and the number of JVMs that are using it using the CICS Explorer.
- Check that the behavior of your application is the same as when you used Version 5 of the SDK.
- If you are using class sharing, check that the amount of storage specified for the shared class cache (by the JVMCCSIZE system initialization parameter) and for the individual JVMs (in the JVM profiles) is right for the new mix of items stored in each location. Compiled classes produced by just-in-time (JIT) compilation are now stored in individual JVMs, not in the shared class cache.

If you encounter any problems in the test CICS region, make these checks:
- Check that your Version 6.0.1 SDK installation was successful, that you gave the CICS region the correct permissions to access it, and that the JAVA_HOME option in your JVM profiles correctly specifies the Version 6.0.1 SDK installation. If you try to start a JVM using a profile that specifies the
Version 5 SDK, CICS issues message DFHSJ0900 and abend ASJJ occurs. Abend ASJJ also occurs if CICS cannot access the Java directory or if the installation appears to be invalid.

b. Check that the directory specified by the JVMPROFILEDIR system initialization parameter is the directory containing the correct JVM profiles and that the CICS region has permissions for this directory and the files.

c. If you are unable to start the shared class cache, check that the supplied JVM profile DFHJVMCD is available in the directory specified by the JVMPROFILEDIR system initialization parameter, is set up correctly for use in your CICS region, and correctly specifies the Version 6.0.1 SDK installation. With Version 6.0.1, CICS uses this JVM profile to initialize and terminate the shared class cache.

d. If you had JVM profiles that you upgraded for use with Version 6, check that all the items have been transferred correctly.

e. Check that you have correctly addressed any compatibility issues between Java 5 and Java 6.0.1.

f. Adjust the size of the shared class cache or the storage specified in the JVM profiles, as appropriate for your new storage use. Use the PERFORM CLASSCACHE command to phase in a new, larger, or smaller shared class cache while CICS is running, and set the JVMCCSIZE system initialization parameter to specify the new size permanently. To change the maximum size of the storage heap for a JVM, increase or decrease the value of the -Xmx option in the JVM profile for the JVM, and use the PERFORM JVMPOOL command to stop and restart the JVMs that use the changed profile.

15. Start the remaining upgraded CICS regions and use them for your Java workload.

Results

Your Java workloads run using the IBM 64-bit SDK for z/OS, Java Technology Edition.

What to do next

- When you have completed these steps to upgrade your existing Java workloads to run in pooled JVMs, investigate moving your applications to run in a JVM server. The JVM server is the strategic runtime environment for Java applications in CICS. The JVM server can handle multiple requests for Java applications concurrently in a single JVM, saving on the number of JVMs that are required in the CICS region. For information about this runtime environment, see JVM servers and pooled JVMs in Java Applications in CICS.

- You might want to perform additional tuning to ensure that your Java workloads are configured for optimal performance. For more information, see Improving Java performance in Java Applications in CICS.

Upgrading from IBM 31-bit SDK for z/OS, Java Technology Edition, Version 6

If you are using the 31-bit version of Java 6, you must upgrade to the 64-bit 6.0.1 version, because the 31-bit version is no longer supported.
About this task

CICS runs Java applications using the IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6.0.1. CICS supports only the 64-bit version of the SDK and not the 31-bit version.

Procedure

To upgrade your Java environment to Version 6.0.1 of the 64-bit SDK, follow these steps:

1. Check your Java programs against the information at [Java Standard Edition Products on z/OS, on the IBM Systems web site](http://www.ibm.com/systems/z/os/) for compatibility issues between the IBM 64-bit SDK for z/OS V6.0.1, and the IBM 31-bit SDK for z/OS V6.

2. Check that any Java programs that use the Java Native Interface (JNI), including vendor products, can run using the 64-bit version of the SDK.

3. Download and install the IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6.0.1 on your z/OS system. You can download the product, and find out more information about it, at [Java Standard Edition Products on z/OS, on the IBM Systems web site](http://www.ibm.com/systems/z/os/).

4. Copy and edit the JVM profiles for your Java applications. Edit the options in the JVM profiles:
   a. Change the `JAVA_HOME` option to specify the location where you installed Version 6.0.1 of the IBM 64-bit SDK for z/OS, Java Technology Edition. `/usr/lpp/java/J6.0.1_64/` is the default installation location for the product.
   b. Remove the `CICS_HOME` option from your profiles. This option is obsolete. CICS uses the `USSHOME` system initialization parameter instead.
   c. To check the results of your changes, you can compare your JVM profiles with the sample JVM profile DFHJVMPR.

5. Give all your CICS regions the following access permissions on z/OS UNIX:
   a. Read and execute access to the files for the IBM 64-bit SDK for z/OS, V6.0.1 installation.
   b. Read access to your new JVM profiles and optional JVM properties files.

6. Set the `USSHOME` system initialization parameter in all the CICS regions that you are upgrading to specify the location of z/OS UNIX files.

7. Change the `JVMPROFILEDIR` system initialization parameter in all the CICS regions that you are upgrading to specify the directory on z/OS UNIX that contains the JVM profiles.

8. Set the `MEMLIMIT` parameter to ensure that there is enough storage for the 64-bit JVMs. You must allow for other CICS facilities that use 64-bit storage. For more information, see [Estimating, checking, and setting MEMLIMIT in the Performance Guide](http://www.ibm.com/systems/z/os/).

9. When you have completed any other necessary upgrading tasks for the CICS regions, start one region and run your Java workload in it as a test region:
   a. Confirm that you can start JVMs with each of your JVM profiles successfully and can use them to run applications. You can use the CICS Explorer to browse the JVMs in a CICS region, identify their JVM profiles, and see when they are allocated to a task.
   b. Confirm that the shared class cache (if used) has been started successfully. You can view the status of the shared class cache and the number of JVMs that are using it using the CICS Explorer.
c. Check that the behavior of your application is the same.

d. If you are using class sharing, check that the amount of storage specified for the shared class cache (by the JVMCCSIZE system initialization parameter) and for the individual JVMs (in the JVM profiles) is right for the new mix of items stored in each location. Compiled classes produced by just-in-time (JIT) compilation are now stored in individual JVMs, not in the shared class cache.

10. If you encounter any problems in the test CICS region, make these checks:

   a. Check that your SDK installation was successful, that you gave the CICS region the correct permissions to access it, and that the JAVA_HOME option in your JVM profiles correctly specifies the Version 6.0.1 64-bit SDK installation. If you try to start a JVM using a profile that specifies the wrong SDK, CICS issues message DFHSJ0900 and abend ASJJ occurs. Abend ASJJ also occurs if CICS cannot access the Java directory or if the installation appears to be invalid.

   b. Check that the directory specified by the JVMPROFILEDIR system initialization parameter is the directory containing the correct JVM profiles and that the CICS region has permissions to access this directory and the files.

   c. If you cannot start the shared class cache, check that the JVM profile DFHJVMCD is available in the directory specified by the JVMPROFILEDIR system initialization parameter. Ensure that the profile is set up correctly for your CICS region and specifies the correct JAVA_HOME value. CICS uses this JVM profile to initialize and terminate the shared class cache.

   d. Check that you have correctly addressed any Java compatibility issues.

   e. Adjust the size of the shared class cache or the storage specified in the JVM profiles, as appropriate for your new storage use. Use the PERFORM CLASSCACHE command to phase in a new, larger, or smaller shared class cache while CICS is running. You can set the JVMCCSIZE system initialization parameter to specify the new size permanently. To change the maximum size of the storage heap for a JVM, increase or decrease the value of the -Xmx option in the JVM profile. Use the PERFORM JVMPOOL command to stop and restart the pooled JVMs that use the changed profile.

11. Start the remaining upgraded CICS regions and use them for your Java workloads.

Results


What to do next

- When you have completed these steps to upgrade your existing Java workloads to run in pooled JVMs, investigate moving your applications to run in a JVM server. The JVM server is the strategic runtime environment for Java applications in CICS. The JVM server can handle multiple requests for Java applications concurrently in a single JVM, saving on the number of JVMs that are required in the CICS region. For information about this runtime environment, see JVM servers and pooled JVMs in Java Applications in CICS

- You might want to perform additional tuning to ensure that your Java workloads are configured for optimal performance. For more information, see Improving Java performance in Java Applications in CICS
Upgrading garbage collection settings for pooled JVMs

CICS now initiates garbage collection when heap utilization in the active part of the heap reaches a specified limit. In earlier releases, CICS performed garbage collection in a pooled JVM synchronously after a specified number of Java programs had been run. You might need to adjust the new garbage collection option if you want to keep the same frequency of garbage collection as you had in previous releases.

Procedure

- If you have specified the MAX_RESETS_TO_GC option in your JVM profiles, remove it. CICS now ignores this option and issues a warning message at JVM startup if it is found.
- If you need to tune the frequency of garbage collections initiated by CICS in your pooled JVMs, use the GC_HEAP_THRESHOLD option. This option specifies a percentage limit for heap utilization in the active part of the heap, above which CICS initiates garbage collection. The default setting is 85%.
- If you previously tuned your JVMs so that your applications used almost all of the storage in the active part of the heap before garbage collection took place, you might find that the default setting for GC_HEAP_THRESHOLD causes more frequent garbage collections in your pooled JVMs. If this is the case, adjust the GC_HEAP_THRESHOLD percentage to a higher value to return to the same frequency of garbage collection.
Chapter 29. Upgrading the CICS-WebSphere MQ connection

If you use the CICS-WebSphere MQ adapter, bridge, trigger monitor, or API crossing exit to connect CICS to WebSphere MQ, check your configuration and make any necessary changes.

When you upgrade to a new version or release of WebSphere MQ, ensure that you specify the new versions of the WebSphere MQ libraries in the STEPLIB and DFHRPL concatenations in your CICS procedure, replacing the previous versions of these libraries. The libraries are \texttt{thlqual.SCSQAUTH}, \texttt{thlqual.SCSQCICS}, and \texttt{thlqual.SCSQLOAD}, where \texttt{thlqual} is the high-level qualifier for the WebSphere MQ libraries. The SCSQAUTH library is included in both concatenations, but the SCSQLOAD library and the optional SCSQCICS library are included in the DFHRPL concatenation only. Include the WebSphere MQ libraries after the CICS libraries to ensure that the correct code is used.

**Review availability of TCBs for CICS-WebSphere MQ connection (MAXOPENTCBS setting)**

Before CICS TS for z/OS, Version 3.2, a CICS region used a pool of eight subtask TCBs to connect to WebSphere MQ queue managers. The subtask TCBs were not owned by the CICS tasks that made the requests to connect to WebSphere MQ. When a subtask TCB returned the results of a request to a CICS task, the subtask TCB became available for other CICS tasks that needed to connect to WebSphere MQ.

From CICS TS for z/OS, Version 3.2, a CICS region uses open TCBs in L8 mode to connect to WebSphere MQ queue managers. When a CICS task makes a request to connect to WebSphere MQ, it obtains an L8 TCB from the pool in the CICS region, and keeps the L8 TCB from the time it is allocated to the end of the task. Even if the CICS task switches back to run on the QR TCB or makes no further requests to connect to WebSphere MQ, the L8 TCB is not released until the CICS task ends. Each concurrent CICS task that connects to WebSphere MQ therefore requires one L8 TCB for the duration of the task.

The availability of L8 TCBs in the pool is determined by the setting for the MAXOPENTCBS system initialization parameter, and by the number of other CICS tasks that are using L8 or L9 TCBs, such as CICS applications that connect to DB2. A CICS task is allowed at most one L8 TCB, which the task can use for any purpose that requires an L8 TCB. For example, a task that connected to both WebSphere MQ and DB2 would use only one L8 TCB. Within the overall limit set for the TCB pool by MAXOPENTCBS, there is no specific limit on the number of L8 TCBs that are allocated for CICS tasks that connect to WebSphere MQ queue managers; these tasks can potentially occupy all of the available L8 TCBs in the pool.

When you upgrade from a release earlier than CICS TS for z/OS, Version 3.2, it is important to review your setting for the MAXOPENTCBS system initialization parameter to ensure that enough L8 TCBs are available to provide one for each concurrent CICS task that connects to WebSphere MQ, and to leave sufficient L8 and L9 TCBs available for the other users of these TCBs in the CICS region. For guidance on reviewing your setting for the MAXOPENTCBS system initialization
parameter, see MAXOPENTCBS in the Performance Guide. It is helpful to review
the MAXOPENTCBS setting each time you upgrade to a new CICS release.

CICS tasks that connect to WebSphere MQ require storage in the WebSphere MQ
subsystem. When you upgrade from a release earlier than CICS TS for z/OS,
Version 3.2, or when the peak number of concurrent CICS tasks that connect to
WebSphere MQ changes, review the use of common storage in the WebSphere MQ
subsystem. For information about common storage and connections from CICS to
WebSphere MQ, see Common storage in the WebSphere MQ documentation. For
further information about storage and performance requirements in WebSphere
MQ, including velocity goals for CICS regions, see Planning your storage and
performance requirements in the WebSphere MQ documentation.

If CICS is connecting to WebSphere MQ Version 6, you might also need to increase
your setting for the WebSphere MQ subsystem tuning parameter CTHREAD.
Before CICS TS for z/OS, Version 3.2, CICS always took up nine of the connections
specified by CTHREAD, plus one for each task initiator (CKTI). From CICS TS for
z/OS, Version 3.2, the number of connections depends on the number of CICS
tasks that are using L8 TCBs to connect to WebSphere MQ. In WebSphere MQ
Version 6, you can change the value of CTHREAD using the WebSphere MQ SET
SYSTEM command. From WebSphere MQ Version 7, the CTHREAD parameter
cannot be adjusted in WebSphere MQ.

Java and IBM MQ

If your CICS Java applications use the IBM MQ Java APIs, IBM MQ Version 7.0.1
or later is required. Also, for IBM MQ Version 7.0.1, the PTFs for APARs PM34082
and PM32344 must be applied. These requirements are because CICS now uses
64-bit Java and requires a IBM MQ version with a 64-bit driver.

For more information about the service that you must apply to ensure that CICS
TS installs correctly, see the system requirements at http://www.ibm.com/
support/docview.wss?uid=swg27020857

New CICS resources and commands for CICS-WebSphere MQ
connection

To support WebSphere MQ queue-sharing groups, CICS TS 4.1 introduced the
MQCONN resource definition and new EXEC CICS and CEMT commands for the
CICS-WebSphere MQ connection.

Before CICS TS 4.1, you used the DFHMQPRM operand of the CICS system
initialization parameter INITPARM to specify a default WebSphere MQ queue
manager name and initiation queue name for the CICS-WebSphere MQ connection.
(The DFHMQPRM operand was called CSQCPARM before CICS TS 3.2.) An
example of this statement is as follows:
INITPARM=(DFHMQPRM=’SN=CSQ1,IQ=CICS01.INITQ’)

You can no longer use the INITPARM system initialization parameter to specify
these defaults. If the DFHMQPRM or CSQCPARM operand is present on
INITPARM, you must remove it. CICS issues a warning message if the
defaults specified are not applied to the CICS-WebSphere MQ connection. The INITPARM system initialization
parameter itself is still valid with other operands.
You must now set up an MQCONN resource definition for the CICS region to provide defaults for the connection between CICS and WebSphere MQ. You must install the MQCONN resource definition before you start the connection. The defaults that you specify in the MQCONN resource definition apply when you use the CKQC transaction from the CICS-WebSphere MQ adapter control panels or call it from the CICS command line or a CICS application. CICS uses the defaults when you use the MQCONN system initialization parameter to specify that CICS starts a connection to WebSphere MQ automatically during initialization. This example MQCONN resource definition can replace the example INITPARM statement shown above:

```
MQconn : MQDEF1
Group : MQDEFNS
Description =>
Mqname => CSQ1
Resyncmember => Yes | No
Initqname => CICS01.INITQ
```

You can specify either a WebSphere MQ queue-sharing group as a default in the MQCONN resource definition, or the name of a single queue manager. To use a WebSphere MQ queue-sharing group, the CICS SVC for CICS TS 4.1 or a higher level must be active for the CICS region. When you install a new level of the CICS SVC, an IPL is required to activate it. Message DFHMQ0325 is issued if a CICS region attempts to connect to a WebSphere MQ queue-sharing group when the CICS TS 4.1 or higher level CICS SVC is not active, and a system dump is taken with the dump code DFHAP0002 and the severe error code X'A0C6'.

You can use new EXEC CICS and CEMT commands to work with the MQCONN resource definition. You can also use the SET MQCONN command to start and stop the CICS-WebSphere MQ connection, as an alternative to issuing CKQC START or STOP commands.

If you use an application program to control the CICS-WebSphere MQ connection, you might experience some new results from the application. For information about these changes, see “Possible application behavior changes for CICS-WebSphere MQ connection” on page 239. For information about upgrading your application to use the new functions, see “Upgrading your application for CICS-WebSphere MQ connection” on page 240.

**Support for WebSphere MQ Version 7 API calls**

New or changed CICS applications that use the new API calls in WebSphere MQ Version 7 must be link-edited with the WebSphere MQ API stub modules that are shipped with CICS.

The new API calls are MQBUFMH, MQCB, MQCTL, MQCRTMH, MQDLTMH, MQDLTMP, MQINQMP, MQMHBUF, MQSETMP, MQSTAT, MQSUB, and MQSUBRQ. These Version 7 API calls are only supported in CICS when you use the stubs shipped with CICS, not the stubs shipped with WebSphere MQ. New and existing CICS applications that do not use the Version 7 API calls can use the stubs shipped with CICS or WebSphere MQ.

The WebSphere MQ queue manager must be at WebSphere MQ Version 7.0.1 or higher to support these API calls in the CICS environment. In WebSphere MQ Version 7.0.1, you must apply the PTFs for APARs PK97364 and PK97972.

If you use the new Version 7 API calls MQCB and MQCTL for asynchronous message consumption by CICS applications, you must code your program using...
information given in the CICS documentation, in addition to the WebSphere MQ programming documentation. The requirements for asynchronous message consumption in a CICS environment are listed in "Asynchronous message consumption and callback routines" in the CICS integration with WebSphere MQ documentation.

CICS-WebSphere MQ connection components moved to CICS

The CICS-WebSphere MQ adapter, bridge, trigger monitor and API crossing exit moved from WebSphere MQ to CICS in CICS TS 3.2.

You must take the following actions to use the CICS-WebSphere MQ connection components in their new location:

- If you are using WebSphere MQ Version 6, apply the PTF for APAR PK42616 to WebSphere MQ to police the use of the correct adapter. This PTF is not required if you are using WebSphere MQ Version 7.
- If you do not share your CSD with earlier releases of CICS, you can remove the existing groups CSQCAT1 and CSQCKB, which contain CSQCxxx definitions, from your CSD.
- If you do share your CSD with earlier CICS releases, ensure that CSQCAT1 and CSQCKB are not installed for CICS TS Version 4 or CICS TS 3.2. You must also delete the CKQQ TDQUEUE from group CSQCAT1. For CICS TS releases earlier than CICS TS 3.2, install the CSQCAT1 and CSQCKB groups as part of a group list, after installing DFHLIST. This overrides group DFHMQ and correctly installs the required definitions.
- Place the WebSphere MQ libraries after the CICS libraries in the CICS STEPLIB and DFHRPL concatenation of the CICS procedure, to ensure the correct adapter, trigger monitor and bridge code is used.
- Unlike WebSphere MQ, CICS does not support uppercase English. If you want to use uppercase English for your CICS-WebSphere MQ components, you must ensure that ASSIGN NATLANGINUSE returns E (US English), and the system initialization parameter is set to MSGCASE=UPPER. This allows the uppercase English mapset to be used.
- CICS supplies the program definition for CSQCAPX in group DFHMQ with the parameter CONCURRENCY(THREADSAFE). Specify CONCURRENCY(THREADSAFE) when you define your exit program and any programs that your exit program calls and use only threadsafe CICS commands within the exit. You should also examine any existing API crossing exits to ensure that their logic is threadsafe.
- CICS-WebSphere MQ messages are changed from the format CSQCxxx to DFHMQ0xxx. Ensure that your message retrieval applications cope with this change.
- All trace entries produced by the CICS-WebSphere MQ components now use the CICS trace domain. If you have user tracing enabled for WebSphere MQ tracing only, you can turn off user tracing, saving the overhead of application trace.
- If you want the CICS-WebSphere MQ connection to start automatically at CICS start up, add the system initialization parameter MQCONN to the system initialization table.
- From CICS TS 3.2, the open TCBs used for connections to WebSphere MQ are allocated for the duration of the CICS task. In CICS TS releases earlier than CICS TS 3.2, the open TCBs were only allocated for the duration of the WebSphere MQ request.
Some additional functional changes do not require any action:

- Modules are renamed to use CICS naming conventions, except for all WebSphere MQ stubs and exits. The names for these have been preserved so that existing JCL works, and you are not required to re-link-edit applications, unless you modify them to use the new API calls that were added in Version 7 of WebSphere MQ.
- CSQCCOPEN, CSQCCLOS, CSQCGET, CSQCPUT1, and CSQCINQ are shipped unchanged, and are all entry points into DFHMQSTB, which is loaded from SDFHLOAD.
- There are two new transient data queues, CMQM and CKQQ, both defined in group DFHDCTG. CMQM logs all CICS-WebSphere MQ messages issued by the CICS-WebSphere MQ adapter, trigger monitor and bridge. CKQQ logs all messages relating to CICS-WebSphere MQ connection and disconnection.
- WebSphere MQ statistics can now be reset during the life of a CICS execution. This means that when you use the **CKQC DISPLAY** commands, you see only active CICS-WebSphere MQ threads, so numbers can go down or reduce to zero.

Possible application behavior changes for CICS-WebSphere MQ connection

You can start the CICS-WebSphere MQ connection from an application in the same way as you did prior to CICS TS 4.1, by issuing an EXEC CICS LINK command to link to program DFHMQQCN (or CSQCQCON, which is retained for compatibility) and passing a set of parameters. However, if you continue to use this method of starting the CICS-WebSphere MQ connection, you might experience some new results depending on the parameters that you use in the application.

If you upgrade your application to use the new SET MQCONN command to control the CICS-WebSphere MQ connection, you can avoid these results. The new results that you might now experience when you use program DFHMQQCN to start the CICS-WebSphere MQ connection are as follows:

**CONNSSN parameter**

If your application uses the CONNSSN parameter to specify the name of a WebSphere MQ queue manager for the connection, CICS connects to this queue manager as before. In addition, your setting for the MQNAME attribute in the installed MQCONN definition is replaced with the name of the queue manager that you specified on the command. If you want to revert to the original queue manager or queue-sharing group, set MQNAME in the resource definition again.

**CONNIQ parameter**

If your application uses the CONNIQ parameter to specify the name of the default initiation queue for the connection, CICS uses that initiation queue name, and the INITQNAME attribute in the installed MQINI resource definition is replaced with the name of the initiation queue that you specified on the command. (MQINI is an implicit resource definition that CICS installs when you install the MQCONN resource definition.)

**INITP parameter**

If your application uses the INITP parameter, which specifies that the default settings are used, these default settings are now taken from the installed MQCONN resource definition, and not from the INITPARM system initialization parameter. The INITP parameter is therefore now known as MQDEF. When MQDEF is set to Y, the setting from the MQCONN resource definition applies as follows:
• If the MQCONN resource definition specifies the name of a WebSphere MQ queue manager in the MQNAME attribute, CICS connects to that queue manager.

• If the MQCONN resource definition specifies a WebSphere MQ queue-sharing group in the MQNAME attribute, CICS connects to any active member of that group. In the event of reconnection, CICS might either connect to the same queue manager or to a different queue manager, depending on the setting for the RESYNCMEMBER attribute in the MQCONN resource definition. You might need to modify your application to take this new behavior into account.

You can stop the CICS-WebSphere MQ connection from an application in the same way as before, by issuing an EXEC CICS LINK command to program DFHMQDSC (or CSQCDSC, which is retained for compatibility). The results of this operation remain unchanged.

Upgrading your application for CICS-WebSphere MQ connection

You can upgrade your application to specify a queue-sharing group, or use the new SET MQCONN command to control the CICS-WebSphere MQ connection instead of linking to another program.

Procedure

• In the parameter list that your application passes to DFHMQQCN (or CSQCQCON), the CONNSSN parameter maps to the MQNAME attribute in the installed MQCONN definition. You can therefore now use this parameter to specify either the name of a WebSphere MQ queue-sharing group, or the name of a single WebSphere MQ queue manager.

• As an alternative to using the EXEC CICS LINK command to DFHMQQCN, you can use the new EXEC CICS SET MQCONN CONNECTED command to start the CICS-WebSphere MQ connection. You can specify the name of a queue-sharing group and suitable resynchronization behavior, or use the settings specified in the MQCONN resource definition for the CICS region.

• You can also use the new EXEC CICS SET MQCONN NOTCONNECTED command to stop the CICS-WebSphere MQ connection. You can specify a force stop or a quiesce stop with the new command, and, in addition, for a quiesce stop you can specify whether control is returned to the application before or after the connection is stopped.

• If you want to enable or disable the CICS-WebSphere MQ API-crossing exit while the connection is active, you must still link to the adapter reset program, DFHMQRS (or CSQCRST, which is retained for compatibility).
Chapter 30. Upgrading CICS web support applications

CICS Transaction Server for z/OS, Version 4 Release 2 supports your existing CICS web support architecture for both web-aware and non-web-aware application programs. Existing web-aware application programs that send and receive HTTP messages can work unchanged, until you choose to upgrade them to take advantage of the enhancements described here.

- If you have a CICS region that has experienced performance problems due to long-lived persistent HTTP connections from web clients, you can now use the MAXPERSIST attribute in the TCPIPSERVICE resource definition for the port to limit the number of persistent connections that the CICS region accepts at any one time. An HTTP/1.1 server should normally allow persistent connections, so only set up connection throttling in a CICS region that has experienced performance problems for this reason. For more information about connection throttling, see How CICS web support handles persistent connections.

- Choose what to do with the new XRES system initialization parameter, which sets resource security for document templates. For XRES, YES is the default setting, and in this case CICS uses the default class names RCICSRES and WCICSRES. If security checking is active for the CICS region (SEC=YES system initialization parameter), your choices are as follows:
  - Specify XRES=NO explicitly to remove resource security for document templates, and allow any user ID to access them. If you specify XRES=NO, you do not need to make any security changes.
  - Specify XRES=YES (the default).
  - Specify XRES=name and define your own resource classes in either the RACF static class descriptor table or the RACF dynamic class descriptor table.
  - If you decide to specify XRES=YES or XRES=name, follow the instructions in “Implementing resource security for CICS document templates and z/OS UNIX files” on page 244.

When CICS is initializing, it requests RACF to bring resource profiles into main storage to match all the resource classes that you specify on system initialization parameters. If CICS requests RACF to load a resource class that does not exist or is not correctly defined, CICS issues a message indicating that external security initialization has failed, and terminates CICS initialization.

- Choose what to do with the new XHFS system initialization parameter, which specifies access control for z/OS UNIX files. For XHFS, YES is the default setting, which means that access control for z/OS UNIX files is active. If security checking is active for the CICS region (SEC=YES system initialization parameter), your choices are:
  - Specify XHFS=NO explicitly to remove access control for z/OS UNIX files and allow any user ID to access them. If you specify XHFS=NO, you do not need to make any security changes.
  - Specify XHFS=YES (the default). Access permissions for z/OS UNIX files are specified in z/OS UNIX System Services, so you do not need to define RACF profiles for individual files. However, if you are using access control lists (ACLs) to control access to z/OS UNIX files, activate the FSSEC class in RACF. If you decide to specify XHFS=YES, follow the instructions in “Implementing resource security for CICS document templates and z/OS UNIX files” on page 244.
• CHARACTERSET and HOSTCODEPAGE options for the GET and POST methods are now the same, and, in certain circumstances, you will now receive data in your local CCSID. The CHARACTERSET (previously CLNTCODEPAGE) and HOSTCODEPAGE options now take effect for forms submitted with the GET method as well as the POST method, and the defaults are the same in both cases. Therefore, if the form uses the POST method and you do not specify the HOSTCODEPAGE option, and your LOCALCCSID initialization parameter is not 037, you receive your data in your local CCSID, instead of CCSID 037 (the default EBCDIC code page). To specify 037 as the host code page, either change your LOCALCCSID parameter to 037, or modify your application to explicitly use "037".

• There are certain considerations for code page conversion to take place when using buffers (with either the INTO or SET option specified). If you are receiving data into a buffer, and CHARACTERSET and CLICONVERT are not specified, the media type for the message must specify text as the data content type (according to the IANA definitions) for code page conversion to take place. For messages where no media type is given, but CLICONVERT is specified, code page conversion also takes place. If a nontext media type is present, CICS does not convert the message body. If you are using the DFHWBCLI web client interface, you must either specify a WBCLI_MEDIATYPE of TEXT, or you must include the required WBCLI_CHARSET value for DFHWBCLI to perform the required code page conversion.

Implementing connection pooling for client HTTP connections

To activate connection pooling, your CICS web support or web services application programs must specify a URIMAP resource with the SOCKETCLOSE attribute on the INVOKE SERVICE or WEB OPEN command. For event processing, the HTTP EP adapter must use a URIMAP resource with the SOCKETCLOSE attribute.

About this task

Connection pooling can provide performance benefits where multiple invocations of CICS web support applications, web services applications, or the HTTP EP adapter make connection requests for a particular host and port, or where a web services application makes multiple requests and responses. Connection pooling does not enhance performance for a single invocation of a user-written CICS web support application, a single web services request and response, or a single event emission.

Connection pooling is specified by the SOCKETCLOSE attribute in a URIMAP resource with USAGE(CLIENT). SOCKETCLOSE defines if, and for how long, CICS keeps a client HTTP connection open after the CICS program has finished using it. After use, CICS checks the state of the connection and then places it in a pool in a dormant state. The dormant connection can be reused by the same application or by another application that connects to the same host and port.

For the client HTTP connections opened by your applications to be pooled after use, ensure that your applications handle the connections as described in the following procedure.

Procedure

1. When opening the client (outbound) HTTP connection, specify a URIMAP resource with the SOCKETCLOSE attribute set.
• In CICS web support applications, you can specify a URIMAP resource on the **WEB OPEN** command to provide the URL for the connection. If you code the URL directly in the application, CICS does not access the URIMAP resource and the connection cannot be pooled after use.

• In CICS web services applications that are service requesters, you can specify a URIMAP resource on the **INVOKE SERVICE** command to provide the URI of the web service. If you code the URL directly in the application, or if you use a URI from the web service description, CICS does not access the URIMAP resource.

• For the HTTP EP adapter, you specify a URIMAP resource in your event binding.

2. Ensure that CICS web support applications do not use the option **CLOSESTATUS(CLOSE)** on any of the **WEB SEND** or **WEB CONVERSE** commands that they issue. **CLOSESTATUS(CLOSE)** requests the server to close the connection, and closed connections cannot be pooled. Previously, the use of this option was suggested as best practice when the application sent its last request to the server, but it was not a required action.

3. Ensure that CICS web support applications issue the **WEB CLOSE** command when they have completed their use of the client HTTP connection. Previously, CICS closed the connection when the application issued this command. Now, the command notifies CICS that the application has finished using the connection. If connection pooling is in use, CICS leaves the connection open and places it in the pool after checking. If connection pooling is not in use, CICS closes the connection as before. In CICS web services applications, the **INVOKE SERVICE** command completes the application’s use of the connection, so CICS web services applications do not need to issue any additional commands to complete their use of the connection.

**What to do next**

If your applications already use URIMAP resources when opening outbound connections, and your CICS web support applications issue the **WEB CLOSE** command and do not use the option **CLOSESTATUS(CLOSE)** on any commands, you do not need to make any changes to your applications to implement connection pooling. You can specify the **SOCKETCLOSE** attribute on the URIMAP resources that are already used by your CICS web support and web services applications and by the HTTP EP adapter. The session token used by CICS web support applications does not persist on a pooled connection, so your applications reuse a pooled connection in exactly the same way as they use a new connection.

If you do not currently use URIMAP resources for CICS web support and web services client requests, and you want to implement connection pooling, you must set up URIMAP resources for the relevant client requests, and change your applications to specify the URIMAP resources when opening the connections. Make sure CICS web support applications also issue the **WEB CLOSE** command and do not use the option **CLOSESTATUS(CLOSE)** on any commands. When you start to use URIMAP resources for client requests, in addition to enabling connection pooling, you enable systems administrators to manage any changes to the endpoint of the connection, and you do not need to recompile applications if the URI of a service provider changes.
Implementing resource security for CICS document templates and z/OS UNIX files

If you decide to specify the system initialization parameters XRES=YES, XRES=name, or XHFS=YES, follow these instructions. XRES=YES and XHFS=YES are the defaults.

Procedure

- If you decide to specify XRES=YES or XRES=name to activate resource security for CICS document templates, check the RESSEC attribute in the TRANSACTION resource definitions of any transactions in your CICS region that access document templates, including the following:
  - CEMT and any other transactions that include EXEC CICS CREATE, DISCARD or INQUIRE DOCTEMPLATE commands.
  - CWXN, if you are using URIMAP definitions to provide static responses from CICS web support.
  - Alias transactions for CICS web support application programs. CWBA is the default alias transaction.
  - Transactions for other application programs that use EXEC CICS CREATE or INSERT DOCUMENT commands with the TEMPLATE option.

If RESSEC=YES is specified for any of these transactions, give the user IDs for the transaction permission to use the appropriate document templates. ALTER permission is required to create or discard document templates and READ permission is required for all other uses, including the API commands DOCUMENT CREATE and DOCUMENT INSERT.

Note: You cannot change the RESSEC attribute for CICS-supplied transactions in the CICS-supplied RDO groups. To change this attribute, copy the definitions to your own group, where you can change the attribute. CEMT is in group DFHOPER; CWBA and CWXN are in group DFHWEB.

- In the resource classes that are specified by your XRES system initialization parameter, supply RACF profiles for all the CICS document templates used by transactions with RESSEC=YES in your CICS region.
  1. Make sure you use the correct profile name for the CICS document templates. Use the name of the DOCTEMPLATE resource definition (and not the 48-character TEMPLATENAME attribute, which is used by EXEC CICS commands), prefixed by the resource type DOCTEMPLATE. The security checking process is case sensitive, so the case of the profile name must match the case of the resource type and resource definition name.
  2. Make sure you give permission to the correct user IDs. For CICS web support, the user ID associated with the transaction can vary depending on your CICS web support architecture. User IDs for access to document templates and z/OS UNIX files used by CICS web support has more information.

- If you decide to specify XHFS=YES to activate access control for z/OS UNIX files, follow the instructions in Implementing security for z/OS UNIX files to allow web clients to access these files.
  You do not need to check the RESSEC attribute in the TRANSACTION resource definition of the transactions that access the files. If XHFS=YES is specified as a system initialization parameter for the CICS region, all z/OS UNIX files used by CICS web support as static responses are normally subject to security checking, regardless of the RESSEC attribute for the transaction that is accessing them.
As an exception, if z/OS UNIX files are defined as CICS document templates and used in that way (for example, by applications), resource security for CICS document templates, specified by the XRES system initialization parameter, controls access to them for users. In this situation, you do not need to set up resource security in z/OS UNIX System Services for the files. However, the CICS region user ID always needs to have read permissions to z/OS UNIX files, even if they are defined as document templates.

**Upgrading Atom feeds from SupportPac CA8K**

If you set up Atom feeds using the CA8K SupportPac in CICS TS for z/OS, Version 3.1 or CICS TS for z/OS, Version 3.2, you can use these unchanged in CICS TS for z/OS, Version 4.2, or you can upgrade them to use the CICS TS for z/OS, Version 4.2 support for Atom feeds.

**About this task**

CICS TS for z/OS, Version 4.2 supports Atom feeds that were set up with the CA8K SupportPac. If you do not want to upgrade your Atom feed yet, you must retain all the resources unchanged, and continue to use the PIPELINE resource support instead of the new ATOMSERVICE resource support.

When you upgrade Atom feeds from the CA8K SupportPac, you can continue to use your service routines after some modifications. However, you must replace most of the supporting resources, such as pipeline configuration files, with their CICS TS for z/OS, Version 4.2 replacements, such as Atom configuration files. You can use the CICS Explorer to set up the resources that you need for an Atom feed in CICS TS for z/OS, Version 4.2.

*Table 21* summarizes the resources used for an Atom feed with the CA8K SupportPac, and how they are reused or replaced in CICS TS for z/OS, Version 4.2 support for Atom feeds.

**Table 21. Reusing SupportPac CA8K resources**

<table>
<thead>
<tr>
<th>SupportPac CA8K resource</th>
<th>CICS TS for z/OS, Version 4.2 usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>URIMAP resource (samples DFH$W2U1 and DFH$W2V1)</td>
<td>Can be reused, with change from USAGE(PIPELINE) to USAGE(ATOM), or CICS creates a URIMAP resource automatically when you use the CICS Explorer to set up the resources for your Atom feed</td>
</tr>
<tr>
<td>PIPELINE resource (samples DFH$W2F1 and DFH$W2Q1)</td>
<td>Replace with ATOMSERVICE resource; CICS creates an ATOMSERVICE resource automatically when you use the CICS Explorer to set up the resources for your Atom feed</td>
</tr>
<tr>
<td>Pipeline configuration file</td>
<td>Replace with Atom configuration file</td>
</tr>
<tr>
<td>Terminal handler parameter list in pipeline configuration file</td>
<td>Most elements can be reused in Atom configuration file, except <code>&lt;cics:layout&gt;</code> element using DFDL, which is no longer required (the XML binding now describes the structure of the resource)</td>
</tr>
<tr>
<td>Message handler program (samples DFH$W2FD and DFH$W2SD)</td>
<td>No longer required; CICS performs this processing</td>
</tr>
</tbody>
</table>

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Table 21. Reusing SupportPac CA8K resources (continued)

<table>
<thead>
<tr>
<th>SupportPac CA8K resource</th>
<th>CICS TS for z/OS, Version 4.2 usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Service routine (samples DFH$W2TS and DFH0W2FA)</td>
<td>Can be reused, with some modifications. The sample service routine DFH0W2F1 is an updated version of DFH0W2FA, and a new sample service routine DFH$W2S1 is provided</td>
</tr>
<tr>
<td>Resource Layout Mapping structure</td>
<td>Replace with XML binding</td>
</tr>
<tr>
<td>CICS resource containing Atom feed data (such as temporary storage queue)</td>
<td>Can be reused unchanged</td>
</tr>
</tbody>
</table>

Follow these steps to upgrade or replace each of your SupportPac CA8K resources to create a CICS TS for z/OS, Version 4.2 Atom feed:

**Procedure**

1. Modify your service routine as follows:
   a. Rename the ATOMPARENTERS container to DFHATOMPARMS.
   b. Rename the ATOMCONTENT container to DFHATOMCONTENT.
   c. If you used the optional containers ATOMTITLE and ATOMSUMMARY, rename these to DFHATOMTITLE and DFHATOMSUMMARY. If you used the optional container ATOMSUBTITLE, discard this container, as subtitles are not valid for an Atom entry, only for an Atom feed.
   d. Replace the references to the copybooks that mapped the parameters passed in the ATOMPARENTERS container, with the copybooks that map the DFHATOMPARMS container, as follows:

<table>
<thead>
<tr>
<th>Copybook</th>
<th>Replace with</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFH$W2PD for Assembler</td>
<td>DFHW2APD</td>
</tr>
<tr>
<td>DFH0W2PO for Cobol</td>
<td>DFHW2APO</td>
</tr>
<tr>
<td>DFH$W2PL for PL/I</td>
<td>DFHW2APL</td>
</tr>
<tr>
<td>DFH$W2PH for C</td>
<td>DFHW2APH</td>
</tr>
</tbody>
</table>

The parameters in the container are listed in the CICS Internet Guide. The following parameters from the list in SupportPac CA8K are no longer used:

- **ATMP_RLM**, which pointed to the Resource Layout Mapping structure
- **ATMP_KEY_FLD**
- **ATMP_SUBTITLE_FLD**

A number of new parameters are added in the DFHATOMPARMS container, and there are also some new bit values in ATMP_OPTIONS.

e. Replace the references to the copybooks that contained the constant definitions referenced by the copybooks for the ATOMPARENTERS container, with the copybooks that contain the new constant definitions, as follows:

<table>
<thead>
<tr>
<th>Copybook</th>
<th>Replace with</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFH$W2CD for Assembler</td>
<td>DFHW2CND</td>
</tr>
<tr>
<td>DFH0W2CO for Cobol</td>
<td>DFHW2CNO</td>
</tr>
<tr>
<td>DFH$W2CL for PL/I</td>
<td>DFHW2CNL</td>
</tr>
<tr>
<td>DFH$W2CH for C</td>
<td>DFHW2CNH</td>
</tr>
</tbody>
</table>
f. Check the instructions in the *CICS Internet Guide* to see whether you want to make any additional modifications to your service routine to take advantage of new features. You might want to use some of the additional containers and parameters that are available for returning data.

When you have made these changes, recompile the modules for the service routine.

2. Use the CICS XML assistant program DFHLS2SC to produce an XML binding for the resource that contains the data for your Atom feed. The XML binding replaces the `<cics:layout>` element in the pipeline configuration file, and also the Resource Layout Mapping structure. To create an XML binding, you must have a high-level language structure, or copybook, in COBOL, C, C++, or PL/I, that describes the structure of the records in the resource. For instructions to use DFHLS2SC, see the *CICS Application Programming Guide*.

3. Follow the instructions in the *CICS Internet Guide* to use the CICS Explorer to set up and deploy a bundle project for an Atom feed. You create an Atom configuration file in the bundle project. You can edit the Atom configuration file to reuse most of the elements from your terminal handler parameter list. If you edit the Atom configuration file using an XML editor or a text editor, make sure that you follow the new nesting structure for those elements in the Atom configuration file. The elements that you can reuse from your terminal handler parameter list are as follows:
   a. Reuse the `<cics:resource>` element, which specifies the name and type of the CICS resource that provides the data for the feed.
   b. Reuse the `<cics:fieldnames>` element, which specifies the fields in your CICS resource that provide metadata for the Atom entries. Rename the "id" attribute as "atomid". Some new attributes are also available for this element in the Atom configuration file.
   c. Reuse the `<atom:feed>` element and its child elements, which specify metadata for the Atom feed.
   d. Reuse the `<atom:entry>` element and its child elements, which specify metadata and name the resource that provides the content for the Atom entries.

The `<cics:layout>` element, which described the CICS resource using the Data File Descriptor Language (DFDL), is no longer required.

When you deploy the bundle project to your CICS region and install the BUNDLE resource, CICS creates ATOMSERVICE and URIMAP resources that you can use for your Atom feed.

4. If you want to use your existing URIMAP resource for your Atom feed instead of the one that CICS created, modify your existing resource to point to the ATOMSERVICE resource in place of a PIPELINE resource.
   a. Change `USAGE.PIPELINE` to `USAGE.ATOM`.
   b. Delete the `PIPELINE` attribute.
   c. Add the `ATOMSERVICE` attribute, specifying the name of the ATOMSERVICE resource that CICS created when you installed the BUNDLE resource.
   d. Change the `TRANSACTION` attribute to specify CW2A, the default alias transaction for Atom feeds, or another alias transaction that runs DFHW2A, the W2 domain alias program. The *CICS Internet Guide* explains how to set up an alternative alias transaction.
Results

When you have completed these steps, your upgraded Atom feed is ready for use in CICS TS for z/OS, Version 4.2.
Chapter 31. Upgrading CICS web services

If you have used CICS web services in earlier releases, be aware of the following changes when you upgrade to CICS Transaction Server for z/OS, Version 4 Release 2.

- Connection pooling can provide performance benefits where a service requester application makes multiple requests and responses. When you implement connection pooling, CICS keeps the client HTTP connection open after the application has finished making its request and receiving its response. The application can reuse the connection to make further requests and responses, rather than opening a new connection each time. Connection pooling is specified on the URIMAP resource for a client HTTP connection, so the application must specify a URIMAP resource on the INVOKE SERVICE command. For more information about connection pooling, see “Implementing connection pooling for client HTTP connections” on page 242.

- A pipeline scan now produces a second URIMAP resource for each WSDL document that is present in the pickup directory. This URIMAP resource defines a URI that points to the location of the WSDL document. You can use this URI to publish WSDL documents so that external requesters can create web service applications.

- The performance of XML parsing in CICS improved with the introduction of the IBM z/OS XML System Services (XMLSS) parser, which can be accessed directly from CICS. The XMLSS parser uses above-the-bar storage, so there is more below-the-bar storage available for user programs. The XMLSS parser also allows XML parsing to be offloaded to an IBM zEnterprise Application Assist Processor (zAAP). The zAAP-eligible proportion of the infrastructure for a web service is small, but if zAAP capacity is available then this can reduce the cost of hosting web services in CICS.

For more information on zAAP, see the zSeries Application Assist Processor Implementation IBM Redbook.

- Improvements in the XML parsing of SOAP messages mean that some malformed SOAP messages that were previously tolerated by CICS are now rejected.

For more information on XML parsing in z/OS, see the z/OS XML System Services User’s Guide and Reference on the IBM z/OS XML System Services Library page.

- Web Services Atomic Transactions (WS-AT) use Web Services Addressing (WS-Addressing) elements in their SOAP headers. The default namespace prefix for these WS-Addressing elements has changed from wsa to cicswsa.

Upgrading the Web services assistants

The Web services assistant batch jobs DFHWS2LS and DFHLS2WS both require a certain amount of memory to create Web service binding files. The amount of memory required has increased to enable the Web services assistants to process large and complex Web service descriptions.

The region size must now be at least 200 MB. You can either increase the region size accordingly or set the region size to 0M.
If you redeploy your existing Web services in a CICS TS 4.2 region, the regenerated Web service binding files are slightly larger in size.

**Migrating to MTOM/XOP support**

MTOM/XOP support is provided as an optional set of elements in the pipeline configuration file.

If you want to enable your pipeline to take advantage of the MTOM/XOP support, note the following:

- If you use your own application handler rather than the default that is provided by CICS Web services support, the pipeline processes MTOM messages in compatibility mode. You must specify DFHPITP as the application handler in your pipeline configuration file if you want the pipeline to process MTOM messages in direct mode.

- If you use the default CICS Web services application handler, the pipeline processes MTOM messages in direct mode. Ensure that your message handlers can still run successfully when processing containers that hold XOP documents and binary attachments.

- Only configure the attribute `send_mtom="yes"` in a provider pipeline configuration file when you are sure that all of your Web service requesters can receive MTOM messages. The default value is `send_mtom="same"`, so that MTOM messages are only sent when an MTOM message is received.

If you enable MTOM/XOP support in your pipeline, you can retrieve the options that you have specified by using the `INQUIRE PIPELINE` command.
Chapter 32. Security updates to monitor RACF Event Notifications (ENFs)

CICS now monitors for RACF type 71 Event Notifications (ENF) that are sent when specific RACF commands affect the group authorization of a user. Notification of a change to the user ID overrides any setting that is specified in the USRDELAY system initialization parameter. Therefore, review your USRDELAY settings.

- For z/OS 1.11 or later, these RACF commands are ALTUSER with the REVOKE option, CONNECT, and REMOVE.
- For z/OS(r) 1.13 with the PTF for APAR OA39486 applied, or later, these RACF commands are ALTUSER with the REVOKE option, CONNECT, REMOVE, DELGROUP and DELUSER.

This change does not apply to a user ID that is signed on to a local region (for example, a TOR that uses the CESN transaction to sign on). In this situation, CICS is not notified of an ENF 71 event code.
Chapter 33. Upgrading DB2 security support

If you use RACF for some or all of the security checking in your DB2 address space, the circumstances in which CICS passes the RACF access control environment element (ACEE) to DB2 have changed.

In previous releases, the ACEE was passed to DB2 only when AUTHTYPE(USERID) or AUTHTYPE(GROUP) was specified for a DB2CONN or a DB2ENTRY resource. This behavior is unchanged, but, in addition, CICS now passes the address of the ACEE to DB2 when you specify AUTHTYPE(SIGN), and the SIGNID attribute specifies the CICS region user ID.

This change makes it possible for DB2 to use RACF security when you use the CICS region user ID to control access to DB2. However, you must verify that your existing resource definitions do not introduce this changed behavior unexpectedly. You must also check any DB2 signon exits to ensure they operate as expected when the CICS region ACEE is passed to DB2.
Chapter 34. Upgrading event processing

When you upgrade to a new CICS release, you are likely to require changes to your event processing environment. You might also require changes to your event processing applications and monitoring tools.

New events for Atom feeds and WebSphere MQ bridge

Application programmers can now request that events be emitted when files and temporary storage queues are accessed by Atom feeds or when programs are linked to through the CICS-WebSphere MQ bridge.

Upgrading event processing data types

You can filter, capture, and create CICS event processing events with additional, commonly used data types.

- COBOL zoned decimal numbers with options SIGN SEPARATE and SIGN LEADING.
- Floating point numbers.
- Null-terminated strings.

For a complete list of the data types that are supported, see Information Sources tab.

Application and hardware considerations

No action is required if you do not plan to use the additional data types that are provided for CICS Transaction Server for z/OS, Version 4 Release 2. However, to get the benefit of the additional data types, some action is required.

Benefitting from the additional data types for event processing requires that you update:

- Existing event bindings, or create new event bindings, to specify the additional data types.
- Custom EP adapters, if applicable.
- Event consumers, as needed.

You must have the corresponding hardware floating point unit to use binary or decimal floating point.

Upgrading TS queue EP adapter formats

The temporary storage queue (TSQ) EP adapter now supports common base event, common base event REST, and WebSphere Business Events formats, in addition to the CICS flattened event (CFE) format.

For information about these event formats and how to work with them, see Event processing formats.
Upgrading the HTTP EP adapter to use connection pooling

Connection pooling can provide performance benefits for the HTTP EP adapter. When you implement connection pooling, CICS keeps the client HTTP connection open after the HTTP EP adapter has emitted the business event. The HTTP EP adapter can reuse the client HTTP connection to emit further events, rather than opening a new connection each time.

To implement connection pooling, add the SOCKETCLOSE attribute to the URIMAP resources that the HTTP EP adapter uses to open connections to an HTTP/1.1 compliant server. The URIMAP resources are named in the EP adapter configuration in the event bindings for your events. You do not need to make any changes to the event bindings. Choose a suitable setting for the SOCKETCLOSE attribute depending on the frequency with which the HTTP EP adapter emits events.

For more information about implementing connection pooling, see “Implementing connection pooling for client HTTP connections” on page 242.

Upgrading to use the INQUIRE CAPTURESPEC command improvements

Using the INQUIRE CAPTURESPEC command, you can now determine information about the context and primary predicate filters that are set for a given capture specification.

New options for the INQUIRE CAPTURESPEC command mean that you can determine information about any primary predicate or application context filters that are enabled for a given capture specification. To benefit from the improvements to the INQUIRE CAPTURESPEC command, you must update your existing applications or write new applications. However, no action is required if you do not plan to benefit from the additional capability to inquire about capture specifications using filters. See INQUIRE CAPTURESPEC for a complete list of options for the INQUIRE CAPTURESPEC command.

You can also determine how many application command options, application data predicates, and information sources there are for a given capture specification. Details about the predicates and information sources that are defined for a given capture specification can be seen by using the new INQUIRE CAPDATAPRED, INQUIRE CAPOPTPRED, and INQUIRE CAPINFOSRCE commands.
Part 3. Changes to CICSPlex SM externals

CICSPlex SM views and functions have changed to support the changes in function for this release of CICS and CICSPlex SM. Check which changes might affect your system.
Chapter 35. Changes to CICSPlex SM installation and definition

Changes to CICSPlex SM installation, initialization parameters, resource definition, or setup are summarized here.

Integration of CICSPlex SM and CICS installation

You can now edit the DFHISTAR job to modify both the CICS and CICSPlex SM installation parameters for your environment. EYUISTAR is no longer available as a job to modify CICSPlex SM installation parameters.

DFHISTAR produces customized JCL for CICS and CICSPlex SM. It now includes a combination of parameters that apply only for CICSPlex SM, parameters that apply only for CICS, and parameters that are common to CICS and CICSPlex SM.

For CICSPlex SM, DFHISTAR generates these sample JCL procedures:

- Create CMAS data sets
- Start a CMAS
- Create Web User Interface (WUI) data sets
- Start a WUI
- Create MAS data sets
- Run a MAS
- Move MAS modules to the link pack area (LPA)

With these procedures, you can create a CICSPlex SM configuration that consists of a CMAS, a WUI, and a managed CICS system (MAS). The CICSPlex SM Starter Set, which contained samples of JCL for this purpose, is no longer provided.

Removal of the CAS

Because of the removal of the CICSPlex SM TSO end-user interface (EUI), you no longer set up and use a CAS (coordinating address space) to support a CICS Transaction Server for z/OS, Version 4 Release 2 CMAS (CICSPlex SM address space).

Any attempt to run EYUCAS JCL to start a CAS results in an abend. The removal of the CAS means that you have no CAS-related data sets to install and no CAS to CAS links to configure.

Any attempt to run CMAS startup JCL from previous releases will fail because of the references to obsolete components. All data sets beginning with the characters BB are now obsolete, and the CAS initialization program, BBM9ZA00, is no longer included in the EYUAUTH library.

The CICSPlex SM system parameter CASNAME identified the CAS subsystem with which a CMAS was associated. You specified this parameter by means of the extrapartition transient data queue COPR assigned to the extrapartition transient data queue EYUPARM. With the removal of the CAS, this parameter is no longer valid. Any attempt to specify CASNAME now results in the message EYUXL0206E.
The CASNAME parameter is still valid for CICSPlex SM configurations prior to CICS Transaction Server for z/OS, Version 4 Release 2.

Datasets *.SEYUADEF, *.SEYUVDEF, and *.SEUJCL, which were supplied in previous releases to support the EUI, are not included as part of CICS Transaction Server for z/OS, Version 4 Release 2.

All EUI and CAS-messages and abend codes are removed, including messages that begin with the prefix BB, unnumbered ISPF messages, and all Uxxxx abend codes. CAS IPCS dialogs and IPCS CICS VERBEXIT keyword are now obsolete.

The XLEC transaction, which was used to connect a CMAS to a CAS, is obsolete.

Message EYUXL0008I is removed. The message EYUXL0008I applid CICSPlex registration complete was the final message issued for a successful CMAS startup.

The final message for a successful CMAS startup is now EYUXL0010I applid CMAS initialization complete.

Related concepts:
Related concepts: Chapter 47, “Phased upgrade scenario to remove CICSPlex SM CAS,” on page 315

You no longer set up and use a CAS (coordinating address space) to support a CICS TS for z/OS, Version 4.2 CMAS (CICSPlex SM address space). This scenario presents one way that you might upgrade an environment at an earlier release to Version 4.2, replacing the use of the CAS with the use of a Web User Interface server. Another set of procedures might be more appropriate to your own environment.

Dynamic creation of CICS resource definitions for CICSPlex SM

The additional CICS resource definitions specifically required to run a CICSPlex SM CMAS, WUI, and MAS are now created dynamically during initialization and when a CICSPlex SM system is started by a transaction. You no longer manipulate the CICS CSD to obtain the default resource definitions. The CICSPlex SM Starter Set, which contained samples of CICSPlex SM definitions, is no longer provided.

This change makes the CICSPlex SM installation process more straightforward. You no longer run CSD UPGRADE jobs for your CMASes, WUs, and MASes, and then use the lists and groups produced by the upgrade in the startup of these systems. However, you must still run CSD UPGRADE jobs when you want to upgrade the CICS region to CICS TS for z/OS, Version 4.2. For details about upgrading the CICS resource definitions, see “Upgrading the CSD for CICS-supplied and other IBM-supplied resource definitions” on page 178. For information about sharing CSDs across CICS releases, see “CSD compatibility between different CICS releases” on page 181.

You can still alter certain CICSPlex SM definition properties:

• EYUPARMs COIRTASKPRI, COHTASKPRI, MASALTLPRTPRI, and TASKPRIORITY are available to set priorities for certain CICSPlex SM transactions.

• You can use the CICS system initialization parameters LPA and PRVMOD to control whether to search the LPA for CICSPlex SM modules.

If you want to change any other properties, you can include modified definitions on the CSD.
CICS autoinstalls the initial CICSPlex SM programs for a CMAS, MAS, and WUI.

**New method for WUI and CICSpelix definition**

The EYU9XDUT CICSpelix definition utility can provide the CICSpelix SM definitions to start a WUI and CICSpelix as part of data repository initialization. Previously, you created these definitions with the EUI, which is now withdrawn, or a batch utility.

The EYU9XDUT utility optionally creates the following CICSpelix SM definitions:

- CPLEXDEF, CICSpelix definition
- CPLXCMAS, CMAS in CICSpelix
- PLEXCMAS, plex descriptor for the maintenance point CMAS
- CMASCPLX, CMAS in CICSpelix
- CSYSDEF, CICS system definition for the WUI

The CMAS SYSID is the basis for the WUI plex name and the WUI name, but you can override these names using the WUIPLEX and WUINAME parameters in DFHISTAR. The WUI parameter in DFHISTAR specifies whether a WUI is to be created. The default is to create a WUI.

**New CICSpelix SM system parameters**

You use CICSpelix system parameters to identify or alter CICSpelix SM attributes. These parameters are specified in the extrapartition transient data queue COPR. The parameters can be assigned to a DD * file, sequential data set, or a partitioned data set member. The DD name for the extrapartition transient data queue is EYUPARM.

**New system parameters in CICS Transaction Server for z/OS, Version 3 Release 2**

**MASALTLRTCNT={0 - 5 | 0}**

The **MASALTLRTCNT** system initialization parameter was available as a PTF for CICS TS for z/OS, Version 3.1, CICS TS for z/OS, Version 2.3, and CICS TS for z/OS, Version 2.2. It determines the number of alternate long running tasks (CONA) started in the MAS during MAS agent initialization.

The tasks remain active until the MAS agent terminates or goes into restart mode, and handle all API, WUI, and RTA requests normally handled by the CONL task, allowing the CONL task to perform other processing in the MAS. At any time, only one of the CONA tasks processes requests. If the CONA task that is currently processing requests becomes busy (as determined by the value of the MASALTLRRTIM EYUPARM), subsequent requests are directed to another CONA task.

If zero (0) is specified, no CONA tasks are started and the CONL task services the API, WUI, and RTA requests that are normally directed to the long running task.

Specifying different values for MASALTLRTCNT for multiple WLM target regions might result in an uneven distribution of transactions to those regions because of differing long running task counts.

**MASALTLRTPRI={0 - 255 | 255}**
The **MASALTLRTPRI** system initialization parameter was available as a PTF for CICS TS for z/OS, Version 3.1, CICS TS for z/OS, Version 2.3, and CICS TS for z/OS, Version 2.2. It determines the priority given to the CONA transaction for the current execution of the MAS.

Specifying this value less than 255 can adversely affect the response time of API, and WUI users, and might result in RTA EVENTS not being created or resolved in a timely manner.

**MASALTLRPTIM=\{1 - 3600 | 10\}**

The **MASALTLRPTIM** system initialization parameter was available as a PTF for CICS TS for z/OS, Version 3.1, CICS TS for z/OS, Version 2.3, and CICS TS for z/OS, Version 2.2. It determines the amount of time in seconds for which a CONA task can be busy before subsequent requests are directed to another active CONA task.

**STALLxxxTSK**

Where `xxx` represents a CICSPlex SM suspend class.

Identifies the minimum number of concurrent tasks required to enter the suspend class. The value can be 0 - 999. Use 0 to indicate STALL detection for the `xxx` suspend class is not active.

**STALLxxxCNT**

Where `xxx` represents a CICSPlex SM suspend class.

Identifies the number of consecutive occurrences of an entry in the suspend class required for CICSPlex SM to report a STALL. The value can be 0 - 999. Use 0 to indicate STALL detection for the `xxx` suspend class is not active.

---

**New and changed CICSPlex SM WUI server initialization parameters**

You can specify these CICSPlex SM Web User Interface server initialization parameters in the startup job or in a fixed block 80 data set.

**Changed CICSPlex SM WUI server initialization parameter in CICS Transaction Server for z/OS, Version 4 Release 1**

**TCPIPSSLCERT**(name)

Specifies the label for the SSL certificate that is to be used for the connection between the Web User Interface and the Web browser. The value that you specify for this parameter is now case-sensitive. In previous releases, CICS folded the value to uppercase. If you previously entered the value in lowercase and relied on the folding behavior to set the correct SSL certificate name, you must now change the value to uppercase.

**New CICSPlex SM WUI server initialization parameters in CICS Transaction Server for z/OS, Version 3 Release 2**

**AUTOIMPORTDSN**(dsn_name)

Specifies the name of the data set containing IBM-supplied view and menu definitions. The data set cannot be longer than 31 characters. Currently, the supplied set of WUI view and menu definitions is in the SEYUVIEW data set. If you specify an AUTOIMPORTDSN name, you must specify the name of a data set member using the AUTOIMPORTMEM parameter.

Use the AUTOIMPORTDSN and AUTOIMPORTMEM parameters when you want to import specific IBM-supplied view set and menu definitions as a result of service (by a PTF).
AUTOIMPORTMEM(member_name)

Specifies the name of the data set member containing the specific IBM-supplied view and menu definitions that you want to import. You can use an asterisk at the end of the name to specify a group of data set members that begin with the same characters. For example, specifying AUTOIMPORTMEM(EYUEA*) with the IBM-supplied SEYUVIEW data set in AUTOIMPORTDSN imports all of the members beginning with the characters EYUEA.

Use the AUTOIMPORTDSN and AUTOIMPORTMEM parameters when you want to import specific IBM-supplied view set and menu definitions as a result of service (by a PTF).

DEFAULTMAPBAS(name | EYUSTARTMAPBAS)

Specifies the name of the map object used to generate maps of business application services definitions.

DEFAULTMAPCOLL(value | 0)

Specifies the number of rows in a generated map below which a map opens in the expanded state. If the number of rows to be displayed is above this number, the map opens in a fully collapsed state. The default value of 0 means that in every generated map all of the rows are visible when opened.

DEFAULTMAPMON(name | EYUSTARTMAPMON)

Specifies the name of the map object used to generate maps of monitoring definitions.

DEFAULTMAPRTA(name | EYUSTARTMAPRTA)

Specifies the name of the map object used to generate maps of real-time-analysis definitions.

DEFAULTMAPWLM(name | EYUSTARTMAPWLM)

Specifies the name of the map object used to generate maps of workload management definitions.

New EYU9XDBT utility for CMAS and CICSpex definition

You can use the new EYU9XDBT utility to perform all CMAS and CICSpex definition activities after the basic CMAS environment has been established. You specify the required CICSpex names, and the utility sets up the definitions for you.

Use the utility to perform these tasks:

• Define CICSpexes to a CMAS and remove CICSpexes from a CMAS.
• Define CICS regions to a CICSpex and remove CICS regions from a CICSpex.
• Define CICS groups to a CICSpex and remove CICS groups from a CICSpex.
• Add CICS regions to CICS groups and remove CICS regions from CICS groups.
• Import, print, or export CICSpex SM objects defined to CMAS or CICSpex contexts.

Change to Common Work Area size for a CMAS

The size of the Common Work Area has increased to 2048 bytes. You specify the Common Work Area size in the CICS system initialization parameter WRKAREA.

For a complete list of CICS system initialization parameters for a CMAS, see in the CICS Transaction Server for z/OS Installation Guide.
Removal of SEYUMLIB, SEYUPLIB, and SEYUTLIB libraries

Following the removal of the CICSPlex SM TSO end-user interface (EUI) in CICS TS for z/OS, Version 3.2, the libraries SEYUMLIB, SEYUPLIB, and SEYUTLIB and all their contents are no longer shipped with CICS Transaction Server. If you have any references to these libraries in your TSO login profiles or other locations, remove them.

Referencing these libraries might cause your TSO login to fail.

Changes with RASGNDEF processing in CICSPlex SM

The change described in this topic was implemented through APARs for previous releases of CICSPlex SM. If the version of CICSPlex SM from which you are upgrading does not have the PTF for the APAR applied, then changes could occur in the way PROGDEFs and TRANDEFs are installed through RASGNDEFS (resource assignment definitions).

The relevant APARs for previous releases of CICSPlex SM are:

- CICSPlex SM Release 4: APAR PK15477
- CICSPlex SM Version 2.2: APAR PK17773
- CICSPlex SM Version 2.3: APAR PK17773
- CICSPlex SM Version 3.1: APAR PK17787

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

You need to ensure that all BAS definitions are updated to tolerate this change before upgrading to CICSPlex SM Version 4 Release 2.

Table 22 illustrates the differences in processing from versions of CICSPlex SM where the PTF for the APAR is not applied. CICA is the actual SYSIDNT of the target system. CICB is the actual SYSIDNT of the related system.

<table>
<thead>
<tr>
<th>PROGDEF or TRANDEF REMOTE-SYSTEM</th>
<th>RASGNDEF USAGE</th>
<th>RASGNDEF MODE</th>
<th>RASGNDEF REMOTE-SYSTEM OVERRIDE</th>
<th>Target REMOTE-SYSTEM without PTF applied</th>
<th>Target REMOTE-SYSTEM with PTF applied</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
<td>REMOTE</td>
<td>STAT</td>
<td>none</td>
<td>CICB</td>
<td>CICB</td>
</tr>
<tr>
<td>none</td>
<td>REMOTE</td>
<td>STAT</td>
<td>CICX</td>
<td>CICX</td>
<td>CICB (1)</td>
</tr>
<tr>
<td>CICZ</td>
<td>REMOTE</td>
<td>STAT</td>
<td>none</td>
<td>CICZ</td>
<td>CICB (1)</td>
</tr>
<tr>
<td>CICZ</td>
<td>REMOTE</td>
<td>STAT</td>
<td>CICX</td>
<td>CICX</td>
<td>CICB (1)</td>
</tr>
<tr>
<td>none</td>
<td>REMOTE</td>
<td>DYNAM</td>
<td>none</td>
<td>CICA</td>
<td>CICA (2)</td>
</tr>
<tr>
<td>none</td>
<td>REMOTE</td>
<td>DYNAM</td>
<td>CICX</td>
<td>CICX</td>
<td>CICX</td>
</tr>
<tr>
<td>CICZ</td>
<td>REMOTE</td>
<td>DYNAM</td>
<td>none</td>
<td>CICZ</td>
<td>CICZ</td>
</tr>
<tr>
<td>PROGDEF or TRANDEF REMOTE-SYSTEM</td>
<td>RASGNDEF USAGE</td>
<td>RASGNDEF MODE</td>
<td>RASGNDEF REMOTE-SYSTEM OVERRIDE</td>
<td>Target REMOTE-SYSTEM without PTF applied</td>
<td>Target REMOTE-SYSTEM with PTF applied</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>----------------</td>
<td>---------------</td>
<td>---------------------------------</td>
<td>------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>CICZ</td>
<td>REMOTE</td>
<td>DYNAM</td>
<td>CICX</td>
<td>CICX</td>
<td>CICX</td>
</tr>
</tbody>
</table>

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

---

### Change to generic alert structures used by CICSPlex SM

When you upgrade to CICS Transaction Server for z/OS, Version 4, there is a change to SNA generic alerts and resolutions as they are used by CICSPlex SM.

“Product Set ID” (X’10’) MS common subvector is a “Product ID” (X’11’) common subvector that identifies the product as IBM Software (X’04’). It contains a “Product Number” (X’08’) Product ID subfield that identifies the product number. This product number has changed to 5655S97.

The previous product numbers were as follows, depending on the version of CICS TS from which you are upgrading:

- In CICS Transaction Server for z/OS, Version 2, the product number was 5695081.
- In CICS Transaction Server for z/OS, Version 3, the product number was 5655M15.
Chapter 36. Changes to CICSPlex SM views and resource tables

These changes affect CICSPlex SM views, resource tables, and Business Application Services definition objects.

Removal of the CICSPlex SM TSO end-user interface (EUI)

With the new enhancements to the CICSPlex SM Web User Interface (WUI) and the provision of the EYU9XDBT batch facility, you can now use the CICSPlex SM WUI to perform all the CICS management tasks supported by the CICSPlex SM TSO end-user interface (EUI). As previously announced, the EUI has therefore been removed from CICS Transaction Server for z/OS, Version 3 Release 2 and later releases.

All of the function of the MVS/TSO ISPF end-user interface has been removed, including all associated views, panels, menus and action commands, with the supporting CAS and all PlexManager functions. Equivalent function is available solely from the CICSPlex SM Web User Interface. There is no WUI equivalent function for the temporary maintenance point CMAS function of the EUI.

With the removal of all EUI-related components, the entire CICSPlex SM installation process has been redesigned to make it an integral part of the installation of CICS Transaction server. See “Integration of CICSPlex SM and CICS installation” on page 3.

Obsolete CICSPlex SM views, resource tables, and attributes

These CICSPlex SM views and resource tables have had certain functions removed, or have been removed completely, because of changes to CICS resource types and functions.

In the operations view CICS region operations views > Dynamic storage area global - CICSSTOR, the fields Number of GCDSA cushion releases and Cushion limit are displayed as "Not applicable" for regions from CICS Transaction Server for z/OS, Version 4 Release 2. The corresponding SMSATBCUSHRE and SMSATBCUSHLI attributes in the CICSSTOR resource table return "Not applicable" for regions from CICS Transaction Server for z/OS, Version 4 Release 2.

In the operations view Enterprise Java component operations views > Java virtual machine (JVM) pool, the field Number of JVM requests with JVM reset is displayed as "Not applicable" for regions from CICS Transaction Server for z/OS, Version 3 Release 2. The corresponding Sjgreqsreset attribute in the JVMPOOL resource table returns "Not applicable" for regions from CICS Transaction Server for z/OS, Version 3 Release 2.

In the operations view Enterprise Java component operations views > Java virtual machine (JVM) profile, the fields Number of CICS key JVMs not resettable and Number of USER key JVMs not resettable are displayed as "Not applicable" for regions from CICS Transaction Server for z/OS, Version 3 Release 2. The corresponding CJVMSUNRESET and UJVMMSUNRESET attributes in the...
JVMPROFILE resource table return "Not applicable" for regions from CICS Transaction Server for z/OS, Version 3 Release 2.

**CICSPlex SM resource tables no longer supported**

A number of CICSPlex SM resource tables are no longer supported in CICS Transaction Server for z/OS, Version 3 Release 2 and later releases. The information in them has moved to other tables.

*Table 23. CICSPlex SM resource tables no longer supported*

<table>
<thead>
<tr>
<th>Resource table no longer supported</th>
<th>Table to which information has moved</th>
</tr>
</thead>
<tbody>
<tr>
<td>XDSPGBL</td>
<td>DSPGBL</td>
</tr>
<tr>
<td>XDSPPPOOL</td>
<td>DSPPPOOL</td>
</tr>
<tr>
<td>XJVMPOOL</td>
<td>JVMPOOL</td>
</tr>
<tr>
<td>XLSRPBUF</td>
<td>LSRPBUF</td>
</tr>
<tr>
<td>XMONITOR</td>
<td>MONITOR</td>
</tr>
<tr>
<td>XPROGRAM</td>
<td>PROGRAM</td>
</tr>
<tr>
<td>XSTREAM</td>
<td>STREAMNM</td>
</tr>
<tr>
<td>XTASK</td>
<td>TASK</td>
</tr>
<tr>
<td>X2TASK</td>
<td>TASK</td>
</tr>
</tbody>
</table>

Edit and recompile your CICSPlex SM API programs to use the equivalent supported resource table. Before you upgrade to CICS TS for z/OS, Version 4.2, recreate your WUI views and update your RTA definitions (EVALDEFS) to use the equivalent resource table on your earlier release.

**Changes to CICSPlex SM Web User Interface security**

In CICS TS for z/OS, Version 4.2 you can use your external security manager to control user access to views, menus, help information, and the View Editor. To do so, you create an appropriate profile in the FACILITY class.

The following ESM FACILITY profiles are available, where wui_server_applid is the CICS APPLID of the server:

- **EYUWUI.wui_server_applid.VIEW:viewsetname**
  Used to protect view sets.

- **EYUWUI.wui_server_applid.MENU:menuname**
  Used to protect menus.

- **EYUWUI.wui_server_applid.HELP:helpmembername**
  Used to protect help pages.

- **EYUWUI.wui_server_applid.EDITOR**
  Used to protect the View Editor.

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

- Read access allows users to use the views or menus in the main interface.
- Controlling read access enables you to prepare and protect views for specific user groups.
• Update access allows users to create, update, or remove items in the view editor or import using COVC. Controlling update access enables you to open the view editor to more users, but restrict the view sets and menus that individuals can modify.

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

This security protects the views and menus themselves and not the objects they manage, which are covered by normal CICSpex SM security.

**Changed CICSpex SM views and resource tables**

A number of changed CICSpex SM views and resource tables now support new or changed CICS resource types and functions.

**Map function for resource definitions**

All IBM-supplied tabular and detail views that display resource definitions now include a map button. The map function is invoked by clicking this button. It generates a visual representation of the associations between CICS resource definitions defined to CICSpex SM for the selected resource. The map function is equivalent to the CICSpex SM end-user interface MAP command in releases of CICS TS where the EUI was provided.

**Changed CICSpex SM views**

*Table 24. Changed CICSpex SM views*

<table>
<thead>
<tr>
<th>Changed CICS resource type or function</th>
<th>Corresponding CICSpex SM views that have changed</th>
</tr>
</thead>
</table>
| Bundles                                | 1. Administration views > Basic CICS resource administration views > Resource definitions  
2. CICS operations views                |
| Client HTTP connections                | 1. CICS operations views > TCP/IP service operations views > URI maps  
2. Administration views > Basic CICS resource administration views > Resource definitions > URI mapping definitions |
| Configuring z/OS Communications Server persistent sessions support | CICS operations views > CICS region operations views > CICS regions |
| Document template statistics and refresh (newcopy) function | CICS operations views > Document template operations views > Document template |
| Document deletion                      | 1. CICS operations views > Task operations views > Active tasks  
2. CICS operations views > Task operations views > Completed tasks |
| Dynamic storage areas: additional fields for 64-bit storage | CICS operations > CICS region operations views > Dynamic storage area global |
### Table 24. Changed CICSPlex SM views (continued)

<table>
<thead>
<tr>
<th>Changed CICS resource type or function</th>
<th>Corresponding CICSPlex SM views that have changed</th>
</tr>
</thead>
</table>
| Event processing: assured events       | 1. CICS operations views > Application operations views > Event processing  
                                        | 2. CICS operations views > Application operations views > Event binding  
                                        | 3. CICS operations views > Application operations views > Event capture specifications  
                                        | 4. CICS operations views > Task operations views > Completed tasks  
                                        | 5. CICS operations views > Task operations views > Active tasks |
| Event processing: capture specifications | CICS operations views > Application operations views > Event capture specifications |
| Event processing: HTTP EP adapter      | CICS operations views > Application operations views > Event processing |
| Event processing: system events        | 1. CICS operations views > Application operations views > Event processing  
                                        | 2. CICS operations views > Application operations views > Event capture specifications |
| Identity propagation                   | 1. CICS operations views > Task operations views > Task association information  
                                        | 2. CICS operations views > CICS region operations views > CICS regions  
                                        | 3. Administration views > Monitor administration views > Definitions |
| IPIC                                   | 1. CICS operations views > Enterprise Java component operations views > CorbaServers  
                                        | 2. CICS operations views > Task operations views > Task association information  
                                        | 3. CICS operations views > TCP/IP service operations views > TCP/IP services  
                                        | 4. CICS operations views > TCP/IP service operations views > URI maps  
                                        | 5. Administration views > CICS resource definitions > URI mapping definitions  
                                        | 6. CICS operations views > Task operations views > Work requests |
| IPv6                                   | 1. CICS operations views > TCP/IP service operations views > IPIC connections  
<pre><code>                                    | 2. CICS operations views &gt; Task operations views &gt; Task association information |
</code></pre>
<p>| Java programs: use count and JVM profile | CICS operations views &gt; Program operations views &gt; Programs |
| JVMs: manual start up, and changes to termination | CICS operations views &gt; Enterprise Java component operations views &gt; JVM pool |</p>
<table>
<thead>
<tr>
<th>Changed CICS resource type or function</th>
<th>Corresponding CICSPlex SM views that have changed</th>
</tr>
</thead>
</table>
| JVMs: withdrawal of resettable mode     | 1. CICS operations views > Enterprise Java component operations views > JVM pool  
|                                        | 2. CICS operations views > Enterprise Java component operations views > JVM profile  
|                                        | 3. CICS operations views > Enterprise Java component operations views > JVM status  
|                                        | 4. CICS operations views > Enterprise Java component operations views > JVM Class Cache status |
| JVM servers                            | 1. CICS operations views > CICS region operations views > CICS regions  
|                                        | 2. EYSTARTCICSREGION,DETAILED > Logging and journaling activity > Monitor status  
|                                        | 3. CICS operations views > Task operations views  
|                                        | 4. CICS operations views > Enterprise Java component operations views > JVM servers |
| LIBRARY resources                      | CICS operations views > Program operations views > Program |
| Monitoring details (new DPLLIMIT field, DPLLIMIT, FILELIMIT, and TSQLIMIT values can be set) | CICS Regions > CICS system name > Monitoring and statistics details > Monitoring details |
| MVS workload manager statistics        | CICS operations views > CICS region operations views > MVS workload management |
| Storage information for MVS TCBs       | 1. CICS operations views > CICS region operations views > MVS TCBs  
|                                        | 2. CICS operations views > CICS region operations views > Global MVS TCB information  
|                                        | 3. CICS operations views > CICS region operations views > MVS storage areas |
| SYSLINK objects that support IPIC connections | 1. Administration views > Basic resource administration views  
|                                        | 2. Administration views > Fully functional resource administration views  
|                                        | 3. Administration views > Basic CICS resource administration views > CICS system links and related resources > System link definitions  
|                                        | 4. Administration views > Basic CICS resource administration views > CICS system links and related resources > CICS system definitions  
<p>|                                        | 5. Administration views &gt; Basic CICS resource administration views &gt; System link definitions &gt; MASs known to CICSpex |
| TCP/IP                                 | CICS operations views &gt; TCP/IP service operations views &gt; TCP/IP services |
| TCPIPSERVICE resource definition attributes | Administration views &gt; Basic CICS resource administration views &gt; Resource definitions &gt; TCP/IP service definitions |</p>
<table>
<thead>
<tr>
<th>Changed CICS resource type or function</th>
<th>Corresponding CICSPlex SM views that have changed</th>
</tr>
</thead>
</table>
| Temporary storage queues: automatic deletion | 1. Administration views > CICS resource definitions > Temporary storage model definitions  
2. CICS operations views > Temporary storage queue (TSQ) operations views > Temporary storage queues, Shared queues, Temporary storage queues, Models |
| Temporary storage queues: limit for main storage | CICS operations views > Temporary storage queue (TSQ) operations views > Global temporary storage statistics |
| Workload management improvements | 1. Active workload views  
2. Active workload views > Active workloads  
3. Active workload views > Active routing regions  
4. Active workload views > Active workload target distribution factors  
5. Active workload views > CICSPlex definitions  
6. Active workload views > CICS system definitions  
7. Active workload views > Active MASs in CICSPlex  
8. CICSPlex SM operations views > CMASs managing CICSPlex  
9. Administration views > CMAS configuration administration views > CMAS in CICSPlex definitions |
| Dynamic workload management improvements | 1. Active workload views > Active workloads  
2. Active workload views > Transaction groups  
3. Active workload views > Transaction group affiliations  
4. Active workload views > Active routing regions  
5. Administration views > Workload manager administration views > Specifications  
6. Administration views > Workload manager administration views > Transaction group definitions |
| XCF group ID | CICS regions > region name |
| XMLTRANSFORM resources | 1. CICS operations views > CICS region operations views > Request statistics processing  
2. EYUSTARTCICSRGN.DETAILED > Monitoring and statistics details > Statistics details > Request statistics processing |
| z/OS Communications Server and partner system information | CICS operations views > TCP/IP service operations views > IP connections |
| z/OS Communications Server information | CICS operations views > Task operations views > Task association information |

### Changed CICSPlex SM resource tables

Review the following resource tables for possible effects on any RTA evaluation definitions (EVALDEF) or CICSPlex SM API programs that you are using:

- BUNDPART
- CICSPLEX
Chapter 36. Changes to CICSPlex SM views and resource tables
Resource tables that support CICS management client interface (CMCI) requests include a new URI resource name attribute. The CICS management client interface uses these resource name attributes to specify CICS and CICSPlex SM resources in URI requests.

Changes to views for the resource signature

Detailed resource signature information can be viewed in the CICS operations views, listed in the table below. These new fields can also be displayed in the Web User Interface resource administration views.

<table>
<thead>
<tr>
<th>View set</th>
<th>Navigation</th>
</tr>
</thead>
<tbody>
<tr>
<td>EYUSTARTATOMSERV</td>
<td>CICS operations views &gt; TCP/IP service operations views &gt; Atomservices &gt; EYUSTARTATOMSERV.DETAIL1</td>
</tr>
<tr>
<td>View set</td>
<td>Navigation</td>
</tr>
<tr>
<td>----------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EYUSTARTBUNDLE</td>
<td>CICS operations views &gt; Application operations views &gt; Bundles &gt; EYUSTARTBUNDLE.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTCONNECT</td>
<td>CICS operations views &gt; Connection operations views &gt; ISC/MRO connections &gt; EYUSTARTCONNECT.DETAILED4</td>
</tr>
<tr>
<td>EYUSTARTDB2CONN</td>
<td>CICS operations views &gt; DB2, DBCTL and WebSphere MQ operations views &gt; Connections &gt; EYUSTARTDB2CONN.DETAILED4</td>
</tr>
<tr>
<td>EYUSTARTDB2ENTRY</td>
<td>CICS operations views &gt; DB2, DBCTL and WebSphere MQ operations views &gt; Entries &gt; EYUSTARTDB2ENTRY.DETAILED2</td>
</tr>
<tr>
<td>EYUSTARTDB2TRN</td>
<td>CICS operations views &gt; DB2, DBCTL and WebSphere MQ operations views &gt; Entry associated transactions &gt; EYUSTARTDB2TRN.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTDOCTEMP</td>
<td>CICS operations views &gt; Document template operations views &gt; Document template &gt; EYUSTARTDOCTEMP.DETAILED2</td>
</tr>
<tr>
<td>EYUSTARTEJCOSE</td>
<td>CICS operations views &gt; Enterprise Java component operations views &gt; CorbaServers &gt; EYUSTARTEJCOSE.DETAILED5</td>
</tr>
<tr>
<td>EYUSTARTEJDJAR</td>
<td>CICS operations views &gt; Enterprise Java component operations views &gt; CICS-deployed JAR files &gt; EYUSTARTEJDJAR.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTENQMODEL</td>
<td>CICS operations views &gt; Enqueue model operations views &gt; Enqueue model &gt; EYUSTARTENQMODEL.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTEXTRATDQ</td>
<td>CICS operations views &gt; Transient data queue (TDQ) operations views &gt; Extrapartition &gt; EYUSTARTEXTRATDQ.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTINDTDQ</td>
<td>CICS operations views &gt; Transient data queue (TDQ) operations views &gt; Indirect &gt; EYUSTARTINDTDQ.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTINTRATDQ</td>
<td>CICS operations views &gt; Transient data queue (TDQ) operations views &gt; Intrapartition &gt; EYUSTARTINTRATDQ.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTJRNLMDL</td>
<td>CICS operations views &gt; Journal operations views &gt; Models &gt; EYUSTARTJRNLMDL.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTJVMSERV</td>
<td>CICS operations views &gt; Enterprise Java component operations views &gt; JVM server &gt; EYUSTARTJVMSERV.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTLIBRARY</td>
<td>CICS operations views &gt; Program operations views &gt; LIBRARIES, including DFHRPL &gt; EYUSTARTLIBRARY.DETAILED1</td>
</tr>
<tr>
<td>EYUSTARTLOCFILE</td>
<td>CICS operations views &gt; File operations views &gt; Local files &gt; EYUSTARTLOCFILE.DETAILED3</td>
</tr>
<tr>
<td>EYUSTARTLOCTRAN</td>
<td>CICS operations views &gt; Transaction operations views &gt; Local or dynamic &gt; EYUSTARTLOCTRAN.DETAILED3</td>
</tr>
<tr>
<td>EYUSTARTMQCON</td>
<td>CICS operations views &gt; DB2, DBCTL and WebSphere MQ operations views &gt; WebSphere MQ connections &gt; EYUSTARTMQCON.DETAILED4</td>
</tr>
<tr>
<td>View set</td>
<td>Navigation</td>
</tr>
<tr>
<td>------------------</td>
<td>---------------------------------------------------------------------------</td>
</tr>
<tr>
<td>EYUSTARTMQINI</td>
<td>CICS operations views &gt; DB2, DBCTL and WebSphere MQ operations views &gt; WebSphere MQ initiation queue &gt; EYUSTARTMQINI.DETAILED</td>
</tr>
<tr>
<td>EYUSTARTPIPELINE</td>
<td>CICS operations views &gt; TCP/IP service operations views &gt; Pipelines &gt; EYUSTARTPIPELINE.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTPROCTYP</td>
<td>CICS operations views &gt; CICS Business Transaction Services (BTS) operations views &gt; Process type &gt; EYUSTARTPROCTYP.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTPROFILE</td>
<td>CICS operations views &gt; Connection operations views &gt; Profiles &gt; EYUSTARTPROFILE.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTPROGRAM</td>
<td>CICS operations views &gt; Program operations views &gt; Programs &gt; EYUSTARTPROGRAM.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTREMFILE</td>
<td>CICS operations views &gt; File operations views &gt; Remote files &gt; EYUSTARTREMFILE.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTREMTDQ</td>
<td>CICS operations views &gt; Transient data queue (TDQ) operations views &gt; Remote &gt; EYUSTARTREMTDQ.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTREMTRAN</td>
<td>CICS operations views &gt; Transaction operations views &gt; EYUSTARTREMTRAN.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTTRQMODEL</td>
<td>CICS operations views &gt; Transaction operations views &gt; Request model &gt; EYUSTARTTRQMODEL.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTTCPIPS</td>
<td>CICS operations views &gt; TCP/IP service operations views &gt; TCP/IP service &gt; EYUSTARTTCPIPS.DETAIL2</td>
</tr>
<tr>
<td>EYUSTARTTRANCLAS</td>
<td>CICS operations views &gt; CICS region operations views &gt; Transaction classes &gt; EYUSTARTTRANCLAS.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTTSMODEL</td>
<td>CICS operations views &gt; Temporary storage queue (TSQ) operations views &gt; Models &gt; EYUSTARTTSMODEL.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTURIMAP</td>
<td>CICS operations views &gt; TCP/IP service operations views &gt; URI map &gt; EYUSTARTURIMAP.DETAIL3</td>
</tr>
<tr>
<td>EYUSTARTWEBSERV</td>
<td>CICS operations views &gt; TCP/IP service operations views &gt; Web services &gt; EYUSTARTWEBSERV.DETAIL1</td>
</tr>
<tr>
<td>EYUSTARTXMLTRANS</td>
<td>CICS operations views &gt; Application operations views &gt; XML transformation &gt; EYUSTARTXMLTRANS.DETAILED1</td>
</tr>
</tbody>
</table>

**Changed operations base tables for the resource signature**

The resource signature attributes are added to the following operations base tables:
- ATOMSERV
- BUNDLE
- CONNECT
- DB2CONN
- DB2ENTRY
- DB2TRN
- DOCTEMP
- EJCPOSE
- EJDJAR

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CICS TS for z/OS 4.2: Upgrading from CICS TS Version 3.1
ENQMODEL
EXTRATDQ
INDTDQ
INTRATDQ
IPCONN
JRNLMODL
JVMSERV
LIBRARY
LOCFILE
LOCTRAN
MQCON
MQINI
PIPELINE
PROCTYP
PROFILE
PROGRAM
REMFILE
REMTDQ
REMTRAN
RQMODEL
TCPIPS
TRANCLAS
TSMODEL
URIMAP
WEBSERV
XMLTRANS

Table 25. New fields in views for the resource signature

<table>
<thead>
<tr>
<th>Field</th>
<th>Attribute name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAS resource definition version</td>
<td>BASDEFINEVER</td>
<td>The BAS version number of this definition.</td>
</tr>
<tr>
<td>Last modification agent</td>
<td>CHANGEAGENT</td>
<td>The change agent identifier that made the last modification.</td>
</tr>
<tr>
<td>Last modification agent release</td>
<td>CHANGEAGREL</td>
<td>The CICS release level of the agent that made the last modification to the resource definition.</td>
</tr>
<tr>
<td>Last modification user ID</td>
<td>CHANGEUSRID</td>
<td>The user ID that made the last modification to the resource definition.</td>
</tr>
<tr>
<td>Source of the resource definition</td>
<td>DEFINESOURCE</td>
<td>The source of the definition, depending on which agent made the last change.</td>
</tr>
</tbody>
</table>
Table 25. New fields in views for the resource signature (continued)

<table>
<thead>
<tr>
<th>Field</th>
<th>Attribute name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creation time</td>
<td>DEFINETIME</td>
<td>The local date and time when the resource definition record was created on DFHCSD or EYUDREP.</td>
</tr>
<tr>
<td>Installation agent</td>
<td>INSTALLAGENT</td>
<td>The change agent identifier that made the installation.</td>
</tr>
<tr>
<td>Installation time</td>
<td>INSTALLTIME</td>
<td>The local date and time when the definition was installed.</td>
</tr>
<tr>
<td>Installation user ID</td>
<td>INSTALLUSRID</td>
<td>The user ID that installed the resource definition.</td>
</tr>
</tbody>
</table>

For more information, see the CICSPlex System Manager Application Programming Guide.

**Changed Business Application Services definition objects**

These Business Application Services definition objects have new attributes or new values for attributes.

Table 26. Changed BAS definition objects

<table>
<thead>
<tr>
<th>BAS object</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>RASGNDEF</td>
<td>New REDEFTYPE values:</td>
</tr>
<tr>
<td></td>
<td>IPCONDEF</td>
</tr>
<tr>
<td></td>
<td>LIBDEF</td>
</tr>
<tr>
<td>RESDESC</td>
<td>New attributes added:</td>
</tr>
<tr>
<td></td>
<td>IPCDEFRG</td>
</tr>
<tr>
<td></td>
<td>IPCDEFTS</td>
</tr>
<tr>
<td></td>
<td>IPCDEFRS</td>
</tr>
<tr>
<td></td>
<td>LIBDEFRG</td>
</tr>
<tr>
<td></td>
<td>LIBDEFTS</td>
</tr>
<tr>
<td>TCPDEF</td>
<td>• New attribute added: REALM</td>
</tr>
<tr>
<td></td>
<td>• New value allowed for PROTOCOL attribute: IPIC</td>
</tr>
</tbody>
</table>

**New CICSPlex SM views and resource tables**

These new CICSPlex SM views and resource tables support CICS resource types and functions.

Table 27. New CICSPlex SM views and resource tables

<table>
<thead>
<tr>
<th>Resource type or function</th>
<th>CICSPlex SM views</th>
<th>CICSPlex SM resource tables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Association data for tasks</td>
<td>CICS operations views &gt; Task operations views &gt; Task association data</td>
<td>TASKASSC</td>
</tr>
<tr>
<td>Resource type or function</td>
<td>CICSPlex SM views</td>
<td>CICSPlex SM resource tables</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>-----------------------------</td>
</tr>
<tr>
<td>Atom feeds</td>
<td>CICS operations views &gt; TCP/IP service operations views &gt; Atomservice definitions</td>
<td>ATOMSERV</td>
</tr>
<tr>
<td>ATOMSERVICE resource definitions</td>
<td>Administration views &gt; Basic CICS resource administration views and Resource definitions &gt; Atomservice definitions</td>
<td>ATOMDEF</td>
</tr>
<tr>
<td>ATOMSERVICE resources in a resource group</td>
<td>Administration views &gt; Basic CICS resource administration views &gt; Resource definitions in a resource group</td>
<td>ATMINGRP</td>
</tr>
<tr>
<td>Bundles</td>
<td>CICS operations views &gt; Applications &gt; Bundles</td>
<td>BUNDLE, CRESBUND</td>
</tr>
<tr>
<td>BUNDLE resource definitions</td>
<td>Administration views &gt; Basic CICS resource administration views and Resource definitions &gt; BUNDLE definitions</td>
<td>BUNDDEF</td>
</tr>
<tr>
<td>BUNDLE resources in a resource group</td>
<td>Administration views &gt; Basic CICS resource administration views &gt; Resource definitions in a resource group</td>
<td>ATMINGRP</td>
</tr>
<tr>
<td>CMASs and CICSp lexes (this view previously supported only by the EUI)</td>
<td>Administration views &gt; CMAS configuration administration views &gt; CMAS in CICSp lex definitions</td>
<td>CPLXCMAS (existing resource table)</td>
</tr>
<tr>
<td>Data predicates for a capture specification</td>
<td>CICS operations views &gt; Application operations views &gt; Event capture specification data predicates</td>
<td>CRESEVSD, EVCSDATA</td>
</tr>
<tr>
<td>Event processing adapter</td>
<td>CICS operations views &gt; Application operations views &gt; Event processing adapter</td>
<td>CRESEPAD, EPADAPT</td>
</tr>
<tr>
<td>Event capture specifications</td>
<td>Application operations views &gt; Event capture specification</td>
<td>EVCSPEC, CRESEVCS</td>
</tr>
<tr>
<td>Event bindings</td>
<td>Application operations views &gt; Event bindings</td>
<td>EVNTBIND, CRESEVBD</td>
</tr>
<tr>
<td>Event processing</td>
<td>Application operations views &gt; Global event processing attributes</td>
<td>EVNTGBL</td>
</tr>
<tr>
<td>Resource type or function</td>
<td>CICSPlex SM views</td>
<td>CICSPlex SM resource tables</td>
</tr>
<tr>
<td>-------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Historical data for tasks</td>
<td>CICS operations views &gt; Task operations views &gt; Completed tasks EYUSTARTHTASK, EYUSTARTMASHIST, and EYUSTARTTASKRMI</td>
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**New Business Application Services definition objects**

These new Business Application Services definition objects describe new CICS resource types and functions.

*Table 28. New BAS definition objects*

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**New data type SCLOCK12**

The new data type SCLOCK12 was introduced in CICS Transaction Server for z/OS, Version 3 Release 2.

**SCLOCK12**

CICS monitoring facility (CMF) 12-byte interval store clock. Maintained internally as a binary value.

The first 8 bytes contain the time accumulated by the clock, and they are displayed externally as a formatted value, with the default format HHHH:\:\:\tt\\\h\m\s\j\u (where \(t\) is tenths of seconds, \(h\) is hundredths of seconds, \(m\) is milliseconds, \(i\) is ten-thousandths of seconds, \(j\) is hundred-thousandths of seconds, and \(u\) is microseconds).

The last 4 bytes contain a count of the measurement periods during which the time was accumulated. The first byte contains a flag field, which is not part of the counter. The actual count is held in the last 3 bytes. The count can be displayed externally by selecting the count formatting option for the attribute.

EXEC CPSM API programs have access to the entire internal SCLOCK12 data value, but REXX applications have access only to the first 8 bytes containing the time.

When specified in an RTA EVALDEF, the last 4 bytes containing the count are not available. The other data must be entered in one of the following formats, with leading zeros, if necessary:
1. HH:MM:SS
2. HH:MM:SS.thmi
3. HHHH:MM:SS.thmi
4. HHHH:MM:SS.thmiju
5. HHHH:MM:SS.thmiju

Only the first three of these formats are compatible with earlier releases of CICSPlex SM. If you need to use an EVALDEF involving SCLOCK12 data with an earlier release of CICSPlex SM, do not use format 4 or 5. This limitation applies to EVALDEEs installed directly on a back-level CICSPlex SM system, and also to EVALDEEs installed as part of a batched repository update job (BATCHREP) or using the EYU9XDBT utility.

The numeric value representing the internal data type for SCLOCK12 is 152.

Like the existing data type SCLOCK (the 8-byte interval store clock), you can use the new data type SCLOCK12 as a filter on the DATA/GET command, and when specifying summary expressions.

In views, SCLOCK12 is treated in the same way as SCLOCK. The time can be displayed in a number of different formats, and the count of measurement periods can also be displayed.

**Resource table attributes converted to SCLOCK12 data type**

Some resource table attributes that had the data type SCLOCK have been converted to the new data type SCLOCK12. Attributes have been converted in these resource tables:

- TASK
- HTASK
- TASKRMI

Where a count of measurement periods was available for the SCLOCK data type before conversion, it is also available for the SCLOCK12 data type after conversion.

You must recompile application programs if they extract data from these resource tables using EXEC CPSM GET commands, Web User Interface server DATA/GET commands, or REXX TPARSE and TBUILD commands.

**New time formatting options for clock data in CICSPlex SM views**

Attributes with the data type SCLOCK12, which use the 12-byte CMF interval store clock, can be displayed in any of the time formats. For attributes with the data type SCLOCK (the 8-byte store clock), you can use only certain time formats.

In the time formats that include fractions of a second, $t$ is tenths of seconds, $h$ is hundredths of seconds, $m$ is milliseconds, $i$ is ten-thousandths of seconds, $j$ is hundred-thousandths of seconds, and $u$ is microseconds.

The time formats are as follows:

- HHHH:MM:SS.thmiju, which shows a 4-digit count for hours, and displays the time to 6 decimal places (down to one microsecond). This format is the default for the data type SCLOCK12. It is not available for SCLOCK. This format is the same as the format used in the CICS statistics reports.
- **DDD.HH:MM:SS.thmiju**, which shows a count for days, and displays the time to 6 decimal places (down to one microsecond). This format is available for the data type SCLOCK12. It is not available for SCLOCK.

- **HH:MM:SS.thmi**, which shows a 2-digit count for hours, and displays the time to 4 decimal places (down to one ten-thousandth of a second). This format is the default for the data type SCLOCK, and it is also available for SCLOCK12.

- **HH:MM:SS**, which shows a 2-digit count for hours and no decimal places. This format is available for both the data types SCLOCK and SCLOCK12.

The longer time formats **HHHH:MM:SS.thmiju** and **DDD.HH:MM:SS.thmiju** are new.

Choose one of the longer time formats for larger time values, such as those for long-running tasks, or for time values where you need maximum precision.

For attributes with the data types SCLOCK12 and SCLOCK, you can also display a count. The count is taken from the last 4 bytes of the clock data. It gives the number of measurement periods during which the time recorded by the timer component of the clock was accumulated.

You can use the CICSPlex SM Web User Interface view editor to customize your views to use the new time formats. You can edit view components from the Tabular View Components panel (select the **Table contents** option on that panel) or the Detailed Form Components panel (select **Form contents**). On the Table contents or Form contents panel, click **Append** or **Insert** to see the list of available view items. If the new time formats are available for an attribute in the view, the list displays the attribute with the new time formats and with the old formats. Select the attribute with an appropriate time format to add it to your view. Then delete the attribute with the old time format from your view.
Chapter 37. Changes to CICSPlex SM transactions

These changes affect CICSPlex SM transactions.

**Changed Web User Interface control transaction (COVC)**

The Web User Interface control transaction (COVC) has changed to display IPv6 information.

Several COVC panels have changed to support IPv6 addressing.

**COVC front panel**

The Current Status, Time, Applid, and Date fields have moved by one line down the screen COVC status screen. Please review any automated processes that use these fields.

**COVC status panel**

A new field, TCP/IP Family, displays whether the address of the connected region is an IPv4 or IPv6 address.

**COVC user sessions panel**

An existing field, ClientIp, now displays IPv6 addresses. The IPv6 address extends over two lines, which reduces the number of users visible per page (to a minimum of three users, if they all have IPv6 addresses). IPv4 addresses are displayed on a single line.

**New CICSPlex SM transactions**

The following new transactions have been added to support enhancements in CICSPlex SM. These transactions are listed in the CSD group EYU$CDEF and must be defined to your external security manager.

The new CICSPlex SM transactions are as follows:

- WMWD
- XZLT
Chapter 38. National language support for CICSPlex SM messages

You can now use the CICS message domain to issue CICSPlex SM messages, which have a destination of EYULOG, in national languages other than English. The CICS XMEOUT global user exit has changed to support this, and some CICSPlex SM problem determination system initialization parameters have been removed.

The CICS XMEOUT global user exit has been enhanced to allow suppression and rerouting of CICSPlex SM messages that use the message domain. These messages can be suppressed or rerouted from the joblog or console but not from the EYULOG. [“Changes to global user exits” on page 122] lists the new fields added to XMEOUT to support this function.

Because CICSPlex SM is now using the CICS message domain to enable national language support, some of the CICSPlex SM messages might change to multiple-line formats. This might have an effect on tools that you are using to monitor messages.

CICSPlex SM messages are not available through the CMAC transaction.

**Problem determination system parameters removed**

The CICSPlex SM problem determination system parameters (EYUPARMS) for a CMAS in the format xxxCONMSG or xxxTDQMSG, which specified message flags, have been removed. They are no longer supported as valid CICSPlex SM system parameters. You must remove them, because if they are used for a CMAS, the CMAS fails to initialize. Message EYUXL0206E is issued in this situation.

The redundant system parameters are:

- BASCONMSG
- BASTDQMSG
- CHECONMSG
- CHETDQMSG
- COMCONMSG
- COMTDQMSG
- DATCONMSG
- DATTDQMSG
- KNLCONMSG
- KNLTDQMSG
- MASCONMSG
- MASTDQMSG
- MONCONMSG
- MONTDQMSG
- MSGCONMSG
- MSGTDQMSG
- QUECONMSG
- QUETDQMSG
• RTACONMSG
• RTATDQMSG
• SIMCONMSG
• SIMTDQMSG
• SLMCONMSG
• SLMTDQMSG
• SRVCONMSG
• SRVTDQMSG
• TOPCONMSG
• TOPTDQMSG
• TRCCONMSG
• TRCTDQMSG
• WLMCONMSG
• WLMTDQMSG

Messages added

The following messages have been added to support CICSPlex SM messages in national languages:
• EYUBM0329I
• EYUBM0330I
• EYUBM0331I
• EYUBM0332I
• EYUBM0333I
• EYUBM0334I
• EYUBM0335I
• EYUBM0336I
• EYUBM0337I
• EYUBM0338I
• EYUBM0339I
• EYUBM0340I
• EYUBM0341I
• EYUBM0342I
• EYUBM0343I
• EYUBM0344I
• EYUBM0345I
• EYUBM0346I
• EYUBM0347I
• EYUBM0348I
• EYUBN0013W
• EYUBN0014W
• EYUBN0015W
• EYUBN0016W
• EYUBN0017W
• EYUXL0030I
• EYUXL0031I
• EYUXL0032I

**Messages removed**

The following messages have been removed:

• EYUBM0322I
• EYUBM0323I
• EYUBM0324I
• EYUBM0325I
• EYUBM0326I
• EYUBM0327I
• EYUBN0012W
• EYUXL0020I
Chapter 39. Programs that connect to a previous release of CICSPlex SM

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

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

You are not required to recompile your CICSPlex SM API programs when you upgrade to the new release. However, if you do not recompile affected programs, the CMAS has to convert the records from the current release format to the level specified on the VERSION keyword on the CONNECT verb. This transformation process is highly intensive for CPU and storage when the result set is very large, for example, 300,000 to 500,000 records. The increases are observed in most cases when a criteria string is used to filter the result set; for example, specifying a criteria for the PROGRAM object using the NAME key for a specific or generic program. In this case, CICSPlex SM has to retrieve all program objects and return them to the CMAS where the API is connected, transform the records to the version of the API, and then apply the filtering.

If you recompile your programs to specify the VERSION keyword to match the current release of CICSPlex SM, this conversion does not take place, and storage and CPU consumption do not increase significantly.
Part 4. Upgrading CICSPlex SM

To upgrade CICSPlex SM to the CICS Transaction Server for z/OS, Version 4 Release 2 level, carry out the tasks described here. Also check the important information here about the compatibility of CICSPlex SM with previous releases of CICS Transaction Server.

Make sure that you complete all your upgrades to CICS TS for z/OS, Version 4.2 CICSPlex SM, including your CMAS, all MASs that are connected to it, and all MASs that act as Web User Interface servers for it, before you restart CICSPlex SM.

Several skeleton postinstallation members are distributed with CICSPlex SM. You must generate these postinstallation members for use during the upgrade. For information about generating the postinstallation members, see CICS Transaction Server for z/OS Installation Guide.

So that you can revert to the previous release of CICSPlex SM if you encounter problems during the upgrade to CICS TS for z/OS, Version 4.2 CICSPlex SM, take backup copies of the previous release components such as JCL, CLISTS, CICS tables, CMAS data repositories, and WUI repositories before you start the upgrade process.
Chapter 40. Conditions for running CICSPlex SM Version 4.2 and earlier releases concurrently

You can run CICSPlex SM Version 4.2 and earlier releases concurrently, but you must take account of a number of conditions for compatibility.

The CICSPlex SM releases referred to in this information are the CICSPlex SM element of CICS Transaction Server for z/OS releases. They are not available as separate products. For example, CICSPlex SM Version 4.2 is the CICSPlex SM element of CICS Transaction Server for z/OS, Version 4 Release 2.

You can run CICSPlex SM Version 4.2, Version 4.1, Version 3.2, and Version 3.1 at the same time, with interconnected CMASs at different levels. The ability to do this allows gradual upgrading of the environment to Version 4.2. However, in CICS TS for z/OS, Version 4.2, a CICSPlex SM CMAS will run only in a CICS system at Version 4.2.

CICS systems (MASs) running the following supported CICS releases can be connected to CICSPlex SM Version 4.2:

- CICS TS for z/OS, Version 4.1
- CICS TS for z/OS, Version 3.2
- CICS TS for z/OS, Version 3.1

To be connected to CICSPlex SM Version 4.2, CICS systems must use the CICSPlex SM Version 4.2 MAS agent, so they must have the CICSPlex SM Version 4.2 libraries in their CICS JCL. For a CICS system running CICS TS for z/OS, Version 3.1, you must also apply the compatibility APAR PK17360 to the CICS system.

If you have difficulty running CICSPlex SM with CICS TS for z/OS, Version 3.2 because of a recursive 0c4 protection exception in module DFHSMSR, apply PTF UK43094 for apar PK77484 and restart the system.

If you have any CICS systems at the release levels listed here that are connected to an earlier release of CICSPlex SM, you are recommended to migrate them to the current release of CICSPlex SM to take full advantage of the enhanced management services.

If you want to manage CICS systems at an earlier release level than those listed here, connect them to a CMAS running at an earlier release level that supported those systems. This CMAS can be connected to your CICSPlex SM Version 4.2 CMAS, so that the older CICS systems are indirectly connected to the Version 4.2 CMAS.

The following conditions apply to environments in which CICSPlex SM Version 4.2 and earlier releases of CICSPlex SM are running concurrently:

- For a CMAS and a MAS (including those MASs that act as Web User Interface servers) to communicate, they must be running at the same release of CICSPlex SM.
- A CMAS running at Version 4.2 can be connected to a CMAS running at Version 4.1, Version 3.2, or Version 3.1.

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• In a CICSpex that consists of CMASs at the Version 4.2 level and at one or more earlier levels, the maintenance point CMAS must be at the Version 4.2 level. So, when a CICSpex contains CMASs at more than one level, the first CMAS upgraded to Version 4.2 must be the maintenance point.

• If you are using the API 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 4.2 CMAS:
  – All WUI servers must connect to the Version 4.2 CMAS.
  – All API programs must run in such a way that they are connected to the Version 4.2 CMAS. This requirement applies only if the API program accesses new fields or later-level CICS systems. If the API program connects to a lower level CMAS, any resource tables that contain new or updated fields for the new release are not returned to the API program connected to the lower release level CMAS.

• You cannot view all resources of a CICS TS for z/OS, Version 4.2 region using a CMAS running at an earlier release.

• A WUI server at an earlier release that is connected to a CMAS at an earlier release can retrieve data from a MAS connected to a Version 4.2 CMAS if the CMAS participates in the management of the CICSpex. However, the WUI server cannot retrieve data about resource types that were not available in the earlier release.

• If you want to create any of the following CICSpex SM objects, you must create them using a WUI server that is running at the same CICSpex SM release level as the maintenance point CMAS:
  – CPLEXDEF (CICSpex definition)
  – CMTCMDEF (CMAS to CMAS link definition)
  – CSYSGRP (system group definition)
  – PERIODDEF (time period definition)
  – MONSPEC (monitor specification)
  – MONGROUP (monitor group)
  – MONDEF (monitor definition)
  – RTAGROUP (RTA group)
  – RTADEF (RTA definition)
  – WLMSPEC (WLM specification)
  – WLMGROUP (WLM group)
  – WLMDEF (WLM definition)
  – TRANGRP (transaction group)

If you use the API or the BATCHREP batched repository-update facility to create these objects, CICSpex SM and the maintenance point CMAS release level must, again, be at the same release level.

• If you are using workload management, in order to take advantage of the unit of work (UOW) affinities introduced in Version 4.2, you must ensure that the CMAS that owns the workload is at the Version 4.2 level.

Workload function is controlled by the CMAS that owns a workload. The workload owner is assigned to the CMAS that manages the first started TOR that causes the workload to be initialized. If the workload is not shown as ACTIVE, the first started TOR associated with the workload will cause its associated CMAS to be the workload owner. If the workload owning CMAS is not at the Version 4.2 level, any UOW affinity definitions cannot be honored,
which means that affinities will not be correctly created and obeyed, and will be
denied to any other CMASs that subsequently join the workload, even if those
CMASs are at the Version 4.2 level.
To ensure that UOW affinities can be exploited by a workload, ensure that the
existing workload is cloned to a new name, and that any required UOW affinity
definitions are applied to the new name. You must then ensure that the first
TOR that is started for the new name is at the Version 4.2 level. This will cause
UOW affinities to be honoured by any other Version 4.2 region joining the
workload name. If any non-Version 4.2 regions join the workload, they will not
be able to use the UOW affinity function, and will continue to make routing
decisions on the basis of the standard workload routing algorithms.
If you believe that your defined UOW affinities are not being implemented, use
the System ID of workload owner hyperlink in any of the WUI workload
runtime views to quickly determine the CICSPlex SM version of the workload
owning CMAS. If the CPSM version of CMAS attribute is not at least at the 0420
level, the workload will not be capable of exploiting any defined UOW affinities.
Chapter 41. Upgrading a CMAS

You must upgrade your CICSPlex SM CMAS to Version 4.2 at the same time as you upgrade the CICS system on which it runs. A CICSPlex SM CMAS will run only in a CICS system at the same release level. During startup, the CMAS checks the CICS release level and stops with message EYUXL0142 if the release does not match.

Before you begin

In a CICSpex that consists of CMASs at the Version 4.2 level and at one or more earlier levels, the maintenance point CMAS must be at the Version 4.2 level. So, when a CICSpex contains CMASs at more than one level, the first CMAS upgraded to Version 4.2 must be the maintenance point.

Before you upgrade a CMAS, check that the maintenance point CMAS for the CICSpex has been upgraded in every CICSpex where the CMAS is a member. Remove the CMAS from any CICSpex where the maintenance point CMAS is still at an earlier level. If the CMAS is started in a CICSpex that has a maintenance point CMAS at an earlier level, message EYUCP0012E is issued. In an environment with multiple interconnecting CICSpexes, this message and message EYUTS0012E can be issued repeatedly.

Procedure

1. If the CMAS is running, stop it.
2. In the z/OS image that contains the CMAS, verify that the IEASYSxx member of the SYS1.PARMLIB library that you use for z/OS initialization includes the MAXCAD and NSYSLX parameters, with appropriate values. the CICS Transaction Server for z/OS Installation Guide explains what values are suitable. If you are running both a previous release and Version 4.2 of CICSPlex SM, an Environment Services System Services (ESSS) space is started for each release, so you might need to modify the NSYSLX value.
3. Authorize the Version 4.2 libraries by adding them to the list of APF-authorized libraries in the appropriate PROGxx or IEAAPFxx member in SYS1.PARMLIB. For information about how to do this, see the CICS Transaction Server for z/OS Installation Guide.
4. Update the MVS linklist with the Version 4.2 modules that are required for CICS and CICSPlex SM. For information about how to do this, see the CICS Transaction Server for z/OS Installation Guide.
5. Upgrade the CSD file with the Version 4.2 group of resource definitions and CICS startup group list. For information about how to do this, see “Upgrading the CSD for CICS-supplied and other IBM-supplied resource definitions” on page 178. You do not need to carry out an additional upgrade using a release-dependent set of definitions for CICSPlex SM.
6. If you made any modifications to the default resource definitions for your earlier release that were supplied by CICSPlex SM in the EYU$CDEF sample (which contains definitions for a CMAS), manually upgrade your modified resource definitions using the equivalents in the EYU$CDEF sample for Version 4.2. The safest way to do this is to copy the upgraded default resource definitions and reapply your modifications. It is important to upgrade your modified definitions to ensure that they are defined correctly with nondefault...
values for attributes that are new. If you fail to upgrade modified definitions, CICS assigns default values to any new attributes, and these might be inappropriate for CICS-supplied resource definitions.

7. Edit the JCL used to start the CMAS, changing the previous release of CICSPlex SM library names to the Version 4.2 names. If you have BBACTDEF, BBVDEF, or BBIPARM DD statements in the JCL, delete them. For information about the CMAS startup JCL, see the CICS Transaction Server for z/OS Installation Guide.

8. Use the EYU9XDUT utility to upgrade the data repository (EYUDREP data set) for the CMAS to Version 4.2. For information about how to upgrade the data repository, see the CICS Transaction Server for z/OS Installation Guide. The conversion utility copies the contents of the existing data repository to a newly allocated data repository. The existing data repository is not modified.

**Note:** After upgrading the data repository for the CMAS, the next time the CMAS is started it must point to the upgraded EYUDREP data set. If it does not, data repository updates might be lost. This loss can lead to incorrect results, which can include other CMASs isolating themselves when they connect to this CMAS. If after upgrading you choose to roll back to the version you upgraded from, use the EYU9XDUT utility to downgrade the upgraded data repository for the CMAS. Failure to do this could result in CMASs becoming isolated.

9. Ensure that you have deleted, redefined, and initialized the CICS local catalog and global catalog using the DFHCCUTL and the DFHRMUTL utility programs.

10. Verify the CICSPlex SM system parameters referenced by the EYUPARM DD statement. If the CASNAME system parameter is present, delete it. For information about these parameters, see the CICS Transaction Server for z/OS Installation Guide.

11. Verify that the CICS system initialization parameter GRPLIST references the CICS-supplied default startup group list, DFHLIST, and any CSD groups containing resource definitions that you have modified.

**Results**

When you have completed all these steps, you can cold start the CMAS.
Chapter 42. Upgrading a Web User Interface server

A Web User Interface server and the CMAS to which it connects must be at the highest level of CICSPlex SM and CICS in the CICSpexus. They must be at the same level as the maintenance point CMAS. Web User Interface servers that have not yet been upgraded to the same level as the maintenance point CMAS can be used, but they might return unreliable results until you upgrade them.

About this task

A Web User Interface server can connect only to a CMAS at the same release level. Before you upgrade a Web User Interface server, you must upgrade the CMAS to which it connects. If the CMAS to which the Web User Interface server connects is not the maintenance point CMAS, you must also upgrade the maintenance point CMAS before you start the Web User Interface server and the CMAS to which it connects. Upgrade the Web User Interface server to Version 4.2 before you start any other MASs, so that it is ready to manage the upgraded MASs.

A CICS system that acts as a Web User Interface server is a local MAS. However, when you upgrade a Web User Interface server, you must upgrade both the CICSPlex SM MAS agent and the CICS region to Version 4.2. In other MASs you may upgrade only the CICSPlex SM MAS agent, and you are not required to upgrade the CICS region.

Procedure

1. Increase the size of the DFHTEMP data set, which is used in the COVC import process. The standard CICS sample has only a primary allocation, but include a secondary allocation for RECORDS, as shown in the following statements:

   ```
   //DEFTS JOB accounting info,name
   //AUXTEMP EXEC PGM=IDCAMS
   //SYSPRINT DD SYSOUT=A
   //SYSIN DD *
   DEFINE CLUSTER(NAME(CICSTS42.CICS.CNTL.CICSqualifier.DFHTEMP)-
      RECORDSIZE(4089,4089) -
      RECORDS(200 200) -
      NONINDEXED -
      CONTROLINTERVALSIZE(4096) -
      SHAREOPTIONS(2 3) -
      VOLUMES(volid)) -
   DATA(NAME(CICSTS42.CICS.CNTL.CICSqualifier.DFHTEMP.DATA) -
      UNIQUE)
   */
   ```

2. With your Web User Interface server still running at your current release, use the export function of the COVC transaction to export your existing view set and menu definitions from the Web User Interface server repository (EYUWREP) to an extrapartition transient data queue. It is not necessary for the Web User Interface server to be connected to a CMAS. For information about exporting definitions, see the CICSPlex System Manager Web User Interface Guide.

3. Authorize the Version 4.2 CICS and CICSPlex SM libraries. See the CICS Transaction Server for z/OS Installation Guide.
4. If you use the link pack area (LPA), decide when you will replace the previous release modules in the LPA with the Version 4.2 modules. Every CICSPlex SM module installed in the LPA can be used only by the release of CICSPlex SM to which it relates.

   a. If you put the Version 4.2 modules in the LPA immediately, change your previous release MASs to use the previous release modules from the STEPLIB and DFHRPL concatenations, instead of the LPA.

   b. If you put the Version 4.2 modules in the LPA at the end of the upgrade process, make sure your upgraded MASs are using the Version 4.2 modules from the STEPLIB and DFHRPL concatenations instead of the LPA, then change them to use the LPA when you replace the modules.

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

5. Upgrade the CSD file with the Version 4.2 group of resource definitions and CICS startup group list. For information about upgrading the CSD, see “Upgrading the CSD for CICS-supplied and other IBM-supplied resource definitions” on page 178. You do not need to carry out an additional upgrade using a release-dependent set of definitions for CICSPlex SM.

6. If you made any modifications to the dynamically created resource definitions for your earlier release that were supplied by CICSPlex SM in the EYU$WDEF sample, manually upgrade your modified resource definitions using the equivalents in the EYU$WDEF sample for Version 4.2. The safest way to do this is to copy the Version 4.2 resource definitions and reapply your modifications. It is important to upgrade your modified definitions to ensure that they are defined correctly with nondefault values for attributes that are new. If you fail to upgrade modified definitions, CICS assigns default values to any new attributes, and these might be inappropriate for CICS-supplied resource definitions.

7. Edit the JCL used to start the Web User Interface server, changing library names for the previous release of CICSPlex System Manager to the Version 4.2 names. For information about the MAS startup JCL, see the CICS Transaction Server for z/OS Installation Guide.

8. In the sequential data set or partitioned data set member identified by the CICS SYSIN statement, verify that the CICS system initialization parameter EDSALIM is included, and set it to a value of at least 50 MB. 50 MB is the minimum EDSALIM value required to start the MAS agent for Version 4.2.

9. In the sequential data set or partitioned data set member identified by the CICS SYSIN statement, verify that the CICS system initialization parameter CPSMCONN=WUI is included. This system initialization parameter initializes the CICS region as a Web User Interface server and dynamically creates the required resource definitions for CICSPlex SM.

10. Ensure that you have deleted, redefined, and initialized the CICS local catalog and global catalog using the DFHCCUTL and the DFHRMUTL utility programs.

11. Verify that the CICS system initialization parameter GRPLIST references the CICS-supplied default startup group list, DFHLIST, any CSD groups containing resource definitions that you have modified, and the lists of definitions for your own applications.

12. If you use MAS history recording, define new history data sets using the EYUJHIST sample job. If you prefer to upgrade your existing history data sets, you can also do this using the EYUJHIST sample job by following the upgrading instructions, supplied as comments, in the sample. The EYUJHIST
sample is supplied uncustomized in the TDFHINST library, and customized by DFHISTAR in the XDFHINST library. Remember to edit the MAS startup JCL to include the history data sets.

13. Upgrade the contents of the Web User Interface server repository (EYUWREP). During this process you will start up the Web User Interface server at Version 4.2. See “Upgrading the contents of the Web User Interface server repository (EYUWREP).”

Phased upgrade scenario for Web User Interface servers

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

About this task

Assuming you are running the latest CICSPlex SM maintenance levels, you can upgrade one LPAR at a time.

Procedure

1. Define a new Version 4.2 CMAS on the same z/OS image as the Web User Interface server.

2. Connect the Version 4.2 CMAS to the CICSpex to which the Web User Interface server CMAS is connected. This CMAS will not become available for use until the maintenance point CMAS has been upgraded. If you see message EYUCP0022E at this time, take no action.

3. Upgrade the maintenance point CMAS to Version 4.2 and take down the Web User Interface server at the same time.

4. Upgrade the Web User Interface server to Version 4.2 and, when you restart it, connect it to the Version 4.2 CMAS. The Version 4.2 CMAS should now connect successfully to the Version 4.2 maintenance point CMAS.

5. Upgrade the remaining MASs when required, and connect them to the Version 4.2 CMAS as you restart them.

6. When you have moved all the MASs to the Version 4.2 CMAS, you can remove the original CMAS.

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

With each release of CICS, internal Web User Interface repository record versions might be incremented to enable the new features in view definitions. For this reason, if your existing Web User Interface repository contains customized view sets or menus, you must upgrade your view set and menu definitions.

Before you begin

At the start of your upgrade of the Web User Interface server, when your Web User Interface server is still running at your current release, use the export function of the COVC transaction to export your existing view set and menu definitions from the Web User Interface server repository to an extrapartition transient data queue. This step is included in the upgrade instructions Chapter 42, “Upgrading a Web User Interface server,” on page 301.
About this task

When you upgrade the Web User Interface server repository to CICS TS for z/OS, Version 4.2, you can import a view set and menu definitions from a previous release into your new Web User Interface server repository.

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

Procedure

1. Create a new Web User Interface server repository using the JCL described in the CICS Transaction Server for z/OS Installation Guide.
2. Start the CICS TS for z/OS, Version 4.2 Web User Interface server using the new Web User Interface server repository.
3. Use COVC to import the view set and menu definitions from your previous release from the extrapartition transient data queue to which you exported them. For information about the import function of the COVC transaction, see the CICSPlex System Manager Web User Interface Guide. This import is necessary for each type of resource (VIEW, MENU, USER, USERGRP, and so on) that you had previously customized.
4. Use COVC to import the new starter set definitions. Specify the OVERWRITE option on the Import option field of the COVC panel to ensure that none of the new starter set views are accidentally overwritten by views from a previous release. For information about using COVC, see the CICSPlex System Manager Web User Interface Guide.

What to do next

You can also export view set and menu definitions from a CICS TS for z/OS, Version 4.2 Web User Interface server and import them into a server repository of a previous release. However, any new attributes or resources that are new in this release are not accessible in previous releases. You can 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.
Chapter 43. Upgrading a CICSPlex SM managed CICS system (MAS)

When you upgrade a CICSPlex SM MAS to CICSPlex SM Version 4.2, you might choose to upgrade only the CICSPlex SM MAS agent. You are not required to upgrade the CICS region to Version 4.2 at the same time.

Before you begin

Before you upgrade a CICSPlex SM MAS to CICSPlex SM Version 4.2, you must upgrade the CICSPlex SM CMAS to which it connects, following the instructions in Chapter 41, “Upgrading a CMAS,” on page 299. You must also upgrade the Web User Interface server for the CICSPlex, following the instructions in Chapter 42, “Upgrading a Web User Interface server,” on page 301.

About this task

These steps explain how to upgrade the CICSPlex SM MAS agent in a CICS region to Version 4.2. For details of supported combinations of CICSPlex SM and CICS releases, see Chapter 40, “Conditions for running CICSPlex SM Version 4.2 and earlier releases concurrently,” on page 295.

Procedure

1. If you use the link pack area (LPA), decide when you will replace the previous release modules in the LPA with the Version 4.2 modules. Every CICSPlex SM module installed in the LPA can be used only by the release of CICSPlex SM to which it relates.
   a. If you put the Version 4.2 modules in the LPA immediately, change your previous release MASs to use the previous release modules from the STEPLIB and DFHRPL concatenations, instead of the LPA.
   b. If you put the Version 4.2 modules in the LPA at the end of the upgrade process, make sure your upgraded MASs are using the Version 4.2 modules from the STEPLIB and DFHRPL concatenations instead of the LPA, then change them to use the LPA when you replace the modules.

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

2. If you made any modifications to the default resource definitions for your earlier release that were supplied by CICSPlex SM in the EYU$MDEF sample (which contains definitions for a MAS), or the EYU$WDEF sample (which contains definitions for a WUI), manually upgrade your modified resource definitions using the equivalents in the EYU$MDEF or EYU$WDEF sample for Version 4.2. The safest way to do this is to copy the upgraded default resource definitions and reapply your modifications. It is important to upgrade your modified definitions to ensure that they are defined correctly with nondefault values for attributes that are new. If you fail to upgrade modified definitions, CICS assigns default values to any new attributes, and these might be inappropriate for CICS-supplied resource definitions.

3. In the JCL that is used to start the MAS, replace the previous release SEYUAUTH library name in the STEPLIB concatenation, and the previous release SEYULOAD library name in the DFHRPL concatenation, with the Version 4.2 SEYUAUTH and SEYULOAD library names. The Version 4.2 SEYUAUTH library must be authorized for APF, which you did when you
upgraded the CMAS, but the SEYULOAD library must not be authorized. For information about the MAS startup JCL, see the *CICS Transaction Server for z/OS Installation Guide*.

4. In the sequential data set or partitioned data set member identified by the CICS SYSIN statement, verify that the CICS system initialization parameter **EDSALIM** is included, and set it to a value of at least 50 MB. 50 MB is the minimum EDSALIM value required to start the MAS agent for Version 4.2.

5. In the sequential data set or partitioned data set member identified by the CICS SYSIN statement, verify that the CICS system initialization parameter **CPSMCONN=LMAS** is included. This system initialization parameter initializes the CICS region as a MAS and dynamically creates the required resource definitions for CICSPlex SM. If you made any modifications to the dynamically created resource definitions in your previous release, you must manually upgrade these using the equivalents in the EYU$MDEF sample for Version 4.2.

6. If you use MAS history recording, define new history data sets using the EYUJHIST sample job. If you prefer to upgrade your existing history data sets, you can also do this using the EYUJHIST sample job by following the upgrading instructions, supplied as comments, in the sample. The EYUJHIST sample is supplied uncustomized in the TDFHINST library, and customized by DFHISTAR in the XDFHINST library. Remember to edit the MAS startup JCL to include the history data sets.

7. Optional: If you also want to upgrade the CICS region to Version 4.2 at this time, follow the instructions in Chapter 19, "Upgrade procedures for all CICS regions," on page 177. You must upgrade the CSD for CICS as instructed, but you do not need to carry out any additional upgrade to your CSD to obtain the resource definitions for CICSPlex SM, because all CICSPlex SM resources are defined and installed dynamically.

**Results**

When you have completed this task, you can carry out a cold start of the MAS.
Chapter 44. Upgrading CICSPlex SM workload management

Changes to CICSPlex SM workload management, modules, application programs, or parameters are summarized here.

Changes to dynamic workload management

CICS TS 4.2 introduces a new type of CICS affinity associated with a UOW, and extends CICSPlex SM workload management (WLM) to manage these UOW affinities for DPL requests. The new affinity is restricted to programs that are dynamically linked. Programs with this type of affinity are routed to the same target region for the duration of a unit of work. These affinities are defined with an affinity relation of LOCKED and an affinity lifetime of UOW. To use the new UOW affinity with existing workloads you must restart the workloads at the CICS TS 4.2 level or later.

Changes to dynamic workload routing

For workload routing that uses the queue or goal algorithm to determine which target region processes the work in a workload, the weighting applied to certain connection types has changed. The weighting applied to IP connectivity (IPIC) connections is decreased so that this type of connection has higher priority relative to LU6.2 connections than in previous releases of CICS TS.

If you have routing and target regions connected with LU6.2 and other connection types, for example MRO, check that the change in routing behavior has not affected your workload flow. You can check the transaction execution statistics for any change in the percentage of dynamic transactions that are routed to LU6.2 linked target regions.

If workload flow is affected, consider the following approaches:
  • Convert the LU6.2 links to a connection type with a higher priority, for example MRO.
  • Use the link neutral queue or link neutral goal algorithm for workload routing.
  • Use the task load threshold value for target regions that are not connected using LU6.2, so that there is less preference for these targets after their task loads reach their threshold percentages.
  • Direct specific transactions to the LU6.2 linked target regions using the standard WLM workload separation function.

See Managing workloads For information about the task load health threshold, see CICS system definitions - CSYSDEF

If a workload is imported from a CMAS executing CICS TS 4.2 to a CMAS executing an earlier release, the algorithm definition will be removed from active TRANGRPs in the workload imported into the CMAS executing the earlier release. If another CMAS executing CICS TS 4.2 imports the workload from this CMAS, the algorithm defined in the active TRANGRPs will revert to INHERIT. The routing algorithm used for transactions associated with active TRANGRPs will be inherited from the local active workload.
If a workload specifying LNGOAL or LNQUEUE is imported from a CMAS executing CICS TS 4.2 to a CMAS executing an earlier release of CICS TS, the routing algorithm used by the workload imported into the CMAS executing the earlier release will revert to GOAL or QUEUE. If another CMAS executing CICS TS 4.2 imports the workload from this CMAS, the original routing algorithm will not be restored. The routing algorithm for the workload will remain GOAL or QUEUE, and the routing algorithm specified in any active TRANGRPs will revert to INHERIT. The algorithm used for transactions associated with active TRANGRPs will be inherited from the local active workload.

The ability to define the link neutral routing algorithms for a transaction group must be used with caution until all CMASs which manage a workload are upgraded to execute CICS TS 4.2. TORs connected to different CMASs executing CICS TS 4.2 might route work differently depending on whether the workload was, at any time, imported from a CMAS executing an earlier release of CICS TS.

Changes to real-time analysis

CICS TS 4.2 now provides enhanced security when running custom status probe definitions (STATDEFs). You can use the CICSPlex SM Real Time Analysis (RTA) component to write STATDEFs to report on conditions not covered by the RTA functions. The definition for a STATDEF now supports a user ID under which the STATDEF runs. You must ensure that the specified user ID on the START command for the STATDEF task has sufficient authority to access the required resources.

Changes to CICSPlex SM EYU9WRAM module

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 that uses the Version 4 libraries.

Changes to CICSPlex SM EYUPARM values

The WLMLOADCUNIT and WLMLOADTHRSH EYUPARM values are discontinued. You must now specify these attributes in the CSYSDEF and MAS resource tables:

WLMLOADTHRSH is now defined by using the Task load health threshold attribute in the CSYSDEF resource table. The value can now be modified for an active CICS by using the CICS system definitions view or the MASs known to CICSpex view found in CICSpex SM operations views. The value is also reported in the WLMATARG resource table. The attribute is used to specify a percentage threshold for the task load of a dynamic routing target region, which is calculated by dividing the current task count by the maximum task count. When the load for a target region reaches this threshold, WLM considers the region to be relatively unhealthy, causing higher link weights to be applied to the WLM routing algorithm when evaluating this region. The possible range for the value is 1 - 100. The default value is 60.

By changing the value of the Task load health threshold attribute to an active CICS region, by using the MAS resource table, you can change the routing weight factor of that region to make it more, or less, favorable as a dynamic routing target when being evaluated against other target regions in a similar load and health state. Raising the value makes the region more likely to be selected; lowering it has the opposite effect. When the WLMLOADTHRSH value is exceeded, CICSpex SM
applies a higher link weight to the overall routing weight evaluation for a target region. Changes to this value are not reflected in the “WLM routing weight for region” displayed in the WLMATARG and WLMWAOR views, which show only the weight factors applying to the target region in isolation from the overall WLM link weight, which excludes the abend probability factor and (healthy or unhealthy) link weight to a routing region.

**Note:** If you are using WLMLOADTHRS FYUPARM, you must now specify the WLMLOADTHRS FYUPARM as a Task load health threshold attribute in your target regions. This specification is a change from the discontinued FYUPARM which you previously specified in the routing regions.

WLMLOADCOUNT is now defined by using the Task load queue mode attribute in the CSYSDEF resource table. The value can now be modified for an active CICS region by using the CICS system definitions view or the MASts known to CICSp lex view found in CICSp lex SM operations views. The value is also reported in the WLMATARG resource table. This attribute is used by CICSp lex SM Workload Manager. It specifies how the queued task load of a dynamic routing target region is to be evaluated, with these values:

- MAXTASK specifies that both active and MAXTASK queued tasks are to be included in the task load evaluation for a target region.
- ALL specifies that the task load evaluation for a region includes active tasks, tasks queued for the MAXTASK limit, and tasks that are queued because of a TRANCLASS limit.

The default value is ALL.

**IPIC connections with workload management**

CICSp lex SM workload management has been updated to support MASts connected with CICS IPIC connections (IPCONNS). There are no new external changes to workload management to use CICS IP connections but you might notice different behavior when CICS IPIC connections are introduced into a workload.

- Distributed program link (DPL) calls between CICS TS 3.2 or later regions.
- Distributed program link (DPL) calls between CICS TS and TXSeries® Version 7.1 or later.
- Asynchronous processing of EXEC CICS START, START CHANNEL, and CANCEL commands, between CICS TS 4.1 or later regions.
- Transaction routing of 3270 terminals, where the terminal-owning region (TOR) is uniquely identified by an APPLID between CICS TS 4.1 or later regions.
- Enhanced method of routing transactions that are invoked by EXEC CICS START commands between CICS TS 4.2 or later regions.
- ECI requests from CICS Transaction Gateway Version 7.1 or later.
- Function shipping of all file control, transient data, and temporary storage requests between CICS TS 4.2 or later regions. Function shipping of file control and temporary storage requests using IPIC connectivity are threadsafe.
- Threadsafe processing for the mirror program and the LINK command in CICS TS 4.2 or later regions to improve performance for threadsafe applications.

Consider a simple workload installed on a routing region that must balance requests between a pair of target regions. Target region A is connected to the routing region by using MRO, and target region B is connected to the routing region by using a CICS IPIC connection. In situations where the target regions are running at the same health and load levels, their connection link weights will be
the deciding factor when determining the target region. In this situation, CICSPlex SM always selects the MRO-connected target region A as the target for the request, because its link weight is less (because the connection is faster) than that for IPIC connections.

In a second example, target region C is connected to the routing region by using both MRO and IPIC connections, and target region D is connected to the routing region by using a CICS IPIC connection only. For IPIC-supported requests, CICSPlex SM treats target region C as if it is IPIC-only connected target, because CICS always chooses to use the IPIC connection for eligible requests over any other connection type (an IPIC connection overrides any other connection with the same name).
Chapter 45. Upgrading CICSPlex SM API programs

CICSPlex SM API programs that were written to run in a MAS at a previous release can be run in a Version 4.2 MAS.

If you have modified your application programs to make a call to EYU9XLOP using the EYUAWTRA commarea, you must recompile and link-edit them using the Version 4 libraries.

You can either continue to access the data provided by the previous release or access the new data available from Version 4.2. For information about using API programs with different releases of CICSPlex SM, see the CICSPlex System Manager Application Programming Guide.

WLMAWTOR additional storage requirements

The number of records returned by CICSPlex SM API programs querying the WLMAWTOR (Active routing regions) resource has increased because WLMAWTOR now includes extra statistical information about units of work as a result of the new key attribute RPTINGCMAS (Reporting CMAS name).

For each TOR in a workload, a WLMAWTOR record is returned from every CMAS that takes part in the workload; that is, every CMAS that manages a TOR in the workload. API programs querying WLMAWTOR, therefore, have more records to process, the number depending on the end of unit-of-work count. However existing API applications are unaffected if the first record in the result set is treated as the only record.
Chapter 46. Deleting previous CICSPlex SM release definitions from CSD files

If you are upgrading from CICS TS for z/OS, Version 3.1 or an earlier release, when you have successfully upgraded all your systems to CICSPlex SM Version 4.2, you must delete the definitions for previous versions and releases from the CSD of each CMAS and MAS.

About this task

From CICS TS for z/OS, Version 3.2 onwards, the CICS resource definitions for CICSPlex SM are created dynamically, so you no longer need to delete those definitions following the upgrade.

Procedure

1. Issue the DFHCSDUP UPGRADE command specifying module EYU9Rxxx, where xxx is the release number for the previous release; for example, EYU9R310 for Version 3.1. This module is supplied in CICSTS42.CPSM.SEYULOAD. For example:

```
//CSDUP  EXEC PGM=DFHCSDUP
//STEPLIB DD DSN=cics.index.SDFHLOAD,DISP=SHR
// DD DSN=cpsm.index.SEYULOAD,DISP=SHR
//DFHCSD DD DSN=cics.dfhcsd,DISP=SHR
//SYSPRINT DD SYSOUT=*
//SYSIN DD *
UPGRADE USING(EYU9Rxxx)
/*
```

When this JCL is run, EYU9Rxxx attempts to delete all the groups and group lists for that CICSPlex SM version from the CSD. However, because not all of the items that the job attempts to delete are defined in the CSD, DFHCSDUP gives a return code of 04.

2. Use the DFHCSDUP SYSPRINT output to verify the results of the deletions. The output lists those items that were deleted and those that were not found.
Chapter 47. Phased upgrade scenario to remove CICSPlex SM CAS

You no longer set up and use a CAS (coordinating address space) to support a CICS TS for z/OS, Version 4.2 CMAS (CICSPlex SM address space). This scenario presents one way that you might upgrade an environment at an earlier release to Version 4.2, replacing the use of the CAS with the use of a Web User Interface server. Another set of procedures might be more appropriate to your own environment.

The environment

Figure 4 shows a CICSPlex SM environment that is made up of the following components:

Figure 4. An environment at an earlier release
• Three MVS systems (System A, System B, System C)
• Three CASs
  – All interconnected
• Three CMASs
  – All interconnected
  – CMAS A connects to CAS A. Both are in System A. This CMAS is the maintenance point CMAS.
  – CMAS B connects to CAS B. Both are in System B.
  – CMAS C connects to CAS C. Both are in System C.
• One CICSpex
  – CMAS A is the maintenance point.
• Six CICS regions that are local MASs
  – MAS A1 and MAS A2 connect to CMAS A. All are in System A.
  – MAS B1 and MAS B2 connect to CMAS B. All are in System B.
  – MAS C1 and MAS C2 connect to CMAS C. All are in System C.
Systems A, B, and C are at an earlier CICS TS release.

**Objective 1: Add a WUI server at the earlier release**

When you complete Objective 1, a WUI at the earlier release level is connected to CMAS A. The CMAS systems (A, B, and C) are interconnected. CAS B and CAS C remain connected to one another. All components are still at the earlier CICS Transaction Server release level.
About this task

Procedure

To add a WUI to System A:
1. Connect a WUI server to the maintenance point CMAS A at the earlier CICS Transaction Server release level.
2. Create a separate CICSpix for the WUI server, defining CMAS A as the maintenance point.

Objective 2: Upgrade MP CMAS to the new version

When you complete Objective 2, all CICS systems in System A are at the new version. The CMAS systems (A, B, and C) remain interconnected despite their different release levels. CAS A and its connections are removed but CAS B and CAS C remain connected to one another.
About this task

The conversion of the maintenance point CMAS A to the new version requires conversion of these components:

- CMAS A
- WUI A
- MAS A1
- MAS A2

**Procedure**

1. Stop any regions that are to be upgraded. If the following systems are running, stop them:
   - CMAS A
   - WUI A
   - MAS A1
   - MAS A2

**Figure 6. Upgrading the maintenance point CMAS to the new version**
2. Upgrade CMAS A to the new version. Follow the instructions in Chapter 41, “Upgrading a CMAS,” on page 299.

3. Upgrade WUI A to the new version. Follow the instructions in Chapter 42, “Upgrading a Web User Interface server,” on page 301.

4. Upgrade MAS A1 and MAS A2 to the new version. Follow the instructions in Chapter 43, “Upgrading a CICSPlex SM managed CICS system (MAS),” on page 305.

---

**Objective 3: Upgrade CMAS B to the new version**

When you complete Objective 3, all CICS systems in System B are at the new version. The CMAS systems (A, B, and C) remain interconnected despite their different release levels. CAS B and its connection to CAS C are removed.

**About this task**

![Diagram of System A, System B, and System C]

*Figure 7. Upgrading CMAS B to the new version*

The conversion of CMAS B to the new version requires conversion of these components:
• CMAS B
• MAS B1
• MAS B2

Procedure
1. Stop any regions that are to be upgraded. If the following systems are running, stop them:
   • CMAS B
   • MAS B1
   • MAS B2
2. Upgrade CMAS B to the new version. Follow the instructions in Chapter 41, “Upgrading a CMAS,” on page 299.
3. Upgrade MAS B1 and MAS B2 to the new version. Follow the instructions in Chapter 43, “Upgrading a CICSPlex SM managed CICS system (MAS),” on page 305.

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Objective 4: Upgrade CMAS C to the new version

When you complete Objective 4, all CICS systems are at the new version, and all CASs are removed.
About this task

The conversion of CMAS C to the new version requires conversion of these components:

- CMAS C
- MAS C1
- MAS C2

Procedure

1. Stop any regions that are to be upgraded. If the following systems are running, stop them:
   - CMAS C
   - MAS C1
   - MAS C2

2. Upgrade CMAS C to the new version. Follow the instructions in [Chapter 41, “Upgrading a CMAS,” on page 299].
3. Upgrade MAS C1 and MAS C2 to the new version. Follow the instructions in Chapter 43, “Upgrading a CICSPlex SM managed CICS system (MAS),” on page 305.
Part 5. Changes to CICS messages and codes

This section lists messages and abend codes that have been removed, changed, and added for CICS Transaction Server for z/OS, Version 4 Release 2.
Chapter 48. Deleted messages

These messages are deleted for CICS Transaction Server for z/OS, Version 4 Release 2.

Messages deleted in CICS Transaction Server for z/OS, Version 4 Release 2

- DFHAP1600
- DFHAP1601
- DFHAP1602
- DFHAP1603
- DFHCA5161S
- DFHCA5274W
- DFHCA5292W
- DFHCA5603E
- DFHEC1010
- DFHEC4112
- DFHFC0112
- DFHSM0603
- DFHSN1150
- DFHSN1250
- EYUXS1011W

Messages deleted in CICS Transaction Server for z/OS, Version 4 Release 1

- DFHIS0003
- DFHIS0004
- DFHIS0006
- DFHIS1024
- DFHMQ0212 E
- DFHMQ0213 E
- DFHMQ0214 E
- DFHMQ0216 E
- DFHMQ0217 E
- DFHSJ0504
- DFHSJ0513
- DFHSJ0519
- DFHSJ0520
- DFHSJ0540
- DFHSJ0541
- DFHSJ0701
- DFHSJ0702
- DFHSJ0703
- DFHSJ0704
Message deleted in CICS Transaction Server for z/OS, Version 3 Release 2

- DFHPI0999
Chapter 49. Changed messages

These messages are changed for CICS Transaction Server for z/OS, Version 4 Release 2.

**Messages changed in CICS Transaction Server for z/OS, Version 4 Release 2**

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAM4843 W</td>
<td>applid GROUP/LIST name is internally locked to OPID opid APPLID applid.</td>
</tr>
<tr>
<td>DFHAM4868 W</td>
<td>applid The LSRPOOLNUM of the LSRPOOL lsrname in group grpname duplicates that of LSRPOOL lsrname in group grpname</td>
</tr>
<tr>
<td>DFHAM4943 E</td>
<td>applid The installation of {ATOMSERVICE} resource resourcename failed because the associated {CONFIGFILE</td>
</tr>
<tr>
<td>DFHAM4944 W</td>
<td>applid JVMSERVER resourcename has been installed with fewer threads than requested on its definition.</td>
</tr>
<tr>
<td>EYUXD1024</td>
<td>date time applid Discovery of booktype (resource) suppressed by filter (filter).</td>
</tr>
<tr>
<td>DFHBR0412</td>
<td>date time applid Dynamic transaction routing program prog resource definition not found.</td>
</tr>
<tr>
<td>DFHCA4833 E</td>
<td>date time applid tranid A security error has occurred while attempting to install (TDQUEUE</td>
</tr>
<tr>
<td>DFHCA4843 W</td>
<td>date time applid GROUP/LIST name is internally locked to OPID opid APPLID applid.</td>
</tr>
<tr>
<td>DFHCA5120</td>
<td>date time applid netname tranid csdtype CSD opened; ddname: ddname - dsname: dsname</td>
</tr>
<tr>
<td>DFHCA5123</td>
<td>date time applid netname tranid csdtype CSD closed; ddname: ddname - dsname: dsname</td>
</tr>
<tr>
<td>DFHCA5540</td>
<td>date time applid netname xxxxxxx value is greater than yyyy yyyy value. The lower value takes precedence.</td>
</tr>
<tr>
<td>Messages in the range DFHCA4800 - DFHCA4999</td>
<td>Where any of these messages did not include a transaction ID (tranid), this item has been added after the APPLID (applid).</td>
</tr>
<tr>
<td>DFHCA5120</td>
<td>date time applid netname tranid csdtype CSD opened; ddname: ddname - dsname: dsname</td>
</tr>
<tr>
<td>DFHCA5123</td>
<td>date time applid netname tranid csdtype CSD closed; ddname: ddname - dsname: dsname</td>
</tr>
<tr>
<td>DFHCA5540</td>
<td>date time applid netname xxxxxxx value is greater than yyyy yyyy value. The lower value takes precedence.</td>
</tr>
<tr>
<td>Messages in the range DFHCA5544 - DFHCA5634</td>
<td>Where any of these messages did not include a network identifier (netname) and transaction ID (tranid), these items have been added after the APPLID (applid).</td>
</tr>
<tr>
<td>DFHCE3503</td>
<td>Incorrect password length. Sign-on is terminated.</td>
</tr>
<tr>
<td>DFHCE3504</td>
<td>Incorrect new password length. Sign-on is terminated.</td>
</tr>
<tr>
<td>DFHDB2005</td>
<td>date time applid Transaction tran is not defined for CICS DB2.</td>
</tr>
<tr>
<td>DFHDB2057</td>
<td>date time applid tranid termid Abend abcode in DFHD2EX1 - resource definition for dynamic plan exit progname was not found.</td>
</tr>
<tr>
<td>DFHDB2066</td>
<td>date time applid tranid termid Abend abcode in DFHD2EX1 - resource definition for dynamic plan exit progname defines the program as remote.</td>
</tr>
<tr>
<td>DFHEC1001</td>
<td>date time applid EVENTBINDING evbname from BUNDLE bundle installed successfully.</td>
</tr>
<tr>
<td>DFHEC1002</td>
<td>date time applid EVENTBINDING evbname from BUNDLE bundle discarded successfully.</td>
</tr>
<tr>
<td>DFHEC1003</td>
<td>date time applid The CICS event capture component failed to create the EVENTBINDING resource evbname in BUNDLE bundle because [the event binding name is invalid.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHEC1009</td>
<td>date time applid The CICS event capture component found an inconsistency in one or more values during install of EVENTBINDING evbname in BUNDLE bundle because the capture specification caps'pec has an overlength format. Precision in data item: \ l has an invalid format length in data item:</td>
</tr>
<tr>
<td>DFHEC4007 E</td>
<td>date time applid tranid Transaction start EP adapter failed to emit an event to transaction tranid for event binding evbname. START TRANSID failed with response code response and reason code reason.</td>
</tr>
<tr>
<td>DFHEC4008</td>
<td>date time applid tranid TSQ EP adapter failed to emit an event to queue queueName for event binding evbname. WRITEQ TS returned with condition resp reason code reason.</td>
</tr>
<tr>
<td>DFHEC4009</td>
<td>date time applid tranid TSQ EP Adapter failed to emit an event to queue queueName for event binding evbname because the queue is not defined as recoverable.</td>
</tr>
<tr>
<td>DFHEC4111</td>
<td>date time applid tranid WebSphere MQ EP adapter failed to emit an event to queue queue_name for event binding evbname. WebSphere MQ function MQPUT1 returned with completion code comp_code.</td>
</tr>
<tr>
<td>DFHEC4117</td>
<td>date time applid tranid The WebSphere MQ EP adapter failed to emit an event for capture specification csname in event binding evbname to queue queueName. The event's size of buffer_length bytes exceeds the queue's maximum message length.</td>
</tr>
<tr>
<td>DFHEJ0101</td>
<td>applid Enterprise Java domain initialization has started.</td>
</tr>
<tr>
<td>DFHEP0114</td>
<td>date time applid tranid The EP adapter user ID of adapter_userid in event binding evbname is revoked, not valid, or not defined. Event discarded.</td>
</tr>
<tr>
<td>DFHEP0117</td>
<td>applid The EPADAPTER transaction ID adapter_tranid is disabled or undefined. An event from EVENTBINDING evbname has been discarded.</td>
</tr>
<tr>
<td>DFHEP0118</td>
<td>applid The EPADAPTER transaction ID adapter_tranid is remote. An event from EVENTBINDING evbname has been discarded.</td>
</tr>
<tr>
<td>DFHFC0202</td>
<td>date time applid terminal userid tranid Resource definition for FILE filename has been added.</td>
</tr>
<tr>
<td>DFHFC0203</td>
<td>date time applid terminal userid tranid Resource definition for FILE filename has been deleted.</td>
</tr>
<tr>
<td>DFHFC0204</td>
<td>date time applid terminal userid tranid Resource definition for FILE filename has been updated.</td>
</tr>
<tr>
<td>DFHFC0206</td>
<td>date time applid terminal userid tranid Resource definition for FILE filename has been added.</td>
</tr>
<tr>
<td>DFHFC0207</td>
<td>date time applid terminal userid tranid Resource definition for FILE filename has been deleted.</td>
</tr>
<tr>
<td>DFHFC0150</td>
<td>date time applid tranid tranid An attempt to release locks for unit of work X'uowid' failed. VSAM return code X'rddd' reason code X'cccc'.</td>
</tr>
<tr>
<td>DFHFC0151</td>
<td>date time applid tranid tranid An attempt to retain locks for unit of work X'uowid' failed. VSAM return code X'rddd' reason code X'cccc'.</td>
</tr>
<tr>
<td>DFHFC0152</td>
<td>date time applid tranid tranid An attempt to retain locks for data set within unit of work X'uowid' failed. VSAM return code X'rddd' reason code X'cccc'.</td>
</tr>
<tr>
<td>DFHFC0157</td>
<td>applid tranid userid An I/O error has occurred on base data set dsname accessed via file filename component code X'code'.</td>
</tr>
<tr>
<td>DFHFC0164</td>
<td>date time applid tranid tranum termid userid. A request has timed out waiting for an RLS lock. There are nn transactions or Transactional VSAM units of recovery holding this lock.</td>
</tr>
<tr>
<td>DFHFC0165</td>
<td>date time applid tranid tranum termid userid. Transaction transid (tasknum) unit of work X'uowid' running in job jobname with applid applid2 in MVS mssid holds</td>
</tr>
<tr>
<td>DFHFC0166</td>
<td>date time applid tranid termid userid. VSAM RLS has detected a deadlock. There are nn transactions or Transactional VSAM units of recovery in the deadlock chain.</td>
</tr>
</tbody>
</table>
### Table 29. Messages changed in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHFC0167</td>
<td>date time applid tranid termid userid. Transaction transid(tasknum) with unit of work id X'uwoid' running in jobname/applid2 in MVS mvsid holds {add to end lock</td>
</tr>
<tr>
<td>DFHFC0168</td>
<td>date time applid tranid trannum termid userid. Transaction transid with transaction number trannum encountered an RLS retained lock held on data set dsname by unit of work X'uwoid' within CICS with applid2.</td>
</tr>
<tr>
<td>DFHFC0169</td>
<td>date time applid tranid trannum termid userid. A deadlock has occurred as a result of a lock promote failure. There are many transactions or Transactional VSAM units of recovery holding this lock.</td>
</tr>
<tr>
<td>DFHFC0174</td>
<td>date time applid tranid trannum termid userid. Transactional VSAM unit of recovery X'urid' running in job jobname on Transactional VSAM instance TVSInstance in MVS mvsid holds {add to end lock</td>
</tr>
<tr>
<td>DFHFC0175</td>
<td>date time applid tranid trannum termid userid. Transactional VSAM unit of recovery id X'urid' running in job jobname on Transactional VSAM instance TVSInstance in MVS mvsid holds {add to end lock</td>
</tr>
<tr>
<td>DFHFC0177</td>
<td>date time applid tranid userid. Transactional VSAM unit of recovery id X'urid' running in job jobname on Transactional VSAM instance TVSInstance in MVS mvsid holds {add to end lock</td>
</tr>
<tr>
<td>DFHFC0179</td>
<td>date time applid userid. Transaction transid with transaction number trannum encountered an RLS retained lock held on data set dsname by unit of work X'uwoid' within Transactional VSAM instance TVSInstance.</td>
</tr>
<tr>
<td>DFHFC0300</td>
<td>applid (tranid termid) purge deferred due to incomplete I/O operation on VSAM file 'filename'.</td>
</tr>
<tr>
<td>DFHFC0301</td>
<td>applid (tranid termid) purge deferred due to incomplete I/O operation on BDAM file 'filename'.</td>
</tr>
<tr>
<td>DFHFC0302</td>
<td>applid (tranid termid) CICS terminating. Failure while waiting for I/O operation on VSAM file 'filename'.</td>
</tr>
<tr>
<td>DFHFC0303</td>
<td>applid (tranid termid) CICS terminating. Failure while waiting for I/O operation on BDAM file 'filename'.</td>
</tr>
<tr>
<td>DFHFC0308</td>
<td>applid tranid termid Purge deferred due to incomplete I/O operation on VSAM RLS file filename</td>
</tr>
<tr>
<td>DFHFC0309</td>
<td>applid tranid termid Failure while waiting for I/O operation on VSAM RLS file filename</td>
</tr>
<tr>
<td>DFHFC0310</td>
<td>applid tranid termid Purge deferred due to incomplete I/O operation on the RLS control ACB.</td>
</tr>
<tr>
<td>DFHFC0311</td>
<td>applid tranid termid Failure waiting for I/O operation on the RLS control ACB.</td>
</tr>
<tr>
<td>DFHFC0951</td>
<td>applid {RLS</td>
</tr>
<tr>
<td>DFHFC0979</td>
<td>date time applid LSR pool n parameters incomplete for file filename because the DSNAME specified in the resource definition could not be found on the VSAM catalog. VSAM has returned code rrrr in R15.</td>
</tr>
<tr>
<td>DFHFC3010</td>
<td>date time applid Diagnostic information for unit of work X'local-uwoid' and file filename. Update was a {read-update</td>
</tr>
</tbody>
</table>
Table 29. Messages changed in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHFC7130</td>
<td><em>date time applid tranid trannum terminal userid.</em> Unit of work ‘X’workid’ running in region owner-applid in MVS system MVSid holds a lock on key ‘X’keyid’ in coupling facility data table tablename in pool CFTDpool, which caused this request to wait.</td>
</tr>
<tr>
<td>DFHIR3789</td>
<td><em>date time applid SEND/RECEIVE mismatch between definitions for this system and system ssid</em></td>
</tr>
<tr>
<td>DFHIS1035</td>
<td>*date time applid Unable to send {a START</td>
</tr>
<tr>
<td>DFHME0101</td>
<td><em>applid An error (code ‘X’code’) occurred while writing message msgno to transient data queue queue.</em></td>
</tr>
<tr>
<td>DFHME0503</td>
<td><em>THE CMAC FILE IS NOT DEFINED TO CICS.</em></td>
</tr>
<tr>
<td>DFHMQ0308 I</td>
<td><em>date time applid MQNAME id is stopped. Connect request deferred.</em></td>
</tr>
<tr>
<td>DFHMQ0309 E</td>
<td><em>date time applid Unable to connect using MQNAME id. MQCC=mqcc MQRC=mqrc.</em></td>
</tr>
<tr>
<td>DFHMQ0320 I</td>
<td><em>date time applid The CICS-MQ Adapter cannot find MQNAME id.</em></td>
</tr>
<tr>
<td>DFHMQ0749 E</td>
<td><em>date time applid tranid trannum Authentication error. EIBRESP=resp EIBRESP2=resp2 Userid=user-id.</em></td>
</tr>
<tr>
<td>DFHPG0101</td>
<td><em>date time applid terminal userid tranid Resource definition for programname has been added.</em></td>
</tr>
<tr>
<td>DFHPG0102</td>
<td><em>date time applid terminal userid tranid Resource definition for programname has been deleted.</em></td>
</tr>
<tr>
<td>DFHPG0103</td>
<td><em>date time applid terminal userid tranid Resource definition for programname has been replaced.</em></td>
</tr>
<tr>
<td>DFHPG0201</td>
<td><em>date time applid terminal userid tranid Program autoinstall exit urnname indicated that program programname should not be installed.</em></td>
</tr>
<tr>
<td>DFHPG0209</td>
<td><em>date time applid terminal userid tranid Resource definition for programname has been autoinstalled using model modelname.</em></td>
</tr>
<tr>
<td>DFHPG0210</td>
<td><em>date time applid terminal userid tranid Resource definition for programname has been system autoinstalled.</em></td>
</tr>
<tr>
<td>DFHPI0400</td>
<td>*date time applid tranid The CICS pipeline HTTP transport mechanism failed to send a request because {the request was using an invalid host codepage</td>
</tr>
<tr>
<td>DFHPI0403</td>
<td>*date time applid tranid The CICS pipeline HTTP transport mechanism failed to receive a response because {the socket receive was timed out</td>
</tr>
<tr>
<td>DFHPI0720 E</td>
<td>*date time appliduserid PIPELINE pipeline encountered an error in the configuration file filename at offset X‘offset’. Found : element_found yet expected : {&lt;service&gt;</td>
</tr>
</tbody>
</table>
### Table 29. Messages changed in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DFHPI0914</strong></td>
<td><code>date time applid userid WEBSERVICE</code> WebService is UNUSABLE because: (the WSBind file was not found)</td>
</tr>
<tr>
<td><strong>DFHPI0997</strong></td>
<td><code>date time applid tranid pipeline</code> The CICS pipeline manager has encountered an error:</td>
</tr>
<tr>
<td><strong>DFHPI1007</strong></td>
<td><code>date time applid trannum</code> (XML</td>
</tr>
<tr>
<td><strong>DFHPI1008</strong></td>
<td><code>date time applid trannum</code> (XML</td>
</tr>
<tr>
<td><strong>DFHPI1009</strong></td>
<td><code>date time applid trannum</code> (XML</td>
</tr>
<tr>
<td><strong>DFHPI1010</strong></td>
<td><code>date time applid trannum</code> (XML</td>
</tr>
<tr>
<td><strong>DFHPI9506</strong></td>
<td>Parameter parameter exceeds the maximum valid length of max characters. The supplied value is value.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHRD0107</td>
<td>date time applid terminal userid tranid INSTALL LSRPOOL(isrname)</td>
</tr>
<tr>
<td>DFHRL0103</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the BUNDLE resource bundle_name because the manifest manifest_file specified in the bundle root directory was not found.</td>
</tr>
<tr>
<td>DFHRT4418</td>
<td>date time applid Abend abcode in modname - (Dynamic \ Distributed) routing program resource definition not found.</td>
</tr>
<tr>
<td>DFHSJ0201</td>
<td>date time applid JVMProfile A call to CELQPIPI with function code INIT_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0202</td>
<td>date time applid JVMProfile A call to CELQPIPI with function code TERM has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0203</td>
<td>date time applid JVMProfile A call to CELQPIPI with function code CALL_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0204</td>
<td>date time applid JVMProfile A call to CELQPIPI with function code CALL_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0205</td>
<td>date time applid JVMProfile A call to CELQPIPI with function code CALL_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0534</td>
<td>date time applid Deprecated option option found in JVM profile jomprof will be ignored. The value of the USSHOME system initialization parameter will be used instead.</td>
</tr>
<tr>
<td>DFHSJ0535</td>
<td>date time applid The directory directory specified in the parm failed to open. The JVM cannot be started. Runtime error message is errmsg.</td>
</tr>
<tr>
<td>DFHSJ0536</td>
<td>date time applid Insufficient permission to access the directory directory specified in the parm. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0537</td>
<td>date time applid The version of CICS Java support in the directory directory specified in the parm is incorrect. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0904</td>
<td>date time applid userid termid tranid program_name Exception exception occurred creating object reference for class className.</td>
</tr>
<tr>
<td>DFHSJ0911</td>
<td>date time applid userid JVMSERVER jmsserver was not created because [there is insufficient storage.</td>
</tr>
<tr>
<td>DFHSJ1004</td>
<td>date time applid userid An exception has been thrown by the method_name_method of class classname running in JVMSERVER jmserver. Exception 'exception'.</td>
</tr>
<tr>
<td>DFHSJ1006 E</td>
<td>date time applid userid An attempt to attach to JVMSERVER jmserver has failed because [the channel name used is invalid \ the JVMSERVER name is missing \ the JVMSERVER name is too long \ the userclass name is missing \ the user channel is invalid \ the XML in the PIPELINE configuration file is invalid \ the JVMSERVER does not exist \ the JVMSERVER is not enabled \ the wrapper class cannot be found \ the transaction abended \ the attach of the thread failed \ the wrapper method was not found \ the detach of the thread failed \ the JVM threw an exception \ the DFH-HANDLERPLIST container is missing \ the thread was forced to terminate abnormally \ the thread could not be created \ the JVMSERVER failed to start the OSGi service].</td>
</tr>
<tr>
<td>DFHSO0102</td>
<td>date time applid A UNIX System Services 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.</td>
</tr>
<tr>
<td>DFHSO0106</td>
<td>date time applid A UNIX System Services Callable Service error (code X’code’) has occurred in module modname</td>
</tr>
<tr>
<td>DFHSO0111</td>
<td>date time applid Opening the TCPIPSERVICE tcpipservice has failed because the jobname of the region is not authorized to use the port number specified.</td>
</tr>
<tr>
<td>DFHSO0117</td>
<td>applid Unable to determine the TCP/IP host name. UNIX System Services return code X’recode’, reason code X’rc’.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHSO0123</td>
<td>date time applid Return code rc received from function {unknown</td>
</tr>
<tr>
<td>DFHTC2536</td>
<td>date time applid Link to DFHTEP from DFHTACP failed because {module DFHTEP is not AMODE 31</td>
</tr>
<tr>
<td>DFHTD0252</td>
<td>applid Open of queue queue failed. DSNAME not available from JCL or resource definition. Module module.</td>
</tr>
<tr>
<td>DFHTD1217</td>
<td>applid Unable to install resource definition for transient data queue xxxx.</td>
</tr>
<tr>
<td>DFHTD1221</td>
<td>applid Transient data queue definitions not restored, xxxx failed</td>
</tr>
<tr>
<td>DFHTD1278</td>
<td>applid An error occurred during initialization of intrapartition queue queue name for userid userid. The queue has not been installed.</td>
</tr>
<tr>
<td>DFHUS0100</td>
<td>applid CICS is unable to listen for ENF event 71. Changing a user's RACF attributes will only take effect after the USRDELAY timeout.</td>
</tr>
<tr>
<td>DFH5120</td>
<td>{Primary</td>
</tr>
<tr>
<td>DFH5123</td>
<td>{Primary</td>
</tr>
<tr>
<td>DFH5124</td>
<td>Processing terminated. Corrupted CSD control record detected while closing {primary</td>
</tr>
<tr>
<td>DFH5125</td>
<td>Error occurred while closing the {primary</td>
</tr>
<tr>
<td>DFH5273</td>
<td>resource object is not in group grpname.</td>
</tr>
<tr>
<td>EYUWM0503</td>
<td>date time applid Routing region (name ) is running in Sysplex Optimized WLM state.</td>
</tr>
<tr>
<td>EYUWM0504</td>
<td>date time applid Routing region (name ) is not running in Sysplex Optimized WLM state.</td>
</tr>
<tr>
<td>EYUWM0505</td>
<td>date time applid Target region (name ) is running in Sysplex Optimized WLM state.</td>
</tr>
<tr>
<td>EYUWM0506</td>
<td>date time applid Target region (name ) is not running in Sysplex Optimized WLM state.</td>
</tr>
<tr>
<td>EYUXD1001</td>
<td>date time applid Parameter (parameter ) is mandatory and is missing or blank.</td>
</tr>
<tr>
<td>EYUXD1009</td>
<td>date time applid Parameter (command ) is not valid input.</td>
</tr>
<tr>
<td>EYUXD1024</td>
<td>date time applid Discovery of booktype (resource) suppressed by filter (filter).</td>
</tr>
</tbody>
</table>
### Messages changed in CICS Transaction Server for z/OS, Version 4 Release 1

**Table 30. Messages changed in CICS Transaction Server for z/OS, Version 4 Release 1**

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAM4834E</td>
<td>applid Install of {TDQUEUE</td>
</tr>
<tr>
<td>DFHAM4851E</td>
<td>applid Install of {DBENTRY</td>
</tr>
<tr>
<td>DFHAM4898E</td>
<td>applid Installation of {TDQUEUE</td>
</tr>
<tr>
<td>DFHAM4921E</td>
<td>applid The installation of CORBASERVER</td>
</tr>
<tr>
<td>DFHIS1011</td>
<td>date time applid Unable to acquire IPCONN</td>
</tr>
<tr>
<td>DFHIS2001</td>
<td>date time applid Client web session</td>
</tr>
<tr>
<td>DFHIS2009</td>
<td>date time applid Client web session</td>
</tr>
<tr>
<td>DFHIS2010</td>
<td>date time applid Server web session</td>
</tr>
<tr>
<td>DFHMQ0453I</td>
<td>date time applid Status of connection to</td>
</tr>
<tr>
<td>DFHPI0119</td>
<td>date time applid The XML Toolkit could not be loaded. Some configurations of the CICS Supplied WS-Security handler are not usable.</td>
</tr>
<tr>
<td>DFHPI0400</td>
<td>date time applid</td>
</tr>
<tr>
<td>DFHPI0515</td>
<td>date time applid</td>
</tr>
<tr>
<td>DFHPI0720E</td>
<td>date time applid</td>
</tr>
<tr>
<td>DFHPI0911E</td>
<td>date time applid</td>
</tr>
</tbody>
</table>
### Table 30. Messages changed in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHP10914E</td>
<td>date time applid userid WEBSERVICE WebService is UNUSABLE because: [the WSBind file was not found</td>
</tr>
<tr>
<td>DFHP10997</td>
<td>date time applid tranid pipeline The CICS pipeline manager has encountered an error: [PIPELINE not found</td>
</tr>
<tr>
<td>DFHZC2352</td>
<td>date time applid userid Intersystem parallel connection still active after TC shutdown threshold expired. ((instance) Module name: DFHZSHU)</td>
</tr>
<tr>
<td>DFHZC2401E</td>
<td>date time applid termid RPL Active. sense ((instance) Module name: (DFHZRVS</td>
</tr>
<tr>
<td>DFHZC2405E</td>
<td>date time applid termid Node netname not activated. sense ((instance) Module name: (DFHZSIM</td>
</tr>
<tr>
<td>DFHZC2411E</td>
<td>date time applid termid nodeid attempted invalid logon. sense ((instance) Module name: (DFHZSCX</td>
</tr>
<tr>
<td>DFHZC2417E</td>
<td>date time applid termid z/OS Communications Server Inactive to TCB. sense ((instance) Module name: (DFHZSDA</td>
</tr>
<tr>
<td>DFHZC2419E</td>
<td>date time applid termid Unknown command in RPL. sense ((instance) Module name: (DFHZSSX</td>
</tr>
<tr>
<td>DFHZC2422E</td>
<td>date time applid termid ZCP Logic Error. sense ((instance) Module name: (DFHZDET</td>
</tr>
<tr>
<td>DFHZC2432E</td>
<td>date time applid termid Exception response received. sense ((instance) Module name: (DFHZRVS</td>
</tr>
<tr>
<td>DFHZC2433E</td>
<td>date time applid termid nodeid Logon has failed because autoinstall is disabled. sense ((instance) Module name: (DFHZLgx</td>
</tr>
<tr>
<td>DFHZC2447E</td>
<td>date time applid termid A severe error has occurred as a result of a previous failre. sense ((instance) Module name: (DFHZZPN</td>
</tr>
<tr>
<td>DFHZC2449E</td>
<td>date time applid termid Bracket Error. sense ((instance) Module name: (DFHZRVS</td>
</tr>
<tr>
<td>DFHZC2450E</td>
<td>date time applid termid Bid issued but ATI cancelled. sense ((instance) Module name: (DFHZRVS</td>
</tr>
<tr>
<td>DFHZC2456E</td>
<td>date time applid termid Exception response received to a command. sense ((instance) Module name: (DFHZSYX</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHZC2458E</td>
<td>date time applid termid tranid Exception response received to an exception response send. sense ((instance) Module name: (DFHZRFX</td>
</tr>
<tr>
<td>DFHZC2488 E</td>
<td>date time applid termid tranid nodeid logon request rejected as terminal recovery is in progress. sense ((instance) Module name: (DFHZLHX</td>
</tr>
<tr>
<td>DFHZC3205 E</td>
<td>date time applid Transaction CTIN - virtual terminal termid z/OS Communications Server netname netname. CICS cannot support the (n.a</td>
</tr>
<tr>
<td>DFHZC3418 E</td>
<td>date time applid termid tranid System generation error. The netname logon request was rejected. sense ((instance) Module name: (DFHZXSCX</td>
</tr>
<tr>
<td>DFHZC3419 E</td>
<td>date time applid termid tranid Session failure. The bind parameter for node netname is unacceptable. sense ((instance) Module name: (RESERVE</td>
</tr>
<tr>
<td>DFHZC3420 E</td>
<td>date time applid termid tranid Session connection error. Node netname is out of service. sense ((instance) Module name: (DFHZXOPN</td>
</tr>
<tr>
<td>DFHZC3433 E</td>
<td>date time applid termid tranid FMH7 was received on ISC session. Sense code is : xxxxxxxx</td>
</tr>
<tr>
<td>DFHZC3442 I</td>
<td>date time applid</td>
</tr>
<tr>
<td>DFHZC3444 E</td>
<td>date time applid termid tranid Unexpected condition detected during RECEIVE processing. sense ((instance) Module name: (DFHZXRSV</td>
</tr>
<tr>
<td>DFHZC3461 I</td>
<td>date time applid termid Node netname session started. sense ((instance) Module name: (DFHZXOPX</td>
</tr>
<tr>
<td>DFHZC3480E</td>
<td>date time applid termid tranid Session could not be started due to insufficient CICS nucleus function - ISC not loaded. sense ((instance) Module name: (DFHZXSU</td>
</tr>
<tr>
<td>DFHZC3482E</td>
<td>date time applid termid tranid Logon from node nodeid rejected. Insufficient storage for autoinstall request. sense ((instance) Module name: (DFHZLXH</td>
</tr>
<tr>
<td>DFHZC3499E</td>
<td>date time applid termid tranid OS Getmain failure in module DFHmodname with return code X’return_code’ while attempting to process message DFHZCmessage_number. sense ((instance) Module name: (DFHZXLEX</td>
</tr>
<tr>
<td>DFHZC404E</td>
<td>date time applid termid tranid Bracket FSM error. sense ((instance) Module name: (DFHZXRLP</td>
</tr>
<tr>
<td>DFHZC405E</td>
<td>date time applid termid tranid Chain FSM error. sense ((instance) Module name: (DFHZXRLP</td>
</tr>
<tr>
<td>DFHZC406E</td>
<td>date time applid termid tranid Contention FSM error. sense ((instance) Module name: (DFHZDET</td>
</tr>
<tr>
<td>DFHZC419E</td>
<td>date time applid termid tranid Invalid indicators received. sense ((instance) Module name: (DFHZARL</td>
</tr>
<tr>
<td>DFHZC420E</td>
<td>date time applid termid tranid Invalid data received. sense ((instance) Module name: (DFHZERH</td>
</tr>
<tr>
<td>DFHZC422E</td>
<td>date time applid termid tranid Single session shutdown with DRAIN=CLOSE. sense ((instance) Module name: (DFHZRAC</td>
</tr>
<tr>
<td>DFHZC424E</td>
<td>date time applid termid tranid Bind security password missing or invalid. sense ((instance) Module name: (DFHZXOPX</td>
</tr>
<tr>
<td>DFHZC425E</td>
<td>date time applid termid tranid Inconsistent attach security required. sense ((instance) Module name: (DFHZXOPX</td>
</tr>
</tbody>
</table>
### Messages changed in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAC2216</td>
<td><em>date time applid</em> Terminating processing for transaction <em>tranid</em> has failed because a connected system has requested that the UOW be rolled back. <em>condmsg</em></td>
</tr>
<tr>
<td>DFHAC2234</td>
<td><em>date time applid</em> A commit failure has occurred during syncpoint processing for transaction <em>tranid</em>, terminal <em>termid</em>. The transaction will be allowed to complete normally. <em>EXCI job = lexci_id. condmsg</em></td>
</tr>
<tr>
<td>DFHAC2246</td>
<td><em>date time applid</em> A transaction termination processing for transaction <em>tranid</em> could not be completed normally because a connected system has requested that the unit of work be rolled back. <em>EXCI job = lexci_id. condmsg</em></td>
</tr>
<tr>
<td>DFHAC2247</td>
<td><em>date time applid</em> A transaction <em>tranid</em> running program <em>program name</em> term <em>termid</em> has requested rollback, but was using a type of processing for which rollback is not supported. The transaction has been abnormally terminated with code ASP8. <em>EXCI job = lexci_id. condmsg</em></td>
</tr>
</tbody>
</table>

### Messages changed in CICS Transaction Server for z/OS, Version 3 Release 2

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAC2226</td>
<td><em>date time applid</em> Terminating processing for transaction <em>tranid</em> has failed because a connected system has requested that the UOW be rolled back. <em>condmsg</em></td>
</tr>
<tr>
<td>DFHAC2234</td>
<td><em>date time applid</em> A commit failure has occurred during syncpoint processing for transaction <em>tranid</em>, terminal <em>termid</em>. The transaction will be allowed to complete normally. <em>EXCI job = lexci_id. condmsg</em></td>
</tr>
<tr>
<td>DFHAC2246</td>
<td><em>date time applid</em> A transaction termination processing for transaction <em>tranid</em> could not be completed normally because a connected system has requested that the unit of work be rolled back. <em>EXCI job = lexci_id. condmsg</em></td>
</tr>
<tr>
<td>DFHAC2247</td>
<td><em>date time applid</em> A transaction <em>tranid</em> running program <em>program name</em> term <em>termid</em> has requested rollback, but was using a type of processing for which rollback is not supported. The transaction has been abnormally terminated with code ASP8. <em>EXCI job = lexci_id. condmsg</em></td>
</tr>
<tr>
<td>DFHAM4920</td>
<td><em>date time applid</em> The installation of [CORBASERVER</td>
</tr>
<tr>
<td>DFHAM4928</td>
<td><em>date time applid</em> The installation of [CORBASERVER</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHAP1300</td>
<td>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: stcerr.</td>
</tr>
<tr>
<td>DFHCA5147 E</td>
<td>date time applid netname tranid Command not executed. Igname already exists as a group-or-list</td>
</tr>
<tr>
<td>DFHCA5190 S</td>
<td>date time applid netname tranid Command is not executed. Unable to get storage for service module proname</td>
</tr>
<tr>
<td>DFHCA5272 I</td>
<td>date time applid netname tranid resource object deleted from group grpname</td>
</tr>
<tr>
<td>DFHCA5288 I</td>
<td>Get-command terminated at user's request. RC=retcode</td>
</tr>
<tr>
<td>DFHDB2063</td>
<td>date time applid Authorization failure starting the CICS-DB2 attachment with RESP=xxxx and RESP2=yyyy</td>
</tr>
<tr>
<td>DFHEJ0601 W</td>
<td>date time applid [RAS_informational_message]</td>
</tr>
<tr>
<td>DFHFC0312</td>
<td>applid Message msgno data set dsname</td>
</tr>
<tr>
<td>DFHFC6018</td>
<td>date time applid Attempt by CICS to cancel a [non-BWO</td>
</tr>
<tr>
<td>DFHFC6026</td>
<td>date time applid An error has occurred while notifying VSAM RLS of the completion of CICS processing for a data set quiesce or backup. The SMSVSAM server is not available. Data set dsname</td>
</tr>
<tr>
<td>DFHFC6031</td>
<td>date time applid Attempt by [CICS</td>
</tr>
<tr>
<td>DFHFC6034</td>
<td>date time applid Attempt by [CICS</td>
</tr>
<tr>
<td>DFHHI1013 E</td>
<td>date time applid Failure establishing connection to host host port port. Reason is: exception.</td>
</tr>
<tr>
<td>DFHNC0944 I</td>
<td>R12=pro CF Exit response Name=counter</td>
</tr>
<tr>
<td>DFHPI0301</td>
<td>date time applid CICS was unable to link to PROGRAM program_name while attempting to invoke WEBSERVICE WebService. [The program abended.</td>
</tr>
<tr>
<td>DFHPI0400</td>
<td>date time applid tranid The CICS pipeline HTTP transport mechanism failed to send a request because [the request was using an invalid host codepage</td>
</tr>
<tr>
<td>DFHPI0401</td>
<td>date time applid tranid The CICS pipeline HTTP transport mechanism failed to send a response or receive a request because [the codepage was not found</td>
</tr>
<tr>
<td>DFHPI0700 S</td>
<td>date time applid userid PIPELINE pipeline failed to install completely because PL/I support is not available and is required for pipeline usage.</td>
</tr>
<tr>
<td>DFHPI0704 I</td>
<td>date time applid userid PIPELINE pipeline Implicit scan has completed. Number of wsbind files found in the WSDIR directory: num_files. Number of successful WEBSERVICE creates: num_ok. Number of failed WEBSERVICE creates: num_failed.</td>
</tr>
<tr>
<td>DFHPI0715 I</td>
<td>date time applid userid PIPELINE pipeline explicit scan has completed. Number of wsbind files found in the WSDIR directory: num_files. Number of WEBSERVICEs created or updated: num_ok. Number of WEBSERVICEs not requiring an update: num_num. Number of failed WEBSERVICE creates or updates: num_failed.</td>
</tr>
<tr>
<td>DFHPI0716 E</td>
<td>date time applid userid Unable to dynamically create a WEBSERVICE for PIPELINE pipeline. The complete WSBIND file name is too long.</td>
</tr>
</tbody>
</table>
Table 31. Messages changed in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHP10720 E</td>
<td>date time applid userid PIPELINE pipeline encountered an error in the configuration file filename at offset 'X'offset'. Found : element_found yet expected : [{&lt;service&gt;</td>
</tr>
<tr>
<td>DFHP10914 E</td>
<td>date time applid WEBSERVICE WebService is UNUSABLE because: {the WSBind file was not found</td>
</tr>
<tr>
<td>DFHP11001</td>
<td>date time applid Validation of a {request</td>
</tr>
<tr>
<td>DFHP11002</td>
<td>date time applid Validation of a {request</td>
</tr>
<tr>
<td>DFHP11007</td>
<td>date time applid trannum XML to data transformation failed because of incorrect input {{XML_FORMAT_ERROR</td>
</tr>
<tr>
<td>DFHP11008</td>
<td>date time applid trannum XML generation failed because of incorrect input {{ARRAY_CONTAINER_TOO_SMALL</td>
</tr>
<tr>
<td>DFHRL0119 E</td>
<td>applid The CICS resource life-cycle bundle class failed to re-create the BUNDLE resource bundle_name because of failed consistency checks with the manifest manifest_file</td>
</tr>
<tr>
<td>DFHS1519 I</td>
<td>applid The interregion communication session was successfully started in XCF group xcfgroup</td>
</tr>
<tr>
<td>DFHSJ0201</td>
<td>date time applid JVMPProfile A call to CEEPIPI with function code INIT_SUB_DP has failed. (Return code - X’rc’).</td>
</tr>
<tr>
<td>DFHSJ0202</td>
<td>date time applid JVMPProfile A call to CEEPIPI with function code TERM has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0203</td>
<td>date time applid JVMPProfile A call to CEEPIPI with function code CALL_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0204</td>
<td>date time applid JVMPProfile A call to CEEPIPI with function code CALL_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0205</td>
<td>date time applid JVMPProfile A call to CEEPIPI with function code CALL_SUB has failed. (Return code - X’rc’). See the JVM’s STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0501</td>
<td>date time applid JVMPProfile An attempt to obtain the CICS Wrapper class wrapper_name using the JNI function 'FindClass' has failed.</td>
</tr>
</tbody>
</table>
Table 31. Messages changed in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHSJ0502</td>
<td>date time applid JVMProfile Attempt to change the HFS working directory to pathname has failed. Runtime error message is errmsg</td>
</tr>
<tr>
<td>DFHSJ0503</td>
<td>date time applid JVMProfile Attempt to load DLL dllname has failed. Runtime error message is errmsg</td>
</tr>
<tr>
<td>DFHSJ0505</td>
<td>date time applid Attempt to open jvmprofile filename has failed. Runtime error message is errmsg</td>
</tr>
<tr>
<td>DFHSJ0507</td>
<td>date time applid JVMProfile The option option is not recognized, and has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0508</td>
<td>date time applid JVMProfile The maximum number of JVM options has been exceeded. Option option has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0509</td>
<td>date time applid JVMProfile Attempt to open JVM system properties file filename has failed. Runtime error message is errmsg</td>
</tr>
<tr>
<td>DFHSJ0511</td>
<td>date time applid JVMProfile Attempt to open filename in work directory dirname for output has failed. Runtime error message is errmsg</td>
</tr>
<tr>
<td>DFHSJ0512</td>
<td>date time applid JVMProfile Unexpected end of file while concatenating lines in system properties file.</td>
</tr>
<tr>
<td>DFHSJ0513</td>
<td>date time applid JVMProfile Unable to build shareable application class path: {Either CICS_HOME or JAVA_HOME too long</td>
</tr>
<tr>
<td>DFHSJ0514</td>
<td>date time applid JVMProfile Problem encountered on line line_number of the JVM profile: {Unexpected EOF while concatenating lines</td>
</tr>
<tr>
<td>DFHSJ0515</td>
<td>date time applid JVMProfile Problem encountered on line line_number of the JVM system properties file {Unexpected EOF while concatenating lines</td>
</tr>
<tr>
<td>DFHSJ0516</td>
<td>date time applid JVMProfile An attempt to create a Java Virtual Machine using the JNI has failed. See the JVM's STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0520</td>
<td>date time applid The setting for environment variable env_var1 in JVM Profile JVMprof is not valid for a master JVM.</td>
</tr>
<tr>
<td>DFHSJ0706</td>
<td>date time applid During processing of transaction tranid, a call to CEEPIPI with function code INIT_SUB_DP has failed. (Return code - X’rc’).</td>
</tr>
<tr>
<td>DFHSJ0707</td>
<td>date time applid During processing of transaction tranid, a call to CEEPIPI with function code CALL_SUB has failed. (Return code - X’rc’, sub-routine return code - X’subrc’). See the JVM's STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0708</td>
<td>date time applid During processing of transaction tranid, a call to CEEPIPI with function code TERM has failed. (Return code - X’rc’). See the JVM's STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0801</td>
<td>date time applid An attempt to create a master Java Virtual Machine using the JNI has failed. See the JVM's STDERR log for further details.</td>
</tr>
<tr>
<td>DFHSJ0802</td>
<td>date time applid Attempt to load DLL dllname has failed for the master JVM. Runtime error message is errmsg</td>
</tr>
<tr>
<td>DFHSJ0803</td>
<td>date time applid Attempt to change the HFS working directory to pathname has failed for the master JVM. Runtime error message is errmsg</td>
</tr>
</tbody>
</table>
Table 31. Messages changed in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHOO0123</td>
<td>date time applid Return code rc received from function 'unknown</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>DFHTC2534</td>
<td>date time applid Invalid destination at term idl, trans</td>
</tr>
<tr>
<td>DFHUP0203</td>
<td>applid USAGE DATA COLLECTION FUNCTION IS NOT AVAILABLE ON THIS SYSTEM. IFALC USAGE RC 16 HAS BEEN ISSUED. MODULE module</td>
</tr>
<tr>
<td>DFHWWB0101</td>
<td>date time applid tranid The CICS Web Interface alias program DFHWBAI detected a failure in program DFHWBBIII. Host IP address hostaddr. Client IP address: clientaddr.</td>
</tr>
<tr>
<td>DFHWWB0151</td>
<td>date time applid tranid The CICS Web Interface 3270 emulation code was unable to process the data it was passed.</td>
</tr>
<tr>
<td>DFHWWB0731</td>
<td>date time applid tranid CICS Web attach processing detected an HTTP header longer than 32767 bytes. Host IP address hostaddr. Client IP address: clientaddr.</td>
</tr>
<tr>
<td>DFHWWB0734</td>
<td>date time applid tranid CICS Web attach processing failed because the SSL handshake with the client has failed. Host IP address hostaddr. Client IP address: clientaddr.</td>
</tr>
<tr>
<td>DFHXC6641</td>
<td>applid ERROR CALLING CICS SVC - xxxxxxxxxxxx</td>
</tr>
<tr>
<td>DFHXS1115</td>
<td>applid USER userid IS NOT AUTHORIZED TO INVOKE (HOME</td>
</tr>
<tr>
<td>DFHZC3205 E</td>
<td>date time applid Transaction CTIN - virtual terminal termid z/OS Communications Server netname netname. CICS cannot support the [n.a.</td>
</tr>
<tr>
<td>DFHZC5908 E</td>
<td>date time applid Install for terminal termid failed. The security manager gave return code retcode</td>
</tr>
<tr>
<td>DFHZC5939 E</td>
<td>date time applid Install for name failed. Duplicate session- or modegroup-name for connection sysid</td>
</tr>
<tr>
<td>DFHZC5978 E</td>
<td>date time applid Unable to replace pool pppp</td>
</tr>
<tr>
<td>DFHZC5983 E</td>
<td>date time applid Unable to replace resource</td>
</tr>
<tr>
<td>EYUXD0011S</td>
<td>The Data Repository is full; all further modifications will fail. The repository must be expanded.</td>
</tr>
</tbody>
</table>
Chapter 50. New messages

These messages are new for CICS Transaction Server for z/OS, Version 4 Release 2.

New messages in CICS Transaction Server for z/OS, Version 4 Release 2

Table 32. New messages in CICS Transaction Server for z/OS, Version 4 Release 2

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAM4807E</td>
<td>applid Install failed for LSRPOOL with LSRPOOLID(lsrpoolid). The MAXKEYLENGTH is less than 22 which is incorrect for use by the CSD.</td>
</tr>
<tr>
<td>DFHAP1605</td>
<td>date time applid A SIGABRT signal has been received by a JVM server. CICS will shut down immediately.</td>
</tr>
<tr>
<td>DFHCA4807</td>
<td>date time applid tranid Install failed for LSRPOOL with LSRPOOLNUM lsrpoolnum. The MAXKEYLENGTH is less than 22 which is incorrect for use by the CSD.</td>
</tr>
<tr>
<td>DFHCA5208</td>
<td>date time applid netname tranid Resource defined but no value was specified for xxxxxxx. Ensure that the resource is updated.</td>
</tr>
<tr>
<td>DFHCA5209</td>
<td>date time applid netname tranid No command encountered. The input file might be empty.</td>
</tr>
<tr>
<td>DFHCE3554</td>
<td>You cannot mix passwords and password phrases in a change request.</td>
</tr>
<tr>
<td>DFHDH0300</td>
<td>applid File filename could not be opened (rrrr). Response X’xxxx’, Reason X’yyyy’</td>
</tr>
<tr>
<td>DFHEC1011</td>
<td>date time applid The CICS event capture component failed to create the EVENTBINDING resource evbname in BUNDLE bundle because the capture specification capspec{ filter predicate could not be built.</td>
</tr>
<tr>
<td>DFHEC1012</td>
<td>date time applid The CICS event capture component failed to create the EVENTBINDING resource evbname in BUNDLE bundle because the capture specification capspec{ has an invalid event name:</td>
</tr>
<tr>
<td>DFHEC1013</td>
<td>date time applid The CICS event capture component failed to create the EVENTBINDING resource evbname in BUNDLE bundle because the</td>
</tr>
<tr>
<td>DFHEC1016</td>
<td>date time applid EVENTBINDING evbname from BUNDLE bundle installed successfully, replacing a previously installed version.</td>
</tr>
<tr>
<td>DFHEC1022</td>
<td>date time applid Event emission failed for EVENTBINDING evbname because the EPADAPTER adapterName is unavailable.</td>
</tr>
<tr>
<td>DFHEC1023</td>
<td>date time applid EVENTBINDING evbname which defines one or more system events references EPADAPTER adapterName which specifies transactional events. Transactional system events are not supported.</td>
</tr>
<tr>
<td>DFHEC1024</td>
<td>date time applid EVENTBINDING evbname which defines one or more system events references EPADAPTER adapterName which specifies synchronous event emission. Synchronous event emission is not supported for system events.</td>
</tr>
<tr>
<td>DFHEC1026</td>
<td>applid CEPF is stopping Event Processing after a severe error.</td>
</tr>
<tr>
<td>DFHEC3111</td>
<td>date time applid The decimal floating point facility (DFP) is not installed, but is required for capture specification cs_name in event binding evb_name.</td>
</tr>
<tr>
<td>DFHEC3112</td>
<td>date time applid The binary floating point facility (DFP) is not installed, but is required for capture specification cs_name in event binding evb_name.</td>
</tr>
</tbody>
</table>
### Table 32. New messages in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHEC4006E</td>
<td><code>date time applid tranid</code> Transaction start EP adapter failed to emit an event to transaction <code>tranid</code> for event binding <code>evbname</code>. START TRANSID failed with response code <code>response</code> and reason code <code>reason</code>.</td>
</tr>
<tr>
<td>DFHEC4009</td>
<td><code>date time applid tranid</code> TSQ EP Adapter failed to emit an event to queue <code>queue_name</code> for event binding <code>evbname</code> because the queue is not defined as recoverable.</td>
</tr>
<tr>
<td>DFHEC4010</td>
<td><code>date time applid tranid</code> TSQ EP Adapter failed to emit an event to queue <code>queue_name</code> for event binding <code>evbname</code> because the queue is defined as recoverable.</td>
</tr>
<tr>
<td>DFHEC4113</td>
<td><code>date time applid tranid</code> WebSphere MQ EP adapter failed to emit an event to queue <code>queue_name</code> for event binding <code>evbname</code>. WebSphere MQ function MQPUT1 returned with completion code <code>comp_code</code>.</td>
</tr>
<tr>
<td>DFHEC4118</td>
<td><code>date time applid tranid</code> The TSQ EP adapter truncated an event for capture specification <code>csname</code> in event binding <code>evbname</code> to queue <code>queue_name</code>. The event’s size of <code>buffer_length</code> bytes exceeds the maximum length for TS queues.</td>
</tr>
<tr>
<td>DFHEC4119</td>
<td><code>date time applid tranid</code> TSQ EP adapter failed to emit an event to queue <code>queue_name</code> for event binding <code>evbname</code>. WRITEQ TS returned with condition <code>resp</code> reason code <code>reason</code>.</td>
</tr>
<tr>
<td>DFHEC4120</td>
<td><code>date time applid tranid</code> The HTTP EP Adapter failed to emit event for capture specification <code>csname</code> in event binding <code>evbname</code> using URIMAP <code>urimap_name</code>. function returned with response code <code>resp</code> reason code <code>resp2</code>.</td>
</tr>
<tr>
<td>DFHEC4121</td>
<td><code>date time applid tranid</code> The HTTP EP Adapter failed to emit an event for capture specification <code>csname</code> in event binding <code>evbname</code> using URIMAP <code>urimap_name</code>. Server responded with HTTP status code <code>http_status_code</code>.</td>
</tr>
<tr>
<td>DFHEC4122</td>
<td><code>date time applid tranid</code> The HTTP EP Adapter failed to emit event for capture specification <code>csname</code> in event binding <code>evbname</code> using URIMAP <code>urimap_name</code>. function returned with response code <code>resp</code> reason code <code>resp2</code>.</td>
</tr>
<tr>
<td>DFHEC4123</td>
<td><code>date time applid tranid</code> The HTTP EP Adapter failed to emit an event for capture specification <code>csname</code> in event binding <code>evbname</code> using URIMAP <code>urimap_name</code>. Server responded with HTTP status code <code>http_status_code</code>.</td>
</tr>
<tr>
<td>DFHEP0120</td>
<td><code>date time applid tranid</code> The EP adapter transaction ID of <code>adapter_tranid</code> in event binding <code>evbname</code> is defined to start the wrong program for this type of adapter. Event discarded.</td>
</tr>
<tr>
<td>DFHEP0121</td>
<td><code>date time applid</code> Synchronous event emission by EPADAPTER <code>epadapter</code> failed for an event from EVENTBINDING <code>evbname</code>. The UOW will be backed out.</td>
</tr>
<tr>
<td>DFHEP0122</td>
<td><code>applid</code> The EPADAPTER transaction ID <code>adapter_tranid</code> is not enabled for use during CICS shutdown. An event from EVENTBINDING <code>evbname</code> has been discarded.</td>
</tr>
<tr>
<td>DFHEP0123</td>
<td><code>applid</code> EP domain is quiescing but <code>adapter_tasks</code> EP adapter tasks are still active.</td>
</tr>
<tr>
<td>DFHEP1000</td>
<td><code>date time applid</code> Invalid parameter list passed to EP domain module <code>modname</code>.</td>
</tr>
<tr>
<td>DFHEP1001</td>
<td><code>date time applid</code> EPADAPTER <code>adaptername</code> from BUNDLE <code>bundle</code> installed successfully.</td>
</tr>
<tr>
<td>DFHEP1002</td>
<td><code>date time applid</code> EPADAPTER <code>adaptername</code> from BUNDLE <code>bundle</code> discarded successfully.</td>
</tr>
<tr>
<td>DFHEP1003</td>
<td><code>date time applid</code> EPADAPTER <code>epadapter</code> from BUNDLE <code>bundle</code> installed successfully, replacing a previously installed version.</td>
</tr>
<tr>
<td>DFHEP2001</td>
<td><code>date time applid</code> The CICS event processing domain failed to create EP adapter resource <code>adapter</code> in BUNDLE <code>bundle</code> because the EP adapter, which is of type <code>adapterType</code> and emission mode <code>emissionmode</code>, requires a program name. 1, does not support transactional events. 1, requires a transaction ID. 1, is invalid or unrecognized. 1, has an invalid or unsupported event format. 1, has an unsupported combination of attributes.</td>
</tr>
</tbody>
</table>
| DFHEP2002      | `date time applid` The CICS event processing domain failed to create the EPADAPTER resource `adaptername` in BUNDLE `bundle` because (the EP adapter name is invalid. 1 the XML data for the EP adapter could not be parsed. 1 the eventDispatcher is missing or invalid. 1 the configuration data is too long. 1 it is a duplicate of another EPADAPTER in the BUNDLE.)
### Table 32. New messages in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHEP2003</td>
<td><code>date time applid</code> The CICS event processing domain failed to create the EP adapter resource <code>adaptername</code> in BUNDLE <code>bundle</code> because the <code>LOCALCCSID SIT</code> parameter is not supported:</td>
</tr>
<tr>
<td>DFHEP2005</td>
<td><code>date time applid</code> The CICS event processing domain found an inconsistency in the advanced options during install of EP adapter <code>adaptername</code> with emission mode <code>emitmode</code> and type <code>adapterType</code>. The option <code>option</code> is ignored.</td>
</tr>
<tr>
<td>DFHIS1042</td>
<td><code>date time applid</code> Transaction <code>tranid</code> not defined.</td>
</tr>
<tr>
<td>DFHIS3031E</td>
<td><code>date time applid</code> Transaction <code>tranid</code> using terminal <code>termid</code> failed to establish security for userid <code>userid</code> with IPCONN <code>ipconn</code>. SAF codes are (X'safresp',X'safreas'), ESM codes are (X'esmresp',X'esmreas').</td>
</tr>
<tr>
<td>DFHIS3032E</td>
<td><code>date time applid</code> Transaction <code>tranid</code> using terminal <code>termid</code> failed to establish security for userid <code>userid</code> with IPCONN <code>ipconn</code>. SAF codes are (X'safresp',X'safreas'), ESM codes are (X'esmresp').</td>
</tr>
<tr>
<td>DFHME0103</td>
<td><code>applid</code> Insufficient 64-bit storage to load module <code>modname</code>.</td>
</tr>
<tr>
<td>DFHME0213</td>
<td><code>applid</code> Incorrect parameters used in call to DFHME64 for message <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0215</td>
<td><code>applid</code> <code>modname</code> Message module for language <code>language</code> not found. The default module <code>modnameb</code> is used.</td>
</tr>
<tr>
<td>DFHME0217</td>
<td><code>applid</code> The Message User Exit point XMEOUT is unavailable for message <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0218</td>
<td><code>applid</code> An error has occurred when calling the Message User Exit for message <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0220I</td>
<td><code>applid</code> Message <code>msgno</code> has been rerouted to its original destination.</td>
</tr>
<tr>
<td>DFHME0222</td>
<td><code>applid</code> The Message User Exit has returned invalid route code information for message number <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0223</td>
<td><code>applid</code> The Message User Exit has returned invalid TD queue information for message number <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0225</td>
<td><code>applid</code> The Message User Exit has returned an invalid return code <code>rc</code> for message <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0232</td>
<td><code>applid</code> The User's Message Exit program has failed while processing message <code>msgno</code>.</td>
</tr>
<tr>
<td>DFHME0237</td>
<td><code>applid</code> Message <code>msgno</code> cannot be rerouted to a transient data destination by the message user exit XMEOUT.</td>
</tr>
<tr>
<td>DFHME0240</td>
<td><code>applid</code> CICSPlex SM messages cannot be issued because the English message table <code>modname</code> cannot be found.</td>
</tr>
<tr>
<td>DFHML0101</td>
<td><code>date time applid </code> <code>tranid</code> Call to z/OS XML System Services parser for function <code>function</code> failed with return code <code>X'return_code'</code> and reason code <code>X'reason_code'</code> at data offset <code>X'error_offset'</code>.</td>
</tr>
<tr>
<td>DFHML0600</td>
<td><code>date time applid </code> <code>tranid</code> JSONTRANSFORM <code>jsontransfrm_name</code> for BUNDLE <code>owner_name</code> has been added.</td>
</tr>
<tr>
<td>DFHML0601</td>
<td><code>date time applid </code> <code>tranid</code> JSONTRANSFORM <code>jsontransfrm_name</code> for BUNDLE <code>owner_name</code> has been deleted.</td>
</tr>
<tr>
<td>DFHML0602</td>
<td><code>date time applid </code> <code>tranid</code> JSONTRANSFORM <code>jsontransfrm_name</code> for BUNDLE <code>owner_name</code> has been [ENABLED</td>
</tr>
<tr>
<td>DFHML0603</td>
<td><code>date time applid </code> <code>tranid</code> JSONTRANSFORM <code>jsontransfrm_name</code> for BUNDLE <code>owner_name</code> cannot be installed as a duplicate JSONTRANSFORM resource with the same name already exists.</td>
</tr>
<tr>
<td>DFHML0604</td>
<td><code>date time applid </code> <code>tranid</code> JSONTRANSFORM <code>jsontransfrm_name</code> for BUNDLE <code>owner_name</code> cannot be [ENABLED</td>
</tr>
<tr>
<td>DFHML0605</td>
<td><code>date time applid </code> <code>tranid</code> JSONTRANSFORM <code>jsontransfrm_name</code> for BUNDLE <code>owner_name</code> has an unsupported runtime level.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHML0609</td>
<td>date applid userid tranid JSONTRANSFRM jsontransfrm_name for BUNDLE owner_name cannot be installed as one or more invalid characters exist in the resource name.</td>
</tr>
<tr>
<td>DFHML0610</td>
<td>date applid userid tranid JSONTRANSFRM jsontransfrm_name for BUNDLE owner_name is incompatible with the LOCALCCSID.</td>
</tr>
<tr>
<td>DFHMQ2065</td>
<td>date applid Resynchronization outstanding for queue manager qmgr after CICS-MQ group attach has connected to queue-sharing group qsg.</td>
</tr>
<tr>
<td>DFHMQ2066</td>
<td>date applid Resynchronization outstanding for queue-sharing group qsg after CICS-MQ group attach has connected to queue manager qmgr.</td>
</tr>
<tr>
<td>DFHPA1949</td>
<td>applid CANCEL reply received. CICS is terminating.</td>
</tr>
<tr>
<td>DFHPI0603I</td>
<td>date applid The CICS SOAP handler has received an unexpected HTTP GET for URI.</td>
</tr>
<tr>
<td>DFHPI0728E</td>
<td>date applid userid PIPELINE pipeline encountered an error in the configuration file filename for the pipeline. The repository Axis2 configuration file element cannot be accessed by CICS.</td>
</tr>
<tr>
<td>DFHPI0729E</td>
<td>date applid userid PIPELINE pipeline encountered an error in the pipeline configuration file filename at offset 'X+offset'. The CICS Java SOAP handler cannot be an intermediate message handler.</td>
</tr>
<tr>
<td>DFHPI0734E</td>
<td>date applid Error 'exception' occurred whilst configuring PIPELINE pipeline within a JVMSERVER.</td>
</tr>
<tr>
<td>DFHPI0735E</td>
<td>date applid Error exception occurred whilst configuring WEBSERVICE webservice within a JVMSERVER.</td>
</tr>
<tr>
<td>DFHPI0736E</td>
<td>date applid userid PIPELINE pipeline encountered an error in the configuration file filename for the pipeline. The file has both &lt;apphandler&gt; and &lt;apphandler_class&gt; elements specified. You may only specify one of these elements.</td>
</tr>
<tr>
<td>DFHPI0905E</td>
<td>date applid userid WEBSERVICE WebService within PIPELINE Pipeline cannot check for archive file because the WSDL name Name is too long.</td>
</tr>
<tr>
<td>DFHPI0906E</td>
<td>date applid userid WEBSERVICE WebService within PIPELINE Pipeline cannot generate URIMAP for WSDL discovery because URI Uri is too long.</td>
</tr>
<tr>
<td>DFHPI0949E</td>
<td>Array name occurs occurs times. The largest supported value is max.</td>
</tr>
<tr>
<td>DFHPI9685E</td>
<td>A language structure cannot be parsed. Please ensure that the statement terminator characters are correct and that any brackets are matched.</td>
</tr>
<tr>
<td>DFHPI9686W</td>
<td>Structure structureName is ignored for container containerName as the container is defined as type 'char'.</td>
</tr>
<tr>
<td>DFHPI9687W</td>
<td>Unexpected text text found in columns start_column to end_column. Text is ignored.</td>
</tr>
<tr>
<td>DFHPI9688E</td>
<td>Unexpected End of Line condition encountered for line 'line' of file filename.</td>
</tr>
<tr>
<td>DFHPI9691E</td>
<td>Invalid JSON schema. A JSON schema is a JSON document, and that document must be an object.</td>
</tr>
<tr>
<td>DFHPI9692E</td>
<td>Unsupported JSON schema. A JSON schema requires a &quot;type&quot; keyword with single string value.</td>
</tr>
<tr>
<td>DFHPI9693E</td>
<td>Invalid JSON schema. It contains an undefined JSON schema &quot;type&quot; of typevalue.</td>
</tr>
<tr>
<td>DFHPI9694E</td>
<td>Unsupported JSON schema. JSON schema &quot;type&quot; of typevalue is not supported.</td>
</tr>
<tr>
<td>DFHPI9695E</td>
<td>Unsupported JSON schema. A JSON schema &quot;type&quot; of &quot;object&quot; without a &quot;properties&quot; keyword is not supported.</td>
</tr>
<tr>
<td>DFHPI9696E</td>
<td>Invalid JSON schema. The value of &quot;properties&quot; keyword must be an object.</td>
</tr>
<tr>
<td>DFHPI9697E</td>
<td>Invalid JSON schema. The value of &quot;required&quot; keyword must be an array.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHPI9698E</td>
<td>Unsupported JSON schema. A JSON schema &quot;type&quot; of &quot;array&quot; without an &quot;items&quot; keyword is not supported.</td>
</tr>
<tr>
<td>DFHPI9699E</td>
<td>PICTURE strings are not supported for COMP-1 and COMP-2 fields. Problem found for field fieldName.</td>
</tr>
<tr>
<td>DFHPI9700E</td>
<td>Unsupported JSON schema. A JSON Schema &quot;type&quot; of &quot;object&quot; with an &quot;additionalProperties&quot; keyword is only supported with value false.</td>
</tr>
<tr>
<td>DFHPI9701E</td>
<td>Unsupported JSON schema. The JSON schema keyword keyword is not supported.</td>
</tr>
<tr>
<td>DFHPI9702E</td>
<td>Unsupported JSON schema. A JSON schema &quot;type&quot; of &quot;array&quot; with an &quot;additionalItems&quot; keyword is only supported with value false.</td>
</tr>
<tr>
<td>DFHPI9703E</td>
<td>Invalid JSON schema. The JSON schema keyword keyword requires the keyword required to be present.</td>
</tr>
<tr>
<td>DFHPI9704W</td>
<td>The JSON schema keyword keyword is not recognized and is ignored.</td>
</tr>
<tr>
<td>DFHPI9705E</td>
<td>Invalid JSON schema. The JSON schema keyword &quot;required&quot; includes elements missing that are not in the &quot;properties&quot; keyword.</td>
</tr>
<tr>
<td>DFHPI9706E</td>
<td>Invalid JSON schema. The JSON schema keyword keyword for an array has a bad value.</td>
</tr>
<tr>
<td>DFHPI9707E</td>
<td>Invalid JSON schema. The JSON schema keywords &quot;maximum&quot; or &quot;minimum&quot; for an integer have a bad value.</td>
</tr>
<tr>
<td>DFHPI9708W</td>
<td>The JSON schema format format for &quot;type&quot; of typevalue is not recognized and is ignored.</td>
</tr>
<tr>
<td>DFHPI9709E</td>
<td>Invalid JSON schema. The JSON schema keywords &quot;maxLength&quot; or &quot;minLength&quot; for a string have a bad value.</td>
</tr>
<tr>
<td>DFHPI9710E</td>
<td>Invalid JSON schema. The JSON schema keywords keywords are not compatible with JSON schema &quot;format&quot; format.</td>
</tr>
<tr>
<td>DFHPI9711W</td>
<td>Possible bad integer read. The numeric value number is rounded to integer integer.</td>
</tr>
<tr>
<td>DFHPI9712W</td>
<td>For JSON schema &quot;type&quot; of &quot;number&quot; with &quot;decimal&quot; format, display is limited to 18 digits.</td>
</tr>
<tr>
<td>DFHPI9713W</td>
<td>For JSON schema &quot;type&quot; of &quot;number&quot; with &quot;decimal&quot; format, absolute values are limited to 1.0E19.</td>
</tr>
<tr>
<td>DFHPI9714E</td>
<td>Unsupported JSON schema. In element &quot;element&quot;, the JSON schema &quot;type&quot; of &quot;array&quot; is not supported for &quot;items&quot; keyword.</td>
</tr>
<tr>
<td>DFHRL0122E</td>
<td>applid The CICS resource life-cycle manager failed to re-create the resource resource_name for BUNDLE resource bundle_name.</td>
</tr>
<tr>
<td>DFHRT4424</td>
<td>time applid Use of EDF is not supported with IPIC communication to system sysid. The routing session is still active. To terminate the routing session type CANCEL.</td>
</tr>
<tr>
<td>DFHSJ0101I</td>
<td>applid The JVM (SJ) domain for Java has started initializing. Java is a trademark of Oracle and/or its affiliates.</td>
</tr>
<tr>
<td>DFHSJ0102I</td>
<td>applid Sj domain initialization has ended.</td>
</tr>
<tr>
<td>DFHSJ0103</td>
<td>applid Sj domain initialization has failed.</td>
</tr>
</tbody>
</table>
| DFHSJ0210      | date time applid An attempt to start a JVM for the JVMSERVER resource jvmsserver has failed. Reason code |JVMPROFILE_ERROR| OPEN_JVM_ERROR |JNI_CREATE_NOT_FOUND |SETUP_CLASS_NOT_FOUND|TERMINATION_CLASS_NOT_FOUND|CREATE_JVM_FAILED|CHANGE_DIRECTORY_CALL_FAILED|STDOUT/STDERR_ACCESS_FAILED|ERROR_LOCATING_MAIN_METHOD|ATTACHJNI_THREAD_FAILED|SETUP_CLASS_TIMEDOUT|ENCLAVEINIT_FAILED|ERROR_CODE_UNRECOGNIZED|.
| DFHSJ0211      | date time applid An exception has been thrown by the main method of a setup class, which was running in the JVM belonging to the JVMSERVER resource jvmsserver. |
### Table 32. New messages in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHSJ0212</td>
<td>date time applid An error occurred while terminating the JVM belonging to the JVMSERVER resource jvmserver. Reason code (TERMINATION_CLASS_NOT_FOUND</td>
</tr>
<tr>
<td>DFHSJ0213</td>
<td>date time applid An exception has been thrown by the main method of a termination class, which was running in the JVM belonging to the JVMSERVER resource jvmserver.</td>
</tr>
<tr>
<td>DFHSJ0214</td>
<td>date time applid A class in a JVM Server has invoked System.exit(). CICS will shut down immediately.</td>
</tr>
<tr>
<td>DFHSJ0215</td>
<td>date time applid The JVM Server jvmserver failed to initialize the OSGi framework. The JVM will be terminated.</td>
</tr>
<tr>
<td>DFHSJ0540</td>
<td>date time applid The USSHOME System Initialization Parameter is set to NONE. CICS will attempt to use the value of CICS_HOME from the JVM profile jvmpro instead.</td>
</tr>
<tr>
<td>DFHSJ0541</td>
<td>date time applid The USSHOME System Initialization Parameter is set to NONE and CICS_HOME is not specified in the JVM profile jvmpro. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0542</td>
<td>date time applid Wildcard expansion of CLASSPATH_SUFFIX in the JVM profile jvmpro has resulted in a class path which is too long. Some elements of the class path might be missing.</td>
</tr>
<tr>
<td>DFHSJ0600W</td>
<td>date time applid userid termid tranid program name 256 unclosed FileBrowse browse sessions exist for task tranum.</td>
</tr>
<tr>
<td>DFHSJ0919I</td>
<td>date time applid userid JVMSERVER jvmserver is processing any queued OSGi bundles.</td>
</tr>
<tr>
<td>DFHSJ1007W</td>
<td>date time applid JVMSERVER jvmserver is being disabled by CICS because it is in an inconsistent state.</td>
</tr>
<tr>
<td>DFHSJ1008W</td>
<td>date time applid CICS is enabling JVMSERVER jvmserver after successfully disabling the resource.</td>
</tr>
<tr>
<td>DFHSJ1100</td>
<td>date time applid An attempt to install an OSGi bundle into JVM server jvmserver has failed. OSGi bundle symbolic name OSGibundle, version version, reason code [ERROR_CODE_UNRECOGNIZED</td>
</tr>
<tr>
<td>DFHSJ1101</td>
<td>date time applid An attempt to enable an OSGi bundle in JVM server jvmserver has failed. OSGi bundle symbolic name OSGibundle, version version, reason code [ERROR_CODE_UNRECOGNIZED</td>
</tr>
<tr>
<td>DFHSJ1102</td>
<td>date time applid An attempt to disable an OSGi bundle in JVM server jvmserver has failed. OSGi bundle symbolic name OSGibundle, version version, reason code [ERROR_CODE_UNRECOGNIZED</td>
</tr>
<tr>
<td>DFHSJ1104W</td>
<td>date time applid The OSGi bundle has not been installed because the JVM server jvmserver is not enabled. OSGi bundle symbolic name OSGibundle, version version.</td>
</tr>
<tr>
<td>DFHSJ1105</td>
<td>date time applid OSGIBUNDLE resname from BUNDLE bundlename has been installed.</td>
</tr>
<tr>
<td>DFHSJ1106</td>
<td>date time applid OSGIBUNDLE resname from BUNDLE bundlename has been discarded.</td>
</tr>
<tr>
<td>DFHS00135</td>
<td>applid An attempt to create a socket has failed because the request has timed out.</td>
</tr>
<tr>
<td>DFHTD1290</td>
<td>applid Program DFHTDRP cannot be found.</td>
</tr>
<tr>
<td>DFHTM1718</td>
<td>date time applid About to link to user PLT program proiname during the first stage of shutdown.</td>
</tr>
<tr>
<td>DFHTM1719</td>
<td>date time applid About to link to user PLT program proiname during the second stage of shutdown.</td>
</tr>
<tr>
<td>DFHTR0119</td>
<td>applid No DCB storage available for auxiliary trace data set. Auxiliary trace is inoperative.</td>
</tr>
<tr>
<td>DFHTR0122</td>
<td>STORAGE FOR INTERNAL TRACE TABLE NOT AVAILABLE - TRACE INOPERATIVE.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHTR0123</td>
<td>REQUESTED TRACE TABLE SIZE NOT AVAILABLE.</td>
</tr>
<tr>
<td>DFHTR0124</td>
<td>applid UNABLE TO BUILD TRACE CELL POOL IN 64-BIT STORAGE.</td>
</tr>
<tr>
<td>DFHTR0104</td>
<td>applid CICS system dump requested by global trap exit DFHTRAP in module modname. The dump will be taken whilst holding the trace lock.</td>
</tr>
<tr>
<td>DFHST1601</td>
<td>date time applid Main temporary storage usage has reached xx% of TSMAINLIMIT storage.</td>
</tr>
<tr>
<td>DFHST1602</td>
<td>date time applid Main temporary storage has attempted to exceed the TSMAINLIMIT storage limit.</td>
</tr>
<tr>
<td>DFHST1603</td>
<td>date time applid The TSMAINLIMIT storage limit has been changed from xxxx MB to yyyy MB.</td>
</tr>
<tr>
<td>DFHST1604</td>
<td>date time applid Main temporary storage usage has fallen below 70% of TSMAINLIMIT.</td>
</tr>
<tr>
<td>DFHST1605</td>
<td>date time applid Scan of local temporary storage queues completed. XXXX local temporary storage queues were scanned and YYYY were deleted.</td>
</tr>
<tr>
<td>DFHST1606</td>
<td>date time applid The TSMAINLIMIT has been left unchanged at xxxx MB.</td>
</tr>
<tr>
<td>DFHST1607</td>
<td>date time applid An attempt to increase TSMAINLIMIT has failed. The TSMAINLIMIT setting has been left unchanged.</td>
</tr>
<tr>
<td>DFHST1608</td>
<td>applid TS domain initialization has failed because an attempt was made to set TSMAINLIMIT to a value greater than 25% of MEMLIMIT.</td>
</tr>
<tr>
<td>DFHUS0300</td>
<td>date time applid An ICRX has been supplied without a realm for DNAME=dname.</td>
</tr>
<tr>
<td>DFHW20134</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Version number version in the configuration file is not supported at this level of CICS.</td>
</tr>
<tr>
<td>DFHW20135</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Attribute attr1 on element prefix:element is not available at version version of the configuration file.</td>
</tr>
<tr>
<td>DFHW20136</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Element prefix1:element1 in element prefix2:element2 is not available at version version of the configuration file.</td>
</tr>
<tr>
<td>DFHW20137</td>
<td>date time applid Install for ATOMSERVICE atomservice has failed because ( an ) ATOMSERVICE with the same name already exists ( \mid ) an authorization error occurred ( \mid ) of a problem with the ATOMSERVICE configuration file ( \mid ) the URIMAP could not be created ( \mid ) an unspecified error occurred.</td>
</tr>
<tr>
<td>DFHW20161</td>
<td>date time applid Referenced resource resource has a type that is not supported for delivering feeds. ATOMSERVICE atomservice has been disabled.</td>
</tr>
<tr>
<td>DFHWU0002</td>
<td>applid A severe error ( \text{code} \ X`code' ) has occurred in module modname.</td>
</tr>
<tr>
<td>DFHWU0004</td>
<td>applid A possible loop has been detected at offset ( X`offset' ) in module modname.</td>
</tr>
<tr>
<td>DFHWU2100</td>
<td>applid Unable to link to program DFHWURP.</td>
</tr>
<tr>
<td>DFH5208</td>
<td>date time applid netname tranid Resource defined but no value was specified for xxxxxxxx. Ensure that the resource is updated.</td>
</tr>
<tr>
<td>DFH5209</td>
<td>date time applid netname tranid No command encountered. The input file might be empty.</td>
</tr>
<tr>
<td>EYUXS1011S</td>
<td>applid Interval Timing could not load the external security manager interface.</td>
</tr>
<tr>
<td>EYUXS1021S</td>
<td>applid Interval Timing could not load the CICS initialization program.</td>
</tr>
<tr>
<td>EYUVCI1019</td>
<td>Passwords and password phrases cannot be mixed. Try again.</td>
</tr>
<tr>
<td>EYUVCI1020</td>
<td>The external security manager interface has not been initialized. Sign-on request failed.</td>
</tr>
<tr>
<td>EYUVCI1021</td>
<td>The external security manager is currently not accepting sign-on requests. Try again later.</td>
</tr>
<tr>
<td>EYUVCI1023</td>
<td>Incorrect password length. Sign-on is terminated.</td>
</tr>
<tr>
<td>EYUVCI1024</td>
<td>Incorrect new password length. Sign-on is terminated.</td>
</tr>
<tr>
<td>EYUVCI1025</td>
<td>Incorrect user name length. Sign-on is terminated.</td>
</tr>
</tbody>
</table>
Table 32. New messages in CICS Transaction Server for z/OS, Version 4 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>EYUVC1026</td>
<td>Incorrect group name length.</td>
</tr>
<tr>
<td>EYUVC1027</td>
<td>Invalid group name specified</td>
</tr>
<tr>
<td>EYUWM0439</td>
<td>date time applid TRANGRP (trangrid) in CICSplex (context) for Workload (workloadid) transition to type: sysname at sysplex reason.</td>
</tr>
<tr>
<td>EYUXL0119</td>
<td>Major Object loaded from module</td>
</tr>
</tbody>
</table>

New messages in CICS Transaction Server for z/OS, Version 4 Release 1

Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAM4936 E</td>
<td>Applid The installation of BUNDLE Resourcename failed because the manifest found in the bundle root directory was not valid.</td>
</tr>
<tr>
<td>DFHAM4937 E</td>
<td>Applid The installation of BUNDLE Resourcename failed because a manifest was not found in the bundle root directory.</td>
</tr>
<tr>
<td>DFHAM4938 W</td>
<td>Applid BUNDLE Resourcename has been installed as disabled because one or more of its associated resources failed to install.</td>
</tr>
<tr>
<td>DFHAM4939 E</td>
<td>Applid The installation of ATOMSERVICE Resourcename failed due to a configuration error.</td>
</tr>
<tr>
<td>DFHAM4940 E</td>
<td>Applid Install of MQCONN Mqconn-name failed because an MQCONN is already installed and is in use.</td>
</tr>
<tr>
<td>DFHAM4941 E</td>
<td>Applid The installation of {ATOMSERVICE} Resourcename failed because the {configfile</td>
</tr>
<tr>
<td>DFHAM4942 E</td>
<td>Applid The installation of {ATOMSERVICE} Resourcename failed because CICS does not have authority to access the {configfile</td>
</tr>
<tr>
<td>DFHAM4943 E</td>
<td>Applid The installation of {ATOMSERVICE} Resourcename failed because the associated {configfile</td>
</tr>
<tr>
<td>DFHAM4944 E</td>
<td>Applid JVMSERVER Resourcename has been installed with less threads than requested on its definition.</td>
</tr>
<tr>
<td>DFHAM4945 E</td>
<td>Applid JVMSERVER Resourcename has been installed as disabled with a threadlimit of 0.</td>
</tr>
<tr>
<td>DFHAM4946 E</td>
<td>Applid The installation of {bundle} Resourcename failed because CICS does not have authority to access the manifest found in the bundle root directory.</td>
</tr>
<tr>
<td>DFHAP0702</td>
<td>Applid An abend (code Abcode) has occurred in exit program Progname at exit point Xxxxxxx because a backlevel XPI call has been made.</td>
</tr>
<tr>
<td>DFHAP0703</td>
<td>Applid An abend (code Abcode) has occurred in exit program Progname at exit point Xxxxxxx because a backlevel XPI call has been made.</td>
</tr>
<tr>
<td>DFHAP0708</td>
<td>Applid An abend (code Abcode) has occurred in task related user exit program Progname because a backlevel XPI call has been made.</td>
</tr>
<tr>
<td>DFHAP1301</td>
<td>Date time applid Language Environment has detected a corruption of its control blocks. Transaction Transaction currently executing.</td>
</tr>
<tr>
<td>DFHAP1600</td>
<td>Date time applid An attempt to start a JVM for the JVMSERVER resource Jvmserver has failed. Reason code [JVMPROFILE_ERROR</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHAP1601</td>
<td>Date time applid An exception has been thrown by the main method of the JVM belonging to the JVMSERVER resource Jvmserver.</td>
</tr>
<tr>
<td>DFHAP1602</td>
<td>Date time applid An error occurred while terminating the JVM belonging to the JVMSERVER resource Jvmserver. Reason code {termination_class_not_found</td>
</tr>
<tr>
<td>DFHAP1603</td>
<td>Date time applid An exception has been thrown by the main method of a termination class, which was running in the JVM belonging to the JVMSERVER resource Jvmserver.</td>
</tr>
<tr>
<td>DFHBR0509</td>
<td>Date time applid You are approaching or have reached the maximum number of times a Link3270 bridge routing region can be started.</td>
</tr>
<tr>
<td>DFHCA4800 I</td>
<td>Date time applid New group Grpname created.</td>
</tr>
<tr>
<td>DFHCA4801 I</td>
<td>Date time applid New list Lstname created.</td>
</tr>
<tr>
<td>DFHCA4802 E</td>
<td>Date time applid Name is an invalid name.</td>
</tr>
<tr>
<td>DFHCA4803 E</td>
<td>Date time applid Install failed because an existing definition for file Filename could not be deleted.</td>
</tr>
<tr>
<td>DFHCA4805 E</td>
<td>Date time applid Unable to perform operation: Name is locked to applid Applid, opid Opid to prevent updating.</td>
</tr>
<tr>
<td>DFHCA4806 E</td>
<td>Date time applid Group name Grpname exists as a list name.</td>
</tr>
<tr>
<td>DFHCA4807 E</td>
<td>Date time applid Object already exists in this group.</td>
</tr>
<tr>
<td>DFHCA4809 E</td>
<td>Date time applid Date/time fields do not match (object updated by another user).</td>
</tr>
<tr>
<td>DFHCA4810 E</td>
<td>Date time applid Object not found (deleted by another user).</td>
</tr>
<tr>
<td>DFHCA4811 E</td>
<td>Date time applid Name1 does not contain Name2.</td>
</tr>
<tr>
<td>DFHCA4812 W</td>
<td>Date time applid Install of library Libname encountered a data set {allocation</td>
</tr>
<tr>
<td>DFHCA4813 W</td>
<td>Date time applid Install of library Libname encountered an MVS abend. The library is installed but disabled.</td>
</tr>
<tr>
<td>DFHCA4814 E</td>
<td>Date time applid List name Lstname exists as a group name.</td>
</tr>
<tr>
<td>DFHCA4815 E</td>
<td>Date time applid Group Grpname not found in this list.</td>
</tr>
<tr>
<td>DFHCA4816 E</td>
<td>Date time applid unable to install group Grpname - group not found.</td>
</tr>
<tr>
<td>DFHCA4817 E</td>
<td>Date time applid Install of library Libname failed with an MVS abend. The library is not installed.</td>
</tr>
<tr>
<td>DFHCA4819 E</td>
<td>Date time applid Group already exists in this list.</td>
</tr>
<tr>
<td>DFHCA4820 S</td>
<td>Date time applid unable to perform request - CSD full.</td>
</tr>
<tr>
<td>DFHCA4823 S</td>
<td>Date time applid unable to perform request - DFHCSD not open.</td>
</tr>
<tr>
<td>DFHCA4824 S</td>
<td>Date time applid unable to perform request - insufficient function in file definition for DFHCSD.</td>
</tr>
<tr>
<td>DFHCA4825 S</td>
<td>Date time applid unable to perform request - file control has returned an INVREQ response.</td>
</tr>
<tr>
<td>DFHCA4828 E</td>
<td>Date time applid Group Grpname not found.</td>
</tr>
<tr>
<td>DFHCA4829 S</td>
<td>Date time applid storage violation. CSD primary control record not updated.</td>
</tr>
<tr>
<td>DFHCA4830 E</td>
<td>Date time applid Restype Resname already exists in the target group.</td>
</tr>
<tr>
<td>DFHCA4831 E</td>
<td>Date time applid the new name Name is longer than the four characters allowed for Restype names.</td>
</tr>
<tr>
<td>DFHCA4832 E</td>
<td>Date time applid unable to open TDQUEUE Tdqname because the dfhintra data set is not open.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHCA4833 E</td>
<td>Date time applid a security error has occurred while attempting to install TDQUEUE Tdqueue. The definition has not been installed.</td>
</tr>
<tr>
<td>DFHCA4834 E</td>
<td>Date time applid install of [TDQUEUE</td>
</tr>
<tr>
<td>DFHCA4836 E</td>
<td>Date time applid install of db2conn Db2conn-name failed because a db2conn is already installed and is in use.</td>
</tr>
<tr>
<td>DFHCA4837 E</td>
<td>Date time applid install of [DB2ENTRY</td>
</tr>
<tr>
<td>DFHCA4838 E</td>
<td>Date time applid install of DB2ENTRY Db2entry-name failed because an existing definition could not be deleted. The existing definition is not disabled.</td>
</tr>
<tr>
<td>DFHCA4839 E</td>
<td>Date time applid list Listname not found.</td>
</tr>
<tr>
<td>DFHCA4840 W</td>
<td>Date time applid group Grpname not appended - group already exists in target list.</td>
</tr>
<tr>
<td>DFHCA4841 E</td>
<td>Date time applid install failed because definition of Restype Resname is in use by task no. Taskno (transaction id. Tranid).</td>
</tr>
<tr>
<td>DFHCA4842 E</td>
<td>Date time applid install failed because Restype Resname is currently in use.</td>
</tr>
<tr>
<td>DFHCA4843 W</td>
<td>Date time applid Tttttttt Nnnnnnnn is internally locked to opid Opid applid Applid.</td>
</tr>
<tr>
<td>DFHCA4850 E</td>
<td>Date time applid install of DB2TRAN Db2tran-name failed because DB2ENTRY Db2entry-name to which it refers has not been installed.</td>
</tr>
<tr>
<td>DFHCA4851 E</td>
<td>Date time applid install of [DB2ENTRY</td>
</tr>
<tr>
<td>DFHCA4852 W</td>
<td>Date time applid Restype name Resname begins with 'dfh'. Such names are reserved and may be redefined by CICS.</td>
</tr>
<tr>
<td>DFHCA4853 E</td>
<td>Date time applid install of DB2TRAN Db2tran-name failed because another DB2TRAN is installed with the same tranid.</td>
</tr>
<tr>
<td>DFHCA4854 W</td>
<td>Date time applid the specified {group</td>
</tr>
<tr>
<td>DFHCA4855 W</td>
<td>Date time applid the specified {group</td>
</tr>
<tr>
<td>DFHCA4856 S</td>
<td>Date time applid unable to perform request - DFHCSD not enabled.</td>
</tr>
<tr>
<td>DFHCA4857 S</td>
<td>Date time applid unable to perform request - the csdstrno operand in the system initialization table (sit) is too small.</td>
</tr>
<tr>
<td>DFHCA4858 W</td>
<td>Date time applid the specified list contains DB2ENTRY or DB2TRAN definitions before a DB2CONN definition.</td>
</tr>
<tr>
<td>DFHCA4859 E</td>
<td>Date time applid Name is now locked. No group or list of that name exists.</td>
</tr>
<tr>
<td>DFHCA4860 S</td>
<td>Date time applid unable to perform operation: Name is IBM protected.</td>
</tr>
<tr>
<td>DFHCA4861 E</td>
<td>Date time applid file name DFHCSD is reserved and must not be modified.</td>
</tr>
<tr>
<td>DFHCA4862 S</td>
<td>Date time applid single resource install of Restype Resname in group Grpname is not allowed.</td>
</tr>
<tr>
<td>DFHCA4863 W</td>
<td>Date time applid file Filename has been installed but set Filename failed.</td>
</tr>
<tr>
<td>DFHCA4864 S</td>
<td>Date time applid unable to connect to CICS catalog.</td>
</tr>
<tr>
<td>DFHCA4865 S</td>
<td>Date time applid unable to disconnect the CICS catalog.</td>
</tr>
<tr>
<td>DFHCA4867 E</td>
<td>Date time applid unable to perform operation: Name is currently being updated by applid Applid opid Opid - please retry later.</td>
</tr>
<tr>
<td>DFHCA4868 W</td>
<td>Date time applid partner Partnername specifies netname Netname which is not found in any connection definition that specifies access method = z/OS Communications Server.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHCA4877 W</td>
<td>Date time applid partner Partnername specifies a netname and profile for which there is no common implied sessions definition.</td>
</tr>
<tr>
<td>DFHCA4878 E</td>
<td>Date time applid install of [IPCONN] ResourceName failed because one with this name is already installed and is in use.</td>
</tr>
<tr>
<td>DFHCA4879 W</td>
<td>Date time applid [group</td>
</tr>
<tr>
<td>DFHCA4880 S</td>
<td>Date time applid unable to perform operation - not allowed by file attributes for DFHCSD.</td>
</tr>
<tr>
<td>DFHCA4881 I</td>
<td>Date time applid group Name deleted.</td>
</tr>
<tr>
<td>DFHCA4883 I</td>
<td>Date time applid list Listname deleted.</td>
</tr>
<tr>
<td>DFHCA4884 S</td>
<td>Date time applid Restype name ResourceName is reserved by CICS.</td>
</tr>
<tr>
<td>DFHCA4885 E</td>
<td>Date time applid install of IPCONN ResourceName failed. Duplicate applid Applid found.</td>
</tr>
<tr>
<td>DFHCA4887 I</td>
<td>Date time applid unrecognized resource type found in the CSD file and has been ignored.</td>
</tr>
<tr>
<td>DFHCA4888 I</td>
<td>Date time applid group Groupname removed from list Listname.</td>
</tr>
<tr>
<td>DFHCA4889 E</td>
<td>Date time applid install of [journalmodel</td>
</tr>
<tr>
<td>DFHCA4890 E</td>
<td>Date time applid install of TDQUEUE Tdname failed because the type has not been specified.</td>
</tr>
<tr>
<td>DFHCA4891 W</td>
<td>Date time applid Restype name ResourceName begins with 'c'. Such names are reserved and may be redefined by CICS.</td>
</tr>
<tr>
<td>DFHCA4892 W</td>
<td>Date time applid install for group Grpname has completed with errors.</td>
</tr>
<tr>
<td>DFHCA4893 I</td>
<td>Date time applid install for group Grpname has completed successfully.</td>
</tr>
<tr>
<td>DFHCA4894 E</td>
<td>Date time applid install of [enqmodel] Rsrname1 failed because installed [enqmodel] Rsrname2 is not disabled.</td>
</tr>
<tr>
<td>DFHCA4895 E</td>
<td>Date time applid install of TSMODEL ResourceName in group Groupname failed because ts was started using an assembled tst without the migrate option.</td>
</tr>
<tr>
<td>DFHCA4896 E</td>
<td>Date time applid install of TDQUEUE Tdname failed because the queue is not closed.</td>
</tr>
<tr>
<td>DFHCA4897 W</td>
<td>Date time applid The definition of [TDQUEUE</td>
</tr>
<tr>
<td>DFHCA4898 E</td>
<td>Date time applid Installation of [TDQUEUE</td>
</tr>
<tr>
<td>DFHCA4899 E</td>
<td>Date time applid TDQUEUE Tdname cannot be replaced because the existing definition is for a different queue type.</td>
</tr>
<tr>
<td>DFHCA4901 E</td>
<td>Date time applid Install of REQUESTMODEL ResourceName1 failed because a duplicate pattern already exists in ResourceName2.</td>
</tr>
<tr>
<td>DFHCA4902 E</td>
<td>Date time applid Install of [corbaserver</td>
</tr>
<tr>
<td>DFHCA4903 E</td>
<td>Date time applid Install for TCPIPSERVICE Tcpipservice has failed because the service is open.</td>
</tr>
<tr>
<td>DFHCA4904 W</td>
<td>Date time applid Opening TCPIPSERVICE Tcpipservice has failed because port Portno is already in use.</td>
</tr>
<tr>
<td>DFHCA4905 E</td>
<td>Date time applid Install failed for Resource. Option Opt is not available on this system.</td>
</tr>
<tr>
<td>DFHCA4906 W</td>
<td>Date time applid Opening TCPIPSERVICE Tcpipservice has failed because port Portno is not authorized.</td>
</tr>
<tr>
<td>DFHCA4907 W</td>
<td>Date time applid Opening TCPIPSERVICE Tcpipservice has failed because the [IP address</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHCA4908 E</td>
<td>Date time applid Install of DOCTEMPLATE Doctemplate1 failed because templatename(Template) already exists in DOCTEMPLATE Doctemplate2.</td>
</tr>
<tr>
<td>DFHCA4909 E</td>
<td>Date time applid Install of DOCTEMPLATE Doctemplate failed. Ddname(Ddname) not found.</td>
</tr>
<tr>
<td>DFHCA4910 E</td>
<td>Date time applid Install of DOCTEMPLATE Doctemplate failed. Member(Membername) not found in Ddname.</td>
</tr>
<tr>
<td>DFHCA4911 W</td>
<td>Date time applid Transaction Tranid installed but at least one of alias, taskreq or xtranid failed to be replaced because it exists as a primary transaction.</td>
</tr>
<tr>
<td>DFHCA4912 E</td>
<td>Date time applid Install of Resource Resourcecname failed because Attribute is invalid for this release.</td>
</tr>
<tr>
<td>DFHCA4913 E</td>
<td>date time applid Install of [IPCONN] resourcecename failed because a CONNECTION resource with this name and a different APPLID is already installed.</td>
</tr>
<tr>
<td>DFHCA4914 E</td>
<td>date time applid Install of resourcecetype resourcecename failed. The specified targetresource is unusable.</td>
</tr>
<tr>
<td>DFHCA4915 E</td>
<td>date time applid Install of resourcecetype resourcecename failed. Open for data set dsname has abended.</td>
</tr>
<tr>
<td>DFHCA4916 E</td>
<td>date time applid TCPIPSERVICE tcipservice has not been opened because the MAXSOCKETS limit has been reached.</td>
</tr>
<tr>
<td>DFHCA4917 W</td>
<td>Date time applid corbaserver</td>
</tr>
<tr>
<td>DFHCA4918 E</td>
<td>Date time applid The installation of corbaserver</td>
</tr>
<tr>
<td>DFHCA4920 E</td>
<td>Date time applid The installation of corbaserver</td>
</tr>
<tr>
<td>DFHCA4921 E</td>
<td>Date time applid The installation of corbaserver Cname has failed because the specified [corbaserver</td>
</tr>
<tr>
<td>DFHCA4922 E</td>
<td>Date time applid The installation of corbaserver</td>
</tr>
<tr>
<td>DFHCA4923 E</td>
<td>Date time applid The installation of DJAR Dname has failed because the specified corbaserver Cname does not exist.</td>
</tr>
<tr>
<td>DFHCA4924 E</td>
<td>Date time applid The installation of DJAR Dname has failed because the specified [corbaserver</td>
</tr>
<tr>
<td>DFHCA4925 E</td>
<td>Date time applid The installation of corbaserver Cname has failed because at least one of its associated tcpipservices has not been installed.</td>
</tr>
<tr>
<td>DFHCA4926 E</td>
<td>Date time applid The installation of DJAR Dname has failed because the specified corbaserver Cname is not in a valid state.</td>
</tr>
<tr>
<td>DFHCA4927 E</td>
<td>Date time applid The installation of corbaserver</td>
</tr>
<tr>
<td>DFHCA4928 E</td>
<td>Date time applid Install of [TCPIPSERVICE</td>
</tr>
<tr>
<td>DFHCA4929 E</td>
<td>Date time applid <a href="Resourcename">URIMAP</a> was not installed because of conflicting attributes.</td>
</tr>
<tr>
<td>DFHCA4930 E</td>
<td>Date time applid URIMAP(Urimap1) not installed because it maps the same URI as Urimap2.</td>
</tr>
<tr>
<td>DFHCA4931 E</td>
<td>Date time applid The installation of WEBSERVICE Resourcename failed because the associated [wsbind file</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>-----------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHCA4932 E</td>
<td>Date time applid The installation of {pipeline \ Webservice} Resourcename failed because the {hfsfile \ Pipeline} setup was not correct.</td>
</tr>
<tr>
<td>DFHCA4933 E</td>
<td>Date time applid The installation of pipeline Resourcename failed because the WSDIR file specified is not accessible.</td>
</tr>
<tr>
<td>DFHCA4934 E</td>
<td>Date time applid The installation of URIMAP Resourcename failed because the hfssetup was not correct.</td>
</tr>
<tr>
<td>DFHCA4935 E</td>
<td>Date time applid install of {TCPIPSERVICE \ Corbaserver \ IPCONN \ Urimap} Resourcename failed because the keyring has no default certificate.</td>
</tr>
<tr>
<td>DFHCA4936 E</td>
<td>Date time applid The installation of bundle Resourcename failed because the manifest found in the bundle root directory was not valid.</td>
</tr>
<tr>
<td>DFHCA4937 E</td>
<td>Date time applid The installation of bundle Resourcename failed because a manifest was not found in the bundle root directory.</td>
</tr>
<tr>
<td>DFHCA4938 W</td>
<td>Date time applid bundle Resourcename has been installed as disabled because one or more of its associated resources failed to install.</td>
</tr>
<tr>
<td>DFHCA4939 E</td>
<td>Date time applid The installation of ATOMSERVICE Resourcename failed due to a configuration error.</td>
</tr>
<tr>
<td>DFHCA4940 E</td>
<td>Date time applid install of MQCONN Mqconn-name failed because an MQCONN is already installed and is in use.</td>
</tr>
<tr>
<td>DFHCA4941 E</td>
<td>Date time applid The installation of {ATOMSERVICE} Resourcename failed because the {configfile \ Bindfile} does not exist.</td>
</tr>
<tr>
<td>DFHCA4942 E</td>
<td>Date time applid The installation of {ATOMSERVICE} Resourcename failed because CICS does not have authority to access the {configfile \ Bindfile}.</td>
</tr>
<tr>
<td>DFHCA4943 E</td>
<td>Date time applid The installation of {ATOMSERVICE} Resourcename failed because the associated {configfile \ Bindfile} is invalid.</td>
</tr>
<tr>
<td>DFHCA4944 W</td>
<td>Date time applid JVMSERVER Resourcename has been installed with less threads than requested on its definition.</td>
</tr>
<tr>
<td>DFHCA4945 W</td>
<td>Date time applid JVMSERVER Resourcename has been installed as disabled with a THREADLIMIT of 0.</td>
</tr>
<tr>
<td>DFHCA4946 W</td>
<td>Date time applid The installation of {bundle} Resourcename failed because CICS does not have authority to access the manifest found in the bundle root directory.</td>
</tr>
<tr>
<td>DFHCA4999 E</td>
<td>Date time applid install of Resourcetype resources is not supported.</td>
</tr>
<tr>
<td>DHFCA5137 E</td>
<td>Netname tranid group Grpname not found in list Listid</td>
</tr>
<tr>
<td>DHFCA5559 W</td>
<td>Date time applid host conflicts with ipaddress. Host takes precedence.</td>
</tr>
<tr>
<td>DHFCA5560 W</td>
<td>Date time applid port_attribute conflicts with port number found in host attribute.</td>
</tr>
<tr>
<td>DFHCC0105</td>
<td>Applid the {local \ Global} catalog is incorrectly defined. Expected:keylen=Req_keylen, Ireq=Req_Ireq. Defined: keylen=Def_keylen, Ireq=Def_Ireq.</td>
</tr>
<tr>
<td>DFHCC0106</td>
<td>Applid insufficient MVS storage for {cc \ Gc} domain anchor block. Bytes requested=Bytes.</td>
</tr>
<tr>
<td>DFHD2212</td>
<td>The DB2 subsystem ID db2id specified for the CICS-DB2 attachment cannot be found. The attachment facility cannot start.</td>
</tr>
<tr>
<td>DFHD50007</td>
<td>Applid module Module has detected a {suspend resume area overflow \ Architecture limit} (code X’code’). CICS will be terminated.</td>
</tr>
<tr>
<td>DFHDU0218</td>
<td>No PROBDESC parameters supplied to DFHDUMPX.</td>
</tr>
<tr>
<td>DFHEC0001</td>
<td>Applid an abend (code Aaa/bbbb) has occurred at offset X’offset’ in module Modname.</td>
</tr>
<tr>
<td>DFHEC0002</td>
<td>Applid a severe error (code X’code’) has occurred in module Modname.</td>
</tr>
<tr>
<td>DFHEC0004</td>
<td>Applid a possible loop has been detected at offset X’offset’ in module Modname.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHEC1000</td>
<td>Date time applid invalid parameter list passed to EC component module Modname.</td>
</tr>
<tr>
<td>DFHEC1001</td>
<td>Date time applid Event binding Evbname installed successfully.</td>
</tr>
<tr>
<td>DFHEC1002</td>
<td>Date time applid Event binding Evbname discarded successfully.</td>
</tr>
<tr>
<td>DFHEC1003</td>
<td>Date time applid The CICS event capture component failed to create the EVENTBINDING resource Evbname for reason Reason.</td>
</tr>
<tr>
<td>DFHEC1004</td>
<td>Date time applid event processing found invalid data address X’address’ while capturing data for CAPTURESPEC Csname of EVENTBINDING Evbname in capture data item Description at offset Offset with length Length.</td>
</tr>
<tr>
<td>DFHEC1005</td>
<td>Date time applid event processing found invalid data address X’address’ while filtering events for CAPTURESPEC Csname of EVENTBINDING Evbname in filter item Description at offset Offset with length Length.</td>
</tr>
<tr>
<td>DFHEC1006I</td>
<td>Applid event processing status is {started</td>
</tr>
<tr>
<td>DFHEC1007</td>
<td>Date time applid event processing found invalid packed data x’datal while filtering events for CAPTURESPEC Csname of EVENTBINDING Evbname in filter item Description at offset Offset with length Length.</td>
</tr>
<tr>
<td>DFHEC1008</td>
<td>Date time applid event processing found invalid zoned data X’datal’ while filtering events for CAPTURESPEC Csname of EVENTBINDING Evbname in filter item Description at offset Offset with length Length.</td>
</tr>
<tr>
<td>DFHEC1009</td>
<td>Date time applid the CICS event capture component found an inconsistency in one or more values during install of EVENTBINDING Evbname for reason Reason.</td>
</tr>
<tr>
<td>DFHEC2100</td>
<td>Applid program DFHECRP cannot be found.</td>
</tr>
<tr>
<td>DFHEC3100</td>
<td>Date time applid an error (code X’code’) has occurred during creation of capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3101</td>
<td>Date time applid invalid or unsupported codepage (Codepage) found in capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3102</td>
<td>Date time applid invalid API command (Command) specified in capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3103</td>
<td>Date time applid invalid comparison operator (Code) specified in capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3104</td>
<td>Date time applid {Pre_API</td>
</tr>
<tr>
<td>DFHEC3105</td>
<td>Date time applid invalid data type (Datatype) was specified in capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3106</td>
<td>Date time applid invalid capture data source (Source) in capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3107</td>
<td>Date time applid invalid elbid value (Aiddata) specified in context filter for capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3108</td>
<td>Date time applid invalid keyword (Keyword) specified in event capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC3110</td>
<td>date time applid Invalid filter length of 0 specified in event capture specification Cs_name in event binding Evb_name.</td>
</tr>
<tr>
<td>DFHEC4007E</td>
<td>Applid start transid Tranid Failed with response code Response and reason code Reason.</td>
</tr>
<tr>
<td>DFHEC4008</td>
<td>Date time applid tranid EP Adapter failed to emit an event to queue queue_name. WRITEQ TS returned with condition resp.</td>
</tr>
<tr>
<td>DFHEC4111</td>
<td>Date time applid tranid Call to WebSphere MQ function Function returned with reason code Reason_code. Transaction terminated.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHEC4112</td>
<td>Applid WebSphere MQ support for CICS event processing WebSphere MQ adapter is not available.</td>
</tr>
<tr>
<td>DFHEC4117</td>
<td>Date time applid tranid the event's size of Buffer_length bytes exceeds message queue's Queuename maximum message length of Max_msg_length bytes. Transaction terminated.</td>
</tr>
<tr>
<td>DFHEC4120</td>
<td>date time applid tranid The HTTP EP Adapter failed to emit event for capture specification csname in event binding evbname using URIMAP urimap_name. function returned with response code resp reason code resp2.</td>
</tr>
<tr>
<td>DFHEC4121</td>
<td>date time applid tranid The HTTP EP Adapter failed to emit an event for capture specification csname in event binding evbname using URIMAP urimap_name. Server responded with HTTP status code http_status_code.</td>
</tr>
<tr>
<td>DFHEC4122</td>
<td>date time applid tranid The HTTP EP Adapter failed to emit event for capture specification csname in event binding evbname using URIMAP urimap_name. function returned with response code resp reason code resp2.</td>
</tr>
<tr>
<td>DFHEC4123</td>
<td>date time applid tranid The HTTP EP Adapter failed to emit an event for capture specification csname in event binding evbname using URIMAP urimap_name. Server responded with HTTP status code http_status_code.</td>
</tr>
<tr>
<td>DFHEP0001</td>
<td>Applid An abend (code Aaa/bbbb) has occurred at offset X’offset’ in module Modname.</td>
</tr>
<tr>
<td>DFHEP0002</td>
<td>Applid A severe error (code X’code’) has occurred in module Modname.</td>
</tr>
<tr>
<td>DFHEP0101I</td>
<td>Applid Event processing domain initialization has started.</td>
</tr>
<tr>
<td>DFHEP0102I</td>
<td>Applid Event processing domain initialization has ended.</td>
</tr>
<tr>
<td>DFHEP0113</td>
<td>CEPM is stopping event processing after a severe error.</td>
</tr>
<tr>
<td>DFHEP0114</td>
<td>date time applid tranid The EP adapter user ID of adapter_userid is revoked, not valid, or not defined. Event discarded.</td>
</tr>
<tr>
<td>DFHEP0115</td>
<td>Applid Event processing event dispatcher task limit reached.</td>
</tr>
<tr>
<td>DFHEP0116</td>
<td>Applid Event processing event dispatcher task limit relieved.</td>
</tr>
<tr>
<td>DFHEP0117</td>
<td>date time applid tranid The EP adapter transaction ID of adapter_tranid is disabled or undefined. Event discarded.</td>
</tr>
<tr>
<td>DFHEP0118</td>
<td>Date time applid tranid The EP adapter transaction ID of Adapter_tranid is remote. Transaction terminated.</td>
</tr>
<tr>
<td>DFHEP0119</td>
<td>date time applid tranid Event processing global event queue depth: number_events_queued High Water Mark: events_queued_hwm.</td>
</tr>
<tr>
<td>DFHEP0120</td>
<td>date time applid tranid The EPADAPTER transaction ID adapter_tranid is defined to start the wrong program for this type of adapter. An event from EVENTBINDING evbname has been discarded.</td>
</tr>
<tr>
<td>DFHEP0121</td>
<td>date time applid Synchronous event emission by EPADAPTER epadapter failed for an event from EVENTBINDING evbname. The UOW will be backed out.</td>
</tr>
<tr>
<td>DFHEP1000</td>
<td>date time applid Invalid parameter list passed to EP domain module modname.</td>
</tr>
<tr>
<td>DFHEP1001</td>
<td>date time applid EPADAPTER adaptername installed successfully.</td>
</tr>
<tr>
<td>DFHEP1002</td>
<td>date time applid EPADAPTER adaptername discarded successfully.</td>
</tr>
<tr>
<td>DFHEP2001</td>
<td>date time applid The CICS event processing domain failed to create EPADAPTER resource adapter in BUNDLE bundle because the EP adapter, which is of type adapterType and emission mode emitmodel, requires a program name.</td>
</tr>
</tbody>
</table>
### Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHEP2002</td>
<td>date applid The CICS event processing domain failed to create the EPADAPTER resource adaptername in BUNDLE bundle because the {EP adapter name is invalid.</td>
</tr>
<tr>
<td>DFHEP2003</td>
<td>date applid The CICS event processing domain failed to create the EPADAPTER resource adaptername in BUNDLE bundle because the {LOCALCCSID SIT parameter is not supported: }error_data.</td>
</tr>
<tr>
<td>DFHEP2005</td>
<td>date applid The CICS event processing domain found an inconsistency in the advanced options during install of EPADAPTER adaptername with emission mode emitmode and type adapterType. The option option is ignored.</td>
</tr>
<tr>
<td>DFHFC0209</td>
<td>applid User exit XFCRLSCO is allowing non-RLS file filename to bypass the RLS coexistence checks.</td>
</tr>
<tr>
<td>DFHFC0210</td>
<td>applid User exit XFCRLSCO is allowing RLS file filename to bypass the RLS coexistence checks.</td>
</tr>
<tr>
<td>DFHFC6039</td>
<td>Date applid CICS has been invoked by vsam rls to process a Reason of data set Dsname.</td>
</tr>
<tr>
<td>DFHII1039 E</td>
<td>Date applid Failure establishing connection to host Host as unauthenticated connections are not supported. An attempt to establish a CSIV2 secure connection failed because: {CSIV2 security is not supported in the server</td>
</tr>
<tr>
<td>DFHII1040 E</td>
<td>Date applid A CSIV2 connection has been refused because: {it was not an establishcontext message</td>
</tr>
<tr>
<td>DFHIS0100</td>
<td>Applid Unable to start is domain because transaction CISC cannot be attached.</td>
</tr>
<tr>
<td>DFHIS1032</td>
<td>Date applid Unable to acquire IPCONN IPCONN. Applid Networkid.applid is the same as the local applid.</td>
</tr>
<tr>
<td>DFHIS1033</td>
<td>Date applid BIS processing error (code X’errcode’) occurred during release of Sesstype IPIC session in IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS1034</td>
<td>Date applid Conversation Convid no longer pending on IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS1035</td>
<td>Date applid Unable to send a {start</td>
</tr>
<tr>
<td>DFHIS1036</td>
<td>Date applid Unable to process local queue for IPCONN IPCONN. IPCONN connected to system that does not support starts over IPIC.</td>
</tr>
<tr>
<td>DFHIS1037</td>
<td>Date applid Log data sent on IPCONN IPCONN is: ‘data’.</td>
</tr>
<tr>
<td>DFHIS1038 E</td>
<td>Date applid Invalid host address ipaddr.</td>
</tr>
<tr>
<td>DFHIS1039</td>
<td>Date applid IPIC secondary socket request for Networkid.Applid has failed because a matching IPCONN could not be found.</td>
</tr>
<tr>
<td>DFHIS1040</td>
<td>Date applid Unable to schedule transaction CRSR for IPCONN ipconn.</td>
</tr>
<tr>
<td>DFHIS1041</td>
<td>Date applid Identity propagation error has occurred while using IPCONN ipconn and transaction ID transid.</td>
</tr>
<tr>
<td>DFHIS3040 E</td>
<td>date applid Deletion of IPCONN ccccccc failed. Its AID-Chains are not empty.</td>
</tr>
</tbody>
</table>
Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHIS3041</td>
<td>date time applid nnnn AIDs {canceled</td>
</tr>
<tr>
<td>DFHKE0106</td>
<td>Applid GETMAIN failed in module Modname, r15=Mescode. CICS will terminate.</td>
</tr>
<tr>
<td>DFHKE0997</td>
<td>Applid DFHKESTX driven for cleanup on an essential TCB with completion code Code. Unable to recover.</td>
</tr>
<tr>
<td>DFHL0731</td>
<td>Applid data set Dsname Could not be allocated for library Libname because CICS could not determine that the data set is valid for a dynamic library. Reason: {locate error. Locate macro</td>
</tr>
<tr>
<td>DFHL0732</td>
<td>Applid Data set Dsname Could not be allocated for library Libname because it is not valid for a dynamic library. Reason: {not dasd volume</td>
</tr>
<tr>
<td>DFHLG0195</td>
<td>Log gap warning up to block id X’data1’</td>
</tr>
<tr>
<td>DFHLG0196</td>
<td>STCK of block after gap (Time format): X’data1’</td>
</tr>
<tr>
<td>DFHLG0197</td>
<td>The CICS LOGR subsystem has detected an error. This might be caused by incorrect JCL.</td>
</tr>
<tr>
<td>DFHME0141</td>
<td>Message Msgno not issued by Module because MVS WTOR short on storage.</td>
</tr>
<tr>
<td>DFHML0001</td>
<td>Applid an abend (code Aaa/bbbb) has occurred at offset X’offset’ in module Modname.</td>
</tr>
<tr>
<td>DFHML0002</td>
<td>Applid a severe error (code ) has occurred in module .</td>
</tr>
<tr>
<td>DFHML0100</td>
<td>Date time applid tranid Call to z/OS XML system services parser for function Function failed with return code X’return_code’ and reason code X’reason_code’.</td>
</tr>
<tr>
<td>DFHML0500</td>
<td>Date time applid UserId Transid XMLTRANSFORM Xmltransform_name for {bundle</td>
</tr>
<tr>
<td>DFHML0501</td>
<td>Date time applid UserId Transid XMLTRANSFORM Xmltransform_name for {bundle</td>
</tr>
<tr>
<td>DFHML0502</td>
<td>Date time applid UserId Transid XMLTRANSFORM Xmltransform_name for {bundle</td>
</tr>
<tr>
<td>DFHML0503</td>
<td>Date time applid UserId Transid XMLTRANSFORM Xmltransform_name for {bundle</td>
</tr>
<tr>
<td>DFHML0504</td>
<td>Date time applid UserId Transid XMLTRANSFORM Xmltransform_name for {bundle</td>
</tr>
<tr>
<td>DFHML0505</td>
<td>Date time applid UserId Transid XMLTRANSFORM Xmltransform_name for {bundle</td>
</tr>
<tr>
<td>DFHML0506</td>
<td>Date time applid Trannum XMLTRANSFORM Xmltransform_name Cannot link to program Program_name because {the program abended</td>
</tr>
<tr>
<td>DFHML0507</td>
<td>Date time applid Trannum Validation of XML data for XMLTRANSFORM Xmltransform_name failed. The validation process returned the following message: ‘Message’.</td>
</tr>
<tr>
<td>DFHML0508</td>
<td>Date time applid Trannum Validation of XML data for XMLTRANSFORM Xmltransform_name was successful.</td>
</tr>
<tr>
<td>DFHML0509</td>
<td>Date time applid UserId Transid XMLTRANSFORM xmltransform_name for {BUNDLE</td>
</tr>
<tr>
<td>DFHML0510</td>
<td>date time applid userid tranid XMLTRANSFORM xmltransform_name for {BUNDLE</td>
</tr>
</tbody>
</table>
Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0209 E</td>
<td>Date time applid Unable to inquire on MQCONN. Eibfn=X’eibfn’ eibresp=Eibresp eibresp2=Eibresp2 eibcode=X’eibcode’.</td>
</tr>
<tr>
<td>DFHMQ0210 E</td>
<td>Date time applid Unable to inquire on MQINI. Eibfn=X’eibfn’ eibresp=Eibresp eibresp2=Eibresp2 eibcode=X’eibcode’.</td>
</tr>
<tr>
<td>DFHMQ0218 W</td>
<td>Date time applid Obsolete INITPARM for program dfhmqprm detected. All dfhmqprm INITPARM values are ignored.</td>
</tr>
<tr>
<td>DFHMQ0203 E</td>
<td>Date time applid tranid module Modname could not be found.</td>
</tr>
<tr>
<td>DFHMQ0210 I</td>
<td>Date time applid The CICS-MQ adapter cannot find mqueue Id.</td>
</tr>
<tr>
<td>DFHMQ024 I</td>
<td>Date time applid All queue managers in queue sharing group Qsg-name are inactive.</td>
</tr>
<tr>
<td>DFHMQ025 I</td>
<td>Date time applid Call to CICS svc for CICS-MQ function failed.</td>
</tr>
<tr>
<td>DFHMQ0792 I</td>
<td>Date time applid tranid Routemem=ROUTEMEM.</td>
</tr>
<tr>
<td>DFHPA1947</td>
<td>applid A PSDINT value greater than zero was specified with PSTYPE=NOPS. PSDINT has been reset to 0.</td>
</tr>
<tr>
<td>DFHPI0116 I</td>
<td>Date time applid A one-way request has been received as a WebSphere MQ persistent message, but the provider pipeline has abended or backed out changes to recoverable resources. The BTS process Processname of procestype Processtype has completed with status abended and this process can be re-tried or used to provide information for reporting the failure.</td>
</tr>
<tr>
<td>DFHPI0117 I</td>
<td>Date time applid BTS process Processname of procestype Processtype, which has completed with status abended, has been cancelled. A provider pipeline started with a persistent WebSphere MQ message has abended or backed out, but a response has been sent to the requester.</td>
</tr>
<tr>
<td>DFHPI0118</td>
<td>applid CICS has attempted to use BTS processes to support pipelines started with WebSphere MQ persistent messages. This attempt failed. CICS will continue, using channel based containers for the pipeline, but there is a risk of data loss in the event of a system failure. Ensure that BTS procestype, repository and local request queue are correctly defined and installed.</td>
</tr>
<tr>
<td>DFHPI0119 I</td>
<td>Date time applid the XML toolkit could not be loaded. Some configurations of the CICS supplied WS-security handler are not usable.</td>
</tr>
<tr>
<td>DFHP0450 I</td>
<td>Date time applid tranid The CICS transport mechanism in the pipeline was unable to successfully handle the request because of an invalid URI.</td>
</tr>
<tr>
<td>DFHP0451 I</td>
<td>Date time applid tranid The CICS transport manager DFHPITS encountered an error while trying to link to program Program_name.</td>
</tr>
<tr>
<td>DFHP0452 I</td>
<td>Date time applid tranid The CICS transport manager encountered an error while trying to locate URIMAP with HOST=localhost and PATH=urimap_path.</td>
</tr>
</tbody>
</table>
Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI0453</td>
<td>date time applid tranid The CICS transport manager encountered an error while trying to use URIMAP urimap_name.</td>
</tr>
<tr>
<td>DFHPI0454</td>
<td>date time applid tranid The CICS transport manager encountered an error while trying to use provider pipeline pipeline_name.</td>
</tr>
<tr>
<td>DFHPI0455</td>
<td>date time applid tranid The CICS transport manager encountered an error while trying to use requester pipeline pipeline_name.</td>
</tr>
<tr>
<td>DFHPI0456</td>
<td>date time applid tranid The CICS transport manager encountered an error with the input data being greater then the maximum COMMAREA length.</td>
</tr>
<tr>
<td>DFHPI0457</td>
<td>date time applid tranid The CICS transport manager was unable to successfully handle the request because of the missing targetServiceUri parameter in the URI.</td>
</tr>
<tr>
<td>DFHPI0514</td>
<td>Date time applid tranid The CICS pipeline manager has failed to find the required credentials in a request. An element Local_name, in namespace: Namespace, was expected.</td>
</tr>
<tr>
<td>DFHPI0727</td>
<td>date time applid userid PIPELINE pipeline cannot be installed as it requires support for ICRX based identity tokens and these are not supported by the platform.</td>
</tr>
<tr>
<td>DFHPI0732</td>
<td>Date time applid A request to rollback unit of work - X’uowid’ has been received from a remote WS-AT coordinating transaction.</td>
</tr>
<tr>
<td>DFHPI0733</td>
<td>Date time applid A transaction timed out while waiting for a prepare message from a remote WS-AT coordinator. The unit of work - X’uowid’ will be rolled back.</td>
</tr>
<tr>
<td>DFHPI0801I E</td>
<td>Date time applid A one way message has been found in an atomic transaction message exchange for transaction Tran.</td>
</tr>
<tr>
<td>DFHPI0917 W</td>
<td>date time applid userid WEBSERVICE webservice might perform unpredictably as the PIPELINE pipeline is non-SOAP.</td>
</tr>
<tr>
<td>DFHPI0999</td>
<td>Date time applid tranid The CICS pipeline manager has encountered a problem with file DFHPIDIR: (the file was not found \ The file key length was too small \ The file record size was too small \ The file is full \ The file control record is full \ File recovery mode was not backout \ There was an internal error \ File failed to open or connect).</td>
</tr>
<tr>
<td>DFHPI1000</td>
<td>Date time applid The outbound router program, DFHIPRT, has detected an invalid URI in the DFHWS-STSACTION container. The URI was ‘Uri’.</td>
</tr>
<tr>
<td>DFHPI1020E</td>
<td>Date time applid tranid The CICS handling program for the <a href="http://www.ibm.com/xmlns/">http://www.ibm.com/xmlns/</a> prod/CICS/bundle/SCACOMPOSITE resource type failed to create resource Resource_name in the bundle resource Bundle_name because CICS failed to parse the SCDL resource definition Scdl_path_name specified in bundle root directory Bundle_root. (the SCDL is not valid.</td>
</tr>
<tr>
<td>DFHPI2000 E</td>
<td>Date time applid tranid The installation of SCACOMPOSITE Resource_name in the bundle resource Bundle_name did not complete successfully.</td>
</tr>
<tr>
<td>DFHPI2001 E</td>
<td>Date time applid tranid The installation of SCACOMPOSITE Resource_name in the bundle resource Bundle_name did not complete successfully. The bindfile could not be read. Bindfile: Bindfile_name _binding:Binding_name.</td>
</tr>
<tr>
<td>DFHPI2002 E</td>
<td>Date time applid tranid The installation of SCACOMPOSITE Resource_name in the bundle resource Bundle_name did not complete successfully. A duplicate WEBSERVICE name was used in a binding. Webservice: Webservice_name _binding:Binding_name.</td>
</tr>
<tr>
<td>DFHPI2003 E</td>
<td>Date time applid tranid The installation of SCACOMPOSITE Resource_name in the bundle resource Bundle_name did not complete successfully. A duplicate URIMAP path was used in a binding. Path: Path_name _binding:Binding_name.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>---------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHPI2004 E</td>
<td>Date time applid tranid: The installation of SCACOMPOSITE resource_name in the bundle resource Bundle_name did not complete successfully. A binding Path: Path_name , binding: Binding_name .</td>
</tr>
<tr>
<td>DFHPI2005 E</td>
<td>Date time applid tranid: The installation of SCACOMPOSITE resource_name in the bundle resource Bundle_name did not complete successfully. A binding attempted to wire to a target with an incompatible binding type. Target: Target_name , binding: Binding_name .</td>
</tr>
<tr>
<td>DFHPI2006 W</td>
<td>Date time applid tranid: The installation of SCACOMPOSITE resource_name in the bundle resource Bundle_name did not complete successfully. A wired binding did not provide a required value. Value type: pipeline</td>
</tr>
<tr>
<td>DFHPI2007 E</td>
<td>Date time applid tranid: The installation of SCACOMPOSITE resource_name in the bundle resource Bundle_name did not complete successfully. A wired binding targeted a service which could not be found. Target: Target_name , binding: Binding_name .</td>
</tr>
<tr>
<td>DFHPI2008 E</td>
<td>Date time applid tranid: The installation of SCACOMPOSITE resource_name in the bundle resource Bundle_name did not complete successfully. A wired binding targeted a reference which could not be found. Target: Target_name , binding: Binding_name .</td>
</tr>
<tr>
<td>DFHPI2009 E</td>
<td>Date time applid tranid: The installation of SCACOMPOSITE resource_name in the bundle resource Bundle_name did not complete successfully. A wired binding targeted a service or reference which had already been wired. Target: Target_name , binding: Binding_name .</td>
</tr>
<tr>
<td>DFHPI2011 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. No services or references could be found in the composite implementation impl_comp.</td>
</tr>
<tr>
<td>DFHPI2012 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. The prerequisite composite implementation impl_comp could not be found.</td>
</tr>
<tr>
<td>DFHPI2015 E</td>
<td>Date time applid tranid: a attempt to directly invoke a service Service_name failed. {the service is internal.</td>
</tr>
<tr>
<td>DFHPI2016 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. A Web service binding was used to wire an internal reference to a service. Binding: binding_name.</td>
</tr>
<tr>
<td>DFHPI2018 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. The resource name must be the same as the composite name. Composite name: composite_name.</td>
</tr>
<tr>
<td>DFHPI2019 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. The SCDL encoding is invalid.</td>
</tr>
<tr>
<td>DFHPI2020 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. The SCDL is invalid.</td>
</tr>
<tr>
<td>DFHPI2021 W</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name might not complete successfully. {A composite name was not provided.</td>
</tr>
<tr>
<td>DFHPI2022 W</td>
<td>date time applid tranid: The SCACOMPOSITE resource_name in the BUNDLE resource bundle_name defined an unsupported attribute in the SCDL. Attribute: policySets.</td>
</tr>
<tr>
<td>DFHPI2023 E</td>
<td>date time applid tranid: The installation of SCACOMPOSITE resource_name in the BUNDLE resource bundle_name did not complete successfully. The mapping modes of reference</td>
</tr>
</tbody>
</table>
### Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI2024</td>
<td><code>date time applid tranid</code> BUNDLE resource <code>bundle_name</code> cannot be enabled because one or more resources in the BUNDLE were not created successfully.</td>
</tr>
<tr>
<td>DFHPI2025 W</td>
<td><code>date time applid tranid</code> An INVOKE SERVICE call failed because it used an unwired reference. Reference: <code>reference_name</code>, Scope: <code>scope_name</code>.</td>
</tr>
<tr>
<td>DFHPI2026 E</td>
<td><code>date time applid tranid</code> The installation of SCACOMPOSITE <code>resource_name</code> in the BUNDLE resource <code>bundle_name</code> did not complete successfully. The prerequisite composite implementation <code>impl_comp</code> does not have any components defined.</td>
</tr>
<tr>
<td>DFHPI2027 E</td>
<td><code>date time applid tranid</code> The installation of SCACOMPOSITE <code>resource_name</code> in the BUNDLE resource <code>bundle_name</code> did not complete successfully. The composite name is a duplicate of an existing composite.</td>
</tr>
<tr>
<td>DFHPI9033 E</td>
<td>Duplicate elements with the same name in the same scope are not supported. The duplicated name is <code>Name</code>.</td>
</tr>
<tr>
<td>DFHPI9034 W</td>
<td>Schema type <code>Type</code> is being restricted to a total of <code>Value</code> digits.</td>
</tr>
<tr>
<td>DFHPI9035 E</td>
<td>XML schema element cannot be found in document <code>Document</code>.</td>
</tr>
<tr>
<td>DFHPI9036 W</td>
<td>Abstract data types are not supported. Problems may be experienced with type <code>Type</code> in element <code>Element</code>.</td>
</tr>
<tr>
<td>DFHPI9037 E</td>
<td>XML schema model groups are not supported within <code>&lt;choice&gt;</code> structures. Problem found in type <code>Type</code>.</td>
</tr>
<tr>
<td>DFHPI9038 E</td>
<td>The number of options for an enumerated set of options exceeds the maximum supported value of 255.</td>
</tr>
<tr>
<td>DFHPI9039 E</td>
<td>Substitution groups within xsd:choice constructs are not supported. The substitution group name is <code>Name</code>.</td>
</tr>
<tr>
<td>DFHPI9664 E</td>
<td>The value specified for parameter <code>Parameter</code> is invalid. Valid values are: <code>Values</code>.</td>
</tr>
<tr>
<td>DFHPI9665 E</td>
<td>The WSDL binding for operation <code>Operation</code> specifies an invalid message. <code>Messagefound</code> was found, but <code>Messageexpected</code> was expected.</td>
</tr>
<tr>
<td>DFHPI9666 E</td>
<td>A complextype can not contain more than one 'any' type. Problem found in type: <code>Type</code>.</td>
</tr>
<tr>
<td>DFHPI9667 E</td>
<td>The supplied WSDL contains an 'any' or 'anytype' element. This is only supported when 'pgmint' is set to 'channel'.</td>
</tr>
<tr>
<td>DFHPI9668 E</td>
<td>Invalid value specified for the XML-only parameter. Valid values are: true or false.</td>
</tr>
<tr>
<td>DFHPI9669 E</td>
<td>Global XML element <code>Element</code> not found.</td>
</tr>
<tr>
<td>DFHPI9670 E</td>
<td>No global XML elements or types have been processed.</td>
</tr>
<tr>
<td>DFHPI9671 E</td>
<td>Mismatch between WS-Addressing action and soap action for operation <code>Operation</code>.</td>
</tr>
<tr>
<td>DFHPI9672 E</td>
<td>Mismatch between WS-Addressing endpoint reference address and port address.</td>
</tr>
<tr>
<td>DFHPI9673 E</td>
<td>Mismatch between WS-Addressing endpoint reference address and endpoint address.</td>
</tr>
<tr>
<td>DFHPI9674 E</td>
<td>Non-abstract global XML type <code>Type</code> not found.</td>
</tr>
<tr>
<td>DFHPI9675 E</td>
<td>Multiple WS-Addressing endpoint references exist.</td>
</tr>
<tr>
<td>DFHPI9676 E</td>
<td>The supplied WSDL contains constructs that are only supported when 'PGMIN' is set to 'CHANNEL'.</td>
</tr>
<tr>
<td>DFHPI9677 E</td>
<td>Invalid WS-Addressing endpoint reference element <code>Element</code>.</td>
</tr>
<tr>
<td>DFHPI9679 E</td>
<td>Invalid WS-Addressing endpoint reference element, 'address' element not found.</td>
</tr>
<tr>
<td>DFHPI9680 W</td>
<td>The minimum-runtime-level is less than 3.0. The WS-Addressing content in the WSDL is ignored.</td>
</tr>
<tr>
<td>DFHPI9681 E</td>
<td>Invalid value specified for the 'WSADDR-EPR-ANY' parameter. Valid values are: 'TRUE' or 'FALSE'.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHP19682 W</td>
<td>Container names beginning ‘DFH’ should not be used in channel description documents. The problem is for container 'containerName'.</td>
</tr>
<tr>
<td>DFHP19683 W</td>
<td>Bundle directory Dirname already exists and may contain files that are inconsistent with the new bundle manifest file.</td>
</tr>
<tr>
<td>DFHP19684 W</td>
<td>The value of the XSDBIND parameter indicates a directory name of Dirname. This is ignored as the xsdbind file is being generated into a bundle.</td>
</tr>
<tr>
<td>DFHP19800 E</td>
<td>The service registry client has not been initialized.</td>
</tr>
<tr>
<td>DFHP19801 E</td>
<td>A document with a matching name, namespace and version already exists within the registry. The publish step was not run.</td>
</tr>
<tr>
<td>DFHP19802 E</td>
<td>The setting of the registry endpoint was not successful.</td>
</tr>
<tr>
<td>DFHP19803 W</td>
<td>Greater than 250 custom properties have been defined; the first 250 are used.</td>
</tr>
<tr>
<td>DFHP19804 E</td>
<td>When retrieving a document from a registry a fault was returned with message Faultmessage.</td>
</tr>
<tr>
<td>DFHP19805 E</td>
<td>An attempt to retrieve a document from a registry failed with reason Failreason.</td>
</tr>
<tr>
<td>DFHP19806 E</td>
<td>The WSDL file was not found at the specified location.</td>
</tr>
<tr>
<td>DFHP19807 E</td>
<td>The WSDL file can not be read in the CCSID specified.</td>
</tr>
<tr>
<td>DFHP19808 E</td>
<td>The WSDL file could not be used due to an ioexception.</td>
</tr>
<tr>
<td>DFHP19809 E</td>
<td>When querying a registry a fault was returned with message Faultmessage.</td>
</tr>
<tr>
<td>DFHP19810 E</td>
<td>An attempt to query a registry failed with reason Failreason.</td>
</tr>
<tr>
<td>DFHP19811 I</td>
<td>The document Docname has been found in the registry with unique identifier Docuri.</td>
</tr>
<tr>
<td>DFHP19812 W</td>
<td>Multiple documents matching the query have been found. The first will be used.</td>
</tr>
<tr>
<td>DFHP19813 E</td>
<td>When publishing to a registry a fault was returned with message Faultmessage.</td>
</tr>
<tr>
<td>DFHP19814 E</td>
<td>An attempt to publish to a registry failed with reason Failreason.</td>
</tr>
<tr>
<td>DFHP19815 I</td>
<td>Starting Requesttype Web service request.</td>
</tr>
<tr>
<td>DFHP19816 I</td>
<td>Response received for Requesttype Web service request.</td>
</tr>
<tr>
<td>DFHP19817 I</td>
<td>The WSRR-SERVER location is Wsrrserver.</td>
</tr>
<tr>
<td>DFHP19818 I</td>
<td>Custom property set with name Propertyname and value Propertyvalue.</td>
</tr>
<tr>
<td>DFHP19819 I</td>
<td>Starting write of file Filename.</td>
</tr>
<tr>
<td>DFHP19820 E</td>
<td>An ioexception occurred when attempting to write file Filename.</td>
</tr>
<tr>
<td>DFHP19821 E</td>
<td>No document matched name Filename, namespace Xmlns, and version Version.</td>
</tr>
<tr>
<td>DFHP19822 E</td>
<td>The parameter Parametername has an invalid value of Value.</td>
</tr>
<tr>
<td>DFHP19823 W</td>
<td>Publishing of WSDL 2.0 documents to WSRR is not supported. The document Documentname has not been published.</td>
</tr>
<tr>
<td>DFHRL0001</td>
<td>Applid An abend (code Aaa/bbbb) has occurred at offset X’offset’ in module Modname.</td>
</tr>
<tr>
<td>DFHRL0002</td>
<td>Applid A severe error (code X’code’) has occurred in module Modname.</td>
</tr>
<tr>
<td>DFHRL0101 E</td>
<td>date time applid terminal userid tranid INSTALL ATOMSERVICE(atomservice-name)</td>
</tr>
</tbody>
</table>

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Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)
<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHRL0102 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the resource resource_name and returned with reason reason.</td>
</tr>
<tr>
<td>DFHRL0103 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the BUNDLE resource bundle_name because the manifest manifest_file specified in the bundle root directory was not found.</td>
</tr>
<tr>
<td>DFHRL0104 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the BUNDLE resource bundle_name because CICS is not authorized to read the resource path_name defined in the bundle manifest.</td>
</tr>
<tr>
<td>DFHRL0105 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the BUNDLE resource bundle_name because the resource path_name defined in the bundle manifest was not found.</td>
</tr>
<tr>
<td>DFHRL0106 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the BUNDLE resource bundle_name because CICS is not authorized to read the manifest manifest_file in the root directory of the bundle.</td>
</tr>
<tr>
<td>DFHRL0107 I</td>
<td>date time applid userid The CICS resource life-cycle manager has started to create the BUNDLE resource bundle_name.</td>
</tr>
<tr>
<td>DFHRL0108 I</td>
<td>date time applid tranid The CICS resource life-cycle manager is in the process of creating the BUNDLE resource bundle_name and the BUNDLE is in the state state.</td>
</tr>
<tr>
<td>DFHRL0109 I</td>
<td>date time applid tranid The CICS resource life-cycle manager has created the BUNDLE resource bundle_name and the BUNDLE is in the state state.</td>
</tr>
<tr>
<td>DFHRL0110 E</td>
<td>date time applid tranid The CICS resource life-cycle manager has failed to create the BUNDLE resource bundle_name.</td>
</tr>
<tr>
<td>DFHRL0111 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the resource resource_name because the resource type resource_type has not been registered.</td>
</tr>
<tr>
<td>DFHRL0112 E</td>
<td>date time applid tranid The encoding of the manifest manifest_name in the root directory of the bundle bundle_name is not valid.</td>
</tr>
<tr>
<td>DFHRL0113 E</td>
<td>date time applid tranid The CICS resource life-cycle manager failed to create the BUNDLE resource bundle_name because CICS failed to parse the manifest manifest_name specified in the bundle root directory. (The manifest is not valid.</td>
</tr>
<tr>
<td>DFHRL0114 W</td>
<td>date time applid tranid The CICS resource life-cycle manager detected a missing import for BUNDLE resource_name. Import name: import_name type: import_type .</td>
</tr>
<tr>
<td>DFHRL0115 W</td>
<td>date time applid tranid The attempt to [enable</td>
</tr>
<tr>
<td>DFHRL0116 E</td>
<td>applid The CICS resource life-cycle bundle class failed to re-create the BUNDLE resource bundle_name because the manifest manifest_file specified in the bundle was not found.</td>
</tr>
<tr>
<td>DFHRL0117 E</td>
<td>applid The CICS resource life-cycle bundle class failed to re-create the BUNDLE resource bundle_name because CICS is not authorized to read the manifest manifest_file.</td>
</tr>
<tr>
<td>DFHRL0118 E</td>
<td>applid The CICS resource life-cycle bundle class has failed to re-create the BUNDLE resource bundle_name.</td>
</tr>
<tr>
<td>DFHRL0119 E</td>
<td>applid The CICS resource life-cycle bundle class failed to re-create the BUNDLE resource bundle_name because of failed consistency checks with the manifest manifest_file.</td>
</tr>
<tr>
<td>DFHRL0120 W</td>
<td>date time applid tranid The import of resource resource_name of type type_name failed as the resource was not available in an enabled state.</td>
</tr>
<tr>
<td>DFHRL0121 W</td>
<td>date time applid tranid The CICS resource life-cycle manager detected that a composite name was not provided in the BUNDLE resource bundle_name.</td>
</tr>
<tr>
<td>DFHRM0402</td>
<td>date time applid UOWID:X’luowid’ found.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>DFHRM0403</td>
<td><code>date time applid UOWID:X’luowid’</code> recovered for resolution, current status:uowstatus, tasknum:tasknum, tranid:tranid, Net UOWID:networkuowid`</td>
</tr>
<tr>
<td>DFHRM0404</td>
<td><code>date time applid UOWID:X’luowid’</code> is resolved, status:uowstatus, tasknum:tasknum, tranid:tranid, Net UOWID:networkuowid`</td>
</tr>
<tr>
<td>DFHRM0405</td>
<td><code>date time applid Keypoint recovered. All relevant UOWs have been identified. Scan continuing for full recovery.</code></td>
</tr>
<tr>
<td>DFHRS0001</td>
<td><code>Applid An abend (code Aaa/bbbb) has occurred at offset X’offset’ in module Modname.</code></td>
</tr>
<tr>
<td>DFHRS0002</td>
<td><code>Applid A severe error (code X’code’) has occurred in module Modname.</code></td>
</tr>
<tr>
<td>DFHSJ0004</td>
<td><code>applid A possible loop has been detected at offset X’offset’ in module modname.</code></td>
</tr>
<tr>
<td>DFHSJ0207</td>
<td><code>date time applid CICS is running Java version version.</code></td>
</tr>
<tr>
<td>DFHSJ0910</td>
<td><code>date time applid userid JVMSERVER jomserver has been created.</code></td>
</tr>
<tr>
<td>DFHSJ0911</td>
<td>`date time applid userid JVMSERVER jomserver was not created because (there is insufficient storage.</td>
</tr>
<tr>
<td>DFHSJ0912</td>
<td><code>date time applid userid JVMSERVER jomserver was successfully discarded.</code></td>
</tr>
<tr>
<td>DFHSJ0913</td>
<td><code>date time applid userid JVMSERVER jomserver is being discarded.</code></td>
</tr>
<tr>
<td>DFHSJ0914</td>
<td>`date time applid userid JVMSERVER jomserver is DISABLED because (the JVM server was not found.</td>
</tr>
<tr>
<td>DFHSJ0915</td>
<td><code>date time applid userid JVMSERVER jomserver is now enabled and is ready for use.</code></td>
</tr>
<tr>
<td>DFHSJ0916</td>
<td><code>date time applid userid the requested thread limit for JVMSERVER jomserver exceeds the maximum available. The thread limit is set to the maximum available.</code></td>
</tr>
<tr>
<td>DFHSJ0917</td>
<td><code>date time applid userid JVMSERVER jomserver is disabled.</code></td>
</tr>
<tr>
<td>DFHSJ0918</td>
<td><code>date time applid userid JVMSERVER jomserver is being disabled.</code></td>
</tr>
<tr>
<td>DFHSJ1001</td>
<td><code>date time applid userid An attempt to attach a thread to JVMSERVER jomserver has failed. Return code: return_code.</code></td>
</tr>
<tr>
<td>DFHSJ1002</td>
<td><code>date time applid userid The class classname that was specified to be run in JVMSERVER jomserver cannot be found.</code></td>
</tr>
<tr>
<td>DFHSJ1003</td>
<td><code>date time applid userid An attempt to locate the method_name method in class classname has failed, for JVMSERVER jomserver.</code></td>
</tr>
<tr>
<td>DFHSJ1004</td>
<td><code>date time applid userid An exception has been thrown by the method_name method of class classname running in JVMSERVER jomserver.</code></td>
</tr>
<tr>
<td>DFHSJ1005</td>
<td><code>date time applid userid An attempt to detach a thread from JVMSERVER jomserver has failed. Return code: return_code.</code></td>
</tr>
<tr>
<td>DFHSJ1006</td>
<td>`date time applid userid An attempt to attach to JVMSERVER jomserver has failed because (the channel name used is invalid</td>
</tr>
<tr>
<td>DFHSO00118</td>
<td><code>applid The GETHOSTBYADDR call to resolve IP address IP_ADDRESS to a host name took over 3 seconds to complete.</code></td>
</tr>
</tbody>
</table>
Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHSO0130</td>
<td>DATE TIME APPLID A TCP/IP accept call has failed. The TCPIPSERVICE Tcpipservice on port Portnumber at IP address Ipaddress will be closed. The values returned are bpx_return_value( Bpx return value ), bpx_return_code( Bpx_return_code ), and bpx_reason_code( Bpx_reason_code ).</td>
</tr>
<tr>
<td>DFHSO0133</td>
<td>date time applid TCPIPSERVICE tcpipservice has been installed.</td>
</tr>
<tr>
<td>DFHSO0134</td>
<td>applidCICS is unable to listen for ENF event 71. Changing a users RACF attributes will only take effect after the USERDELAY timeout.</td>
</tr>
<tr>
<td>DFHWB0763</td>
<td>date time applid tranid The URIMAP associated with the HTTP request is disabled. Host IP address: hostaddr. Client IP address: clientaddr.</td>
</tr>
<tr>
<td>DFHWB0764</td>
<td>date time applid tranid An attempt was made to use URIMAP urimap which is disabled.</td>
</tr>
<tr>
<td>DFHWU0910</td>
<td>applid Instruction address X’aaaaaaa’, offset X’offset’ in CSECT csect.</td>
</tr>
<tr>
<td>DFHWU0911</td>
<td>applid EC Mode PSW at time of abend: PSW1 PSW2 PSW3 PSW4</td>
</tr>
<tr>
<td>DFHWU0912</td>
<td>applid Execution key: key, abend reason code X’reason’.</td>
</tr>
<tr>
<td>DFHWU0913</td>
<td>applid Execution mode: mode. BEAR: X’bear’.</td>
</tr>
<tr>
<td>DFHWU0914</td>
<td>applid Registers R1-R2: REG1VAL REG2VAL</td>
</tr>
<tr>
<td>DFHWU0915</td>
<td>applid Branch to low address; using R14 for PSW.</td>
</tr>
<tr>
<td>DFHWU0916</td>
<td>applid Storage around PSW at time of abend</td>
</tr>
<tr>
<td>DFHWU0917</td>
<td>applid offset location data1 data2 data3 data4</td>
</tr>
<tr>
<td>DFHWU0918</td>
<td>applid Abend while dumping storage; PSW probably not valid.</td>
</tr>
<tr>
<td>DFHWU0920</td>
<td>applid Abend recovery completed successfully.</td>
</tr>
<tr>
<td>DFHWU4001</td>
<td>The URI that has been specified has exceeded the maximum allowable length of 256 bytes.</td>
</tr>
<tr>
<td>DFHWU4002</td>
<td>The body of the HTTP request was not specified. The body of the HTTP request was not specified.</td>
</tr>
<tr>
<td>DFHWU4003</td>
<td>An unknown query parameter was specified in the URI. name: parmname value: parmvalue</td>
</tr>
<tr>
<td>DFHWU4005</td>
<td>The result cache token was missing from the URI.</td>
</tr>
<tr>
<td>DFHWU4006</td>
<td>The resource name was missing from the URI.</td>
</tr>
<tr>
<td>DFHWU4007</td>
<td>The body of the HTTP request was not specified correctly.</td>
</tr>
<tr>
<td>DFHWU4008</td>
<td>An action was specified in the HTTP body that was not valid. ACTION value: action</td>
</tr>
<tr>
<td>DFHWU4009</td>
<td>The record index was specified for a non-cached result. RECORDINDEX value: recordindex</td>
</tr>
<tr>
<td>DFHWU4010</td>
<td>The record index specified in the URI was not valid. RECORDINDEX value: recordindex</td>
</tr>
<tr>
<td>DFHWU4011</td>
<td>The record count specified in the URI was not valid. RECORDCOUNT value: recordcount</td>
</tr>
<tr>
<td>DFHWU4012</td>
<td>Extraneous data was detected at the end of the URI. EXTRADATA value: data</td>
</tr>
<tr>
<td>DFHWU4013</td>
<td>Multiple CRITERIA expressions were found in the URI.</td>
</tr>
<tr>
<td>DFHWU4014</td>
<td>Multiple PARAMETER expressions were found in the URI.</td>
</tr>
<tr>
<td>DFHWU4016</td>
<td>Multiple NODISCARD expressions were found in the URI.</td>
</tr>
<tr>
<td>DFHWU4017</td>
<td>NODISCARD is valid only for HTTP GET requests.</td>
</tr>
<tr>
<td>DFHWU4018</td>
<td>applid Abend while dumping storage; PSW probably not valid.</td>
</tr>
<tr>
<td>DFHWU4019</td>
<td>PARAMETER is not valid for HTTP POST requests.</td>
</tr>
<tr>
<td>DFHWU4020</td>
<td>Multiple SUMMONLY expressions were found in the URI.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHWU4021</td>
<td>CRITERIA is not valid for result cache operations. CRITERIA value: criteria</td>
</tr>
<tr>
<td>DFHWU4022</td>
<td>PARAMETER is not valid for result cache operations. PARAMETER value: parameter</td>
</tr>
<tr>
<td>DFHWU4025</td>
<td>A specified attribute was not valid for this resource.</td>
</tr>
<tr>
<td>DFHWU4026</td>
<td>The DEFVER attribute was not specified or was specified with a value of zero.</td>
</tr>
<tr>
<td>DFHWU4027</td>
<td>A value of a specified attribute was out-of-range or not valid.</td>
</tr>
<tr>
<td>DFHWU4029</td>
<td>The result cache token specified exceeded its maximum allowable length. CACHETOKEN value: cachetoken</td>
</tr>
<tr>
<td>DFHWU4030</td>
<td>The resource name was not specified in the URI.</td>
</tr>
<tr>
<td>DFHWU4031</td>
<td>Multiple ORDERBY expressions were found in the URI.</td>
</tr>
<tr>
<td>DFHWU4032</td>
<td>ORDERBY is valid only for HTTP GET requests.</td>
</tr>
<tr>
<td>DFHWU4300</td>
<td>The result cache token specified in the URI does not belong to the user who made the request.</td>
</tr>
<tr>
<td>DFHWU4301</td>
<td>It is not possible to run requests in this environment. This region is not configured correctly.</td>
</tr>
<tr>
<td>DFHWU4302</td>
<td>The requested record count will exceed the current default warning count limit. current_record_count value: currcount default_warning_count value: warncount</td>
</tr>
<tr>
<td>DFHWU4400</td>
<td>The resource specified in the URI could not be found.</td>
</tr>
<tr>
<td>DFHWU4401</td>
<td>The result cache record specified could not be found.</td>
</tr>
<tr>
<td>DFHWU4402</td>
<td>The result cache specified could not be found.</td>
</tr>
<tr>
<td>DFHWU4500</td>
<td>A method has been specified that is not valid for the URI sent to the CICS management client interface. METHOD value: method</td>
</tr>
<tr>
<td>DFHWU5000</td>
<td>There was insufficient GCDSA storage available to complete the request.</td>
</tr>
<tr>
<td>DFHWU5001</td>
<td>The CICS management client interface server has gone Short On Storage BELOW the bar.</td>
</tr>
<tr>
<td>DFHWU5002</td>
<td>An internal error has occurred in the CICS management client interface.</td>
</tr>
<tr>
<td>DFHW20001</td>
<td>APPLID AN ABEND (CODE AAA/BBBB) HAS OCCURRED AT OFFSET X'OFFSET' IN MODULE MODNAME.</td>
</tr>
<tr>
<td>DFHW20002</td>
<td>APPLID A SEVERE ERROR (CODE X'CODE') HAS OCCURRED IN MODULE MODNAME.</td>
</tr>
<tr>
<td>DFHW20004</td>
<td>APPLID A POSSIBLE LOOP HAS BEEN DETECTED AT OFFSET X'OFFSET' IN MODULE MODNAME.</td>
</tr>
<tr>
<td>DFHW20006</td>
<td>APPLID INSUFFICIENT STORAGE TO SATISFY GETMAIN(CODE X'CODE') IN MODULE MODNAME. MVS CODE MVSCODE.</td>
</tr>
<tr>
<td>DFHW20100I</td>
<td>APPLID WEB2.0 DOMAIN INITIALIZATION HAS STARTED.</td>
</tr>
<tr>
<td>DFHW20101I</td>
<td>APPLID WEB2.0 DOMAIN INITIALIZATION HAS ENDED.</td>
</tr>
<tr>
<td>DFHW20110</td>
<td>date time applid userid ATOMSERVICE atomservice has been created.</td>
</tr>
<tr>
<td>DFHW20111</td>
<td>date time applid userid ATOMSERVICE atomservice was successfully discarded.</td>
</tr>
<tr>
<td>DFHW20120</td>
<td>date time applid Configuration file filename is being analyzed for ATOMSERVICE atomservice.</td>
</tr>
<tr>
<td>DFHW20121</td>
<td>date time applid Configuration file filename for ATOMSERVICE atomservice was not found.</td>
</tr>
<tr>
<td>DFHW20122</td>
<td>date time applid The XML in the configuration file for ATOMSERVICE atomservice is not well-formed. Response codes from the XML System Services parser are (X'return-code’, X'reason-code’).</td>
</tr>
<tr>
<td>DFHW20123</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Namespace URI ns-uri is not recognized.</td>
</tr>
</tbody>
</table>
Table 33. New messages in CICS Transaction Server for z/OS, Version 4 Release 1 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHW20124</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. XML element element is not recognized.</td>
</tr>
<tr>
<td>DFHW20125</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. The XML root element is not valid.</td>
</tr>
<tr>
<td>DFHW20126</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Child element prefix1:element1 is not valid within element prefix2:element2.</td>
</tr>
<tr>
<td>DFHW20127</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Attribute prefix1:attr1 is not valid on element prefix2:element2.</td>
</tr>
<tr>
<td>DFHW20128</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Attribute prefix1:attr1 on element prefix2:element2 has incorrect value attrval.</td>
</tr>
<tr>
<td>DFHW20129</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Required attribute prefix1:attr1 was not found on element prefix2:element2.</td>
</tr>
<tr>
<td>DFHW20130</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Required element prefix1:element1 with attributes {attrib-list} was not found within element prefix2:element2.</td>
</tr>
<tr>
<td>DFHW20131</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. Child element prefix1:element1 occurs multiple times within element prefix2:element2.</td>
</tr>
<tr>
<td>DFHW20133</td>
<td>date time applid Configuration error for ATOMSERVICE atomservice. The value of the attribute attr1 on element prefix2:element2 does not match the value of the attribute attr3 in the ATOMSERVICE definition.</td>
</tr>
<tr>
<td>DFHW20141</td>
<td>date time applid The bind file filename for ATOMSERVICE atomservice was not found.</td>
</tr>
<tr>
<td>DFHW20142</td>
<td>date time applid CICS is not authorized to access [CONFIGFILE</td>
</tr>
<tr>
<td>DFHW20151</td>
<td>date time applid Service program service-prog terminated abnormally with abend code abendcode processing req-method for ATOMSERVICE atomserv.</td>
</tr>
<tr>
<td>DFH5137 E</td>
<td>Group Grpname not found in list listid</td>
</tr>
<tr>
<td>DFH5297 E</td>
<td>command is no longer supported.</td>
</tr>
<tr>
<td>DFH5559 W</td>
<td>Host conflicts with ipaddress. Host takes precedence.</td>
</tr>
<tr>
<td>DFH5560 W</td>
<td>Command not executed. Port_attribute conflicts with port number found in host attribute.</td>
</tr>
<tr>
<td>EYUWM0440 I</td>
<td>Transaction group trangrpid in CICSplex plexname for workload workloadid algorithm reset to [GOAL</td>
</tr>
<tr>
<td>EYUWM0442 I</td>
<td>Transaction group trangrpid in CICSplex plexname for workload workloadid status reset to [ACTIVE</td>
</tr>
<tr>
<td>EYUWM0443 I</td>
<td>Dynamic transaction group tranname discarded from transaction group trangrpid in CICSplex plexname for workload workloadid.</td>
</tr>
<tr>
<td>EYUWM0444 I</td>
<td>Affinity from transaction group trangrpid to target AOR discarded in CICSplex plexname for workload workloadid.</td>
</tr>
</tbody>
</table>

New messages in CICS Transaction Server for z/OS, Version 3 Release 2

Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAM4812 W</td>
<td>applid Install of LIBRARY libname encountered a data set {allocation</td>
</tr>
<tr>
<td>DFHAM4813 W</td>
<td>applid Install of LIBRARY libname encountered an MVS ABEND. The LIBRARY is installed but disabled.</td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHAM4817 E</td>
<td>applid Install of LIBRARY libname failed with an MVS ABEND. The LIBRARY is not installed.</td>
</tr>
<tr>
<td>DFHAM4878 E</td>
<td>applid Install of [IPCONN] resourcename failed because one with this name is already installed and is in use.</td>
</tr>
<tr>
<td>DFHAM4885 E</td>
<td>applid Install of IPCONN resourcename failed. Duplicate applid applid found.</td>
</tr>
<tr>
<td>DFHAM4913 E</td>
<td>applid Install of [IPCONN] resourcename failed because a CONNECTION resource with this name and a different APPLID is already installed.</td>
</tr>
<tr>
<td>DFHAM4914 E</td>
<td>applid Install of resourcetype resourcename failed. The specified targetresource is unusable.</td>
</tr>
<tr>
<td>DFHAM4917 W</td>
<td>applid [CORBASERVER</td>
</tr>
<tr>
<td>DFHAM4918 E</td>
<td>applid The installation of [CORBASERVER</td>
</tr>
<tr>
<td>DFHAM4934 E</td>
<td>applid The installation of URIMAP resourcename failed because HOSTCODEPAGE hcodepage is not valid in combination with CHARACTERSET charset.</td>
</tr>
<tr>
<td>DFHAM4935 E</td>
<td>applid Install of [TCPIPSERVICE</td>
</tr>
<tr>
<td>DFHAM4999 E</td>
<td>applid Install of resourcetype resources is not supported.</td>
</tr>
<tr>
<td>DFHAP1500</td>
<td>applid The CICS time-of-day is no longer synchronized with the system time-of-day.</td>
</tr>
<tr>
<td>DFHCA5553 E</td>
<td>date time applid netname tranid Command not executed. field cannot start with a 'char'.</td>
</tr>
<tr>
<td>DFHCA5554 W</td>
<td>date time applid netname tranid Use of static attribute field1 forces field2.</td>
</tr>
<tr>
<td>DFHCA5555 E</td>
<td>date time applid netname tranid Command not executed. There must be at least one attribute specified.</td>
</tr>
<tr>
<td>DFHCA5556 E</td>
<td>date time applid netname tranid Command not executed. resource names beginning with 'yyy' are reserved and cannot be used.</td>
</tr>
<tr>
<td>DFHCA5557 E</td>
<td>date time applid netname tranid Command not executed. 'xxxxxxx' is a reserved name and cannot be used as a resource name.</td>
</tr>
<tr>
<td>DFHCA5558 W</td>
<td>date time applid netname tranid A ranking value less than 10 for LIBRARY 'resource' means it will appear before DFHRPL in the search order.</td>
</tr>
<tr>
<td>DFHCF0123</td>
<td>IXCARM REQUEST=regtype failed, return code retnode, reason code rsnode.</td>
</tr>
<tr>
<td>DFHDD0004</td>
<td>applid A possible loop has been detected at offset X'offset' in module modname.</td>
</tr>
<tr>
<td>DFHDD0006</td>
<td>applid Insufficient storage to satisfy Getmain (code X'code') in module modname. MVS code mvscode.</td>
</tr>
<tr>
<td>DFHFC0119</td>
<td>applid The load of callable service IGGCSI00 has failed with return code X'elee'.</td>
</tr>
<tr>
<td>DFHFC0517</td>
<td>applid [RLS</td>
</tr>
<tr>
<td>DFHFC0518</td>
<td>applid File Control is using an extended addressing ESDS dataset.</td>
</tr>
<tr>
<td>DFHFC0519</td>
<td>applid Call to VSAM Catalog utility IGGCSI00 for dataset dsname failed. Return code X'rerrr' Reason code X'cccc'.</td>
</tr>
<tr>
<td>DFHFC6037 I</td>
<td>date time applid Program program name has issued an RBA request against an extended addressing ESDS data set. File filename. Data set dsname.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHFC6038</td>
<td>date time applid Program program name has issued an unsupported type of RBA request against an extended addressing ESDS. The request has failed. File name filename. Data set name dsname.</td>
</tr>
<tr>
<td>DFHFC6040</td>
<td>date time applid Timeout period has expired processing a generic delete against an RLS file. The task was waiting on a get for update request for a locked record that was beyond the range of the generic delete. Once the get for update request has timed out, the delete command completes and the task resumes normal execution. File name filename. Data set name dsname.</td>
</tr>
<tr>
<td>DFHFC6041</td>
<td>date time applid Attempt to unquiesce data set dsname failed due to a conflict with another task.</td>
</tr>
<tr>
<td>DFHIS0001</td>
<td>applid An abend (code aaa/bbbb) has occurred at offset X’offset’ in module modname.</td>
</tr>
<tr>
<td>DFHIS0002</td>
<td>applid A severe error (code X’code’) has occurred in module modname.</td>
</tr>
<tr>
<td>DFHIS0003</td>
<td>applid Insufficient storage to satisfy Getmain (code X’code’) in module modname.</td>
</tr>
<tr>
<td>DFHIS0004</td>
<td>applid A possible loop has been detected at offset X’offset’ in module modname.</td>
</tr>
<tr>
<td>DFHIS0006</td>
<td>applid Insufficient storage to satisfy Getmain (code X’code’) in module modname. MVS code mvscode.</td>
</tr>
<tr>
<td>DFHIS0998</td>
<td>date time applid Mirror transaction processing DPL request using IP Interconnectivity has abended with code abcode.</td>
</tr>
<tr>
<td>DFHIS1000</td>
<td>date time applid Invalid parameter list passed to IS domain module modname.</td>
</tr>
<tr>
<td>DFHIS1001</td>
<td>date time applid Unexpected exception from domain call made by IS domain module modname.</td>
</tr>
<tr>
<td>DFHIS1002</td>
<td>date time applid Unable to [acquire</td>
</tr>
<tr>
<td>DFHIS1003</td>
<td>date time applid Unable to [acquire</td>
</tr>
<tr>
<td>DFHIS1004</td>
<td>date time applid Unable to acquire IPCONN IPCONN. Associated TCPIPIService TCPIPService not found.</td>
</tr>
<tr>
<td>DFHIS1005</td>
<td>date time applid Unable to acquire IPCONN IPCONN. Associated TCPIPIService TCPIPService not open.</td>
</tr>
<tr>
<td>DFHIS1006</td>
<td>date time applid Unable to acquire IPCONN IPCONN. TCPIP not open.</td>
</tr>
<tr>
<td>DFHIS1007</td>
<td>date time applid Unable to acquire IPCONN IPCONN. Failure to open session to hostname, port portnumber.</td>
</tr>
<tr>
<td>DFHIS1008</td>
<td>date time applid Unable to acquire IPCONN IPCONN. Invalid HTTP response to capability exchange.</td>
</tr>
<tr>
<td>DFHIS1009</td>
<td>date time applid Unable to acquire IPCONN IPCONN. Response to capability exchange timed out.</td>
</tr>
<tr>
<td>DFHIS1010</td>
<td>date time applid Unable to acquire IPCONN IPCONN. Invalid capability exchange response received.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHIS1011</td>
<td>date time applid Unable to acquire IPCONN IPCONN. An {EXCEPTION</td>
</tr>
<tr>
<td>DFHIS1012</td>
<td>date time applid Invalid capability exchange request received on TCPIPSERVICE TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHIS1013</td>
<td>date time applid Invalid applid networkid,applid received in capability exchange request on TCPIPSERVICE TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHIS1014</td>
<td>date time applid Capability exchange request not received on TCPIPSERVICE TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHIS1015</td>
<td>date time applid Unable to accept connection for IPCONN IPCONN. IPCONN client session state is invalid.</td>
</tr>
<tr>
<td>DFHIS1016</td>
<td>date time applid Invalid recovery protocol received in capability exchange request on TCPIPSERVICE TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHIS1017</td>
<td>date time applid IS domain input queue error.</td>
</tr>
<tr>
<td>DFHIS1018</td>
<td>date time applid IS domain error queue error.</td>
</tr>
<tr>
<td>DFHIS1019</td>
<td>date time applid Bad conversation ID in IPIC HTTP header on IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS1020</td>
<td>date time applid Acquire for IPCONN IPCONN rejected; shutdown in progress.</td>
</tr>
<tr>
<td>DFHIS1021</td>
<td>date time applid Session error occurred on sesstype IPIC session in IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS1022</td>
<td>date time applid Protocol error (code X’errorcode’) occurred on sesstype IPIC session in IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS1023</td>
<td>date time applid Conversation error (code X’errorcode’) occurred on IPIC session name in IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS1024</td>
<td>date time applid Mirror attach rejected on IPCONN IPCONN. No sessions available.</td>
</tr>
<tr>
<td>DFHIS1025</td>
<td>date time applid Failed to attach mirror transaction tranid on IPCONN IPCONN. Error code is X’errorcode’.</td>
</tr>
<tr>
<td>DFHIS1026</td>
<td>date time applid Incorrect TCPIPSERVICE TCPIPSERVICE used for inbound connection to IPCONN IPCONN, which is defined to use TCPIPSERVICE IPCONN_TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHIS1027</td>
<td>date timeapplid Security violation has been detected using IPCONN IPCONN and transaction id tranid by userid userid</td>
</tr>
<tr>
<td>DFHIS1028</td>
<td>date time applid A request has been received over IPCONN IPCONN to use transaction id tranid by userid userid. This userid is not authorized to use the transaction.’</td>
</tr>
<tr>
<td>DFHIS1029</td>
<td>date time applid One-way IPCONN IPCONN not valid for connection from applid networkid,applid. A callback is expected on host ipaddr, port port.</td>
</tr>
<tr>
<td>DFHIS1030</td>
<td>date time applid Recovery value X’IPCONN_recovprot’ for IPCONN IPCONN different from capability response recovery value X’iscer_recovprot’.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHIS1031</td>
<td>date time applid Incoming acquire for IPCONN IPCONN rejected due to race with concurrent local acquire.</td>
</tr>
<tr>
<td>DFHIS2000</td>
<td>date time applid Server session with applid applid on host hostname, port portnumber acquired for IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS2001</td>
<td>date time applid Client session from applid applid accepted for IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS2002</td>
<td>date time applid Number of SEND sessions for IPCONN IPCONN set to usable. Number requested req. Partner limit max.</td>
</tr>
<tr>
<td>DFHIS2003</td>
<td>date time applid Number of RECEIVE sessions for IPCONN IPCONN set to usable. Number requested req. Limit max.</td>
</tr>
<tr>
<td>DFHIS2006</td>
<td>date time applid Port IPCONN_port for IPCONN IPCONN different from partner port partner_port.</td>
</tr>
<tr>
<td>DFHIS2008</td>
<td>date time applid Receipt of msgtype for task taskno timed out on IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS2009</td>
<td>date time applid Client session in IPCONN IPCONN from applid applid released.</td>
</tr>
<tr>
<td>DFHIS2010</td>
<td>date time applid Server session in IPCONN IPCONN with applid applid on host hostname, port portnumber released.</td>
</tr>
<tr>
<td>DFHIS2011</td>
<td>date time applid {PURGE</td>
</tr>
<tr>
<td>DFHIS2040</td>
<td>date time applid Unable to acquire IPCONN IPCONN due to a security violation</td>
</tr>
<tr>
<td>DFHIS3000</td>
<td>date time applid IPCONN IPCONN with applid networkid.applid autoinstalled successfully using autoinstall user program aupname and template template after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname.</td>
</tr>
<tr>
<td>DFHIS3001</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname because the TCPIPSERVICE has URM(NO).</td>
</tr>
<tr>
<td>DFHIS3002</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. Use of autoinstall user program aupname has caused error code code.</td>
</tr>
<tr>
<td>DFHIS3003</td>
<td>date time applid IPCONN autoinstall failed due to a severe error in another CICS component.</td>
</tr>
<tr>
<td>DFHIS3004</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned invalid value IPCONN for use as the IPCONN name.</td>
</tr>
<tr>
<td>DFHIS3005</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned IPCONN for use as the IPCONN name. This name is already in use.</td>
</tr>
<tr>
<td>DFHIS3006</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned template as the autoinstall template. No IPCONN with this name exists.</td>
</tr>
<tr>
<td>DFHIS3007</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned template as the autoinstall template. This IPCONN is not in service.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHIS3008</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned applid for use as the applid. This is already in use.</td>
</tr>
<tr>
<td>DFHIS3009</td>
<td>date time applid IPCONN autoinstall rejected after a connection request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned sysid for use as the IPCONN name. This is already in use for a CONNECTION with a different applid.</td>
</tr>
<tr>
<td>DFHIS3010</td>
<td>date time applid IPCONN autoinstall request was received on TCPIPSERVICE TCPIPSERVICE from host hostname. The autoinstall user program aupname returned invalid value port for use as the port number.</td>
</tr>
<tr>
<td>DFHIS3011</td>
<td>date time applid Failed to invoke Autoinstall User Program aupname during discard of IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS3030 I</td>
<td>date time applid IPCONN name [installed</td>
</tr>
<tr>
<td>DFHIS4000</td>
<td>date time applid Conversation failure on IPCONN IPCONN. Sense code (X’sense’). Message (msgtext).</td>
</tr>
<tr>
<td>DFHIS5000 I</td>
<td>applid Recovery action requested for IP connection name.</td>
</tr>
<tr>
<td>DFHIS5001 I</td>
<td>applid IP connection name operating normally following recovery action.</td>
</tr>
<tr>
<td>DFHIS5002</td>
<td>date time applid nnnnnnnnn queued requests to use IPCONN IPCONN have been canceled. There are nnnnnnnnn requests which remain queued.</td>
</tr>
<tr>
<td>DFHIS5003</td>
<td>date time applid nnnnnnnnn queued requests to use IPCONN IPCONN have been canceled. There are nnnnnnnnn requests which remain queued.</td>
</tr>
<tr>
<td>DFHIS6000</td>
<td>date time applid IP Interconnectivity Recovery. A process error has occurred while running transaction CISX.</td>
</tr>
<tr>
<td>DFHIS6001</td>
<td>date time applid A communications failure has occurred while running transaction CISX.</td>
</tr>
<tr>
<td>DFHIS6002</td>
<td>date time applid IP Interconnectivity Recovery. A process error has occurred while attempting to resynchronize a transaction with an XID of XID.</td>
</tr>
<tr>
<td>DFHIS6003</td>
<td>date time applid IP Interconnectivity Recovery. A communications error has occurred. The unit of work uowid for XID XID has been committed.</td>
</tr>
<tr>
<td>DFHIS6004</td>
<td>date time applid IP Interconnectivity Recovery. A communications error has occurred. The unit of work uowid for XID XID has been backout out.</td>
</tr>
<tr>
<td>DFHIS6005</td>
<td>date time applid IP Interconnectivity Recovery. An attempt to resynchronize a unit of work with an XID of XID has failed because the unit of work could not be found.</td>
</tr>
<tr>
<td>DFHIS6006</td>
<td>date time applid IP Interconnectivity Recovery. Resynchronization has failed, because of an error in the partner region, for the following local UOW X’localuowid’ IPCONN name name transaction tranid task number trannum terminal termid user userid.</td>
</tr>
<tr>
<td>DFHIS6007</td>
<td>date time applid IP Interconnectivity Recovery. Resynchronization not possible, because the corresponding unit of work could not be found by the partner region, for the following local UOW X’localuowid’ associated with IPCONN IPCONN.</td>
</tr>
<tr>
<td>DFHIS6010</td>
<td>date time applid IP Interconnectivity Recovery. Resynchronization not possible for the following local UOW X’localuowid’ IPCONN name name transaction tranid task number trannum terminal termid user userid.</td>
</tr>
<tr>
<td>DFHKE1798</td>
<td>applid FO TCB FORCED TO TERMINATE.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
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</tr>
<tr>
<td>DFHLD0109 I</td>
<td>applid modname1 is unable to locate module modname2 in the LPA. DFHRPL or dynamic LIBRARY version of module will be used.</td>
</tr>
<tr>
<td>DFHLD0205</td>
<td>applid Bad Loader PLDB for LIBRARY libname recovered from the Global catalog. Corruption suspected.</td>
</tr>
<tr>
<td>DFHLD0206</td>
<td>applid Loader SVC svc request failed due to I/O errors on LIBRARY libname.</td>
</tr>
<tr>
<td>DFHLD0501 I</td>
<td>date time applid termid tranid LIBRARY libname is being installed with status {Enabled</td>
</tr>
<tr>
<td>DFHLD0502 I</td>
<td>date time applid termid tranid Install of LIBRARY libname has completed successfully. Enablement status is {Enabled</td>
</tr>
<tr>
<td>DFHLD0503 W</td>
<td>date time applid termid tranid Install of LIBRARY libname has failed to complete successfully, for reason code RSN. Enablement status is Disabled.</td>
</tr>
<tr>
<td>DFHLD0504 E</td>
<td>date time applid termid tranid Install of LIBRARY libname has failed because a LIBRARY of that name is already installed and enabled.</td>
</tr>
<tr>
<td>DFHLD0505 I</td>
<td>date time applid Details for LIBRARY libname, ranking: ranking, critical status: {Critical</td>
</tr>
<tr>
<td>DFHLD0506 I</td>
<td>date time applid Details for LIBRARY libname, data sets 1-8: dsname01, dsname02, dsname03, dsname04, dsname05, dsname06, dsname07, dsname08.</td>
</tr>
<tr>
<td>DFHLD0507 I</td>
<td>date time applid Details for LIBRARY libname, data sets 9-16: dsname09, dsname10, dsname11, dsname12, dsname13, dsname14, dsname15, dsname16.</td>
</tr>
<tr>
<td>DFHLD0512 I</td>
<td>date time applid termid tranid LIBRARY libname has been successfully discarded.</td>
</tr>
<tr>
<td>DFHLD0513 W</td>
<td>date time applid termid tranid Discard of LIBRARY libname has failed for reason code RSN.</td>
</tr>
<tr>
<td>DFHLD0521 I</td>
<td>date time applid termid tranid Ranking of LIBRARY libname changed from oldranking to newranking.</td>
</tr>
<tr>
<td>DFHLD0522 I</td>
<td>date time applid termid tranid Critical status of library libname changed from {Critical</td>
</tr>
<tr>
<td>DFHLD0523 I</td>
<td>date time applid termid tranid LIBRARY libname has been enabled.</td>
</tr>
<tr>
<td>DFHLD0524 I</td>
<td>date time applid termid tranid LIBRARY libname has been disabled.</td>
</tr>
<tr>
<td>DFHLD0525 W</td>
<td>date time applid termid tranid Attempt to set attributes or status of LIBRARY libname has failed for reason code RSN.</td>
</tr>
<tr>
<td>DFHLD0555 I</td>
<td>date time applid Current LIBRARY search order follows.</td>
</tr>
<tr>
<td>DFHLD0556 I</td>
<td>date time applid Position in search order: srchpos, LIBRARY: libname.</td>
</tr>
<tr>
<td>DFHLD0701</td>
<td>applid LIBRARY libname has a smaller ranking value than DFHRPL. Ranking value is R.</td>
</tr>
<tr>
<td>DFHLD0702 D</td>
<td>applid Critical LIBRARY libname could not be installed. Reply ‘GO’ or ‘CANCEL’.</td>
</tr>
<tr>
<td>DFHLD0703</td>
<td>applid Noncritical LIBRARY libname could not be installed as enabled. CICS startup continues.</td>
</tr>
<tr>
<td>DFHLD0704</td>
<td>applid Reply CANCEL was received.</td>
</tr>
<tr>
<td>DFHLD0710</td>
<td>applid Install of LIBRARY libname encountered an error. The LIBRARY is installed but disabled.</td>
</tr>
<tr>
<td>DFHLD0711</td>
<td>applid Install of LIBRARY libname encountered an error. The LIBRARY is installed as disabled.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
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<td>---------------</td>
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</tr>
<tr>
<td>DFHLD0712</td>
<td>applid Attempt to install or enable LIBRARY libname will be delayed because data set dsnname is being recalled.</td>
</tr>
<tr>
<td>DFHLD0713</td>
<td>applid Attempt to enable LIBRARY libname encountered an error. The LIBRARY is disabled.</td>
</tr>
<tr>
<td>DFHLD0715</td>
<td>applid Disable processing for LIBRARY libname encountered an error.</td>
</tr>
<tr>
<td>DFHLD0720</td>
<td>applid Dynamic allocation of data set dsnname for LIBRARY libname failed. DYNALLOC return codes X’rrrr’,X’cccc’,X’dddd’.</td>
</tr>
<tr>
<td>DFHLD0721</td>
<td>applid Dynamic concatenation of data sets for LIBRARY libname failed. DYNALLOC return codes X’rrrr’,X’cccc’,X’dddd’.</td>
</tr>
<tr>
<td>DFHLD0722</td>
<td>applid Open of DD for LIBRARY libname failed.</td>
</tr>
<tr>
<td>DFHLD0723</td>
<td>applid Dynamic unallocation of data set dsnname for LIBRARY libname failed. DYNALLOC return codes X’rrrr’,X’cccc’,X’dddd’.</td>
</tr>
<tr>
<td>DFHLD0724</td>
<td>applid Dynamic deconcatenation of data sets for LIBRARY libname failed. DYNALLOC return codes X’rrrr’,X’cccc’,X’dddd’.</td>
</tr>
<tr>
<td>DFHLD0725</td>
<td>applid Close of DD for LIBRARY libname failed.</td>
</tr>
<tr>
<td>DFHLD0730</td>
<td>applid An MVS ABEND occurred during {Getmain of LIBRARY control area</td>
</tr>
<tr>
<td>DFHLD0800</td>
<td>applid CLDM failed due to CICS command error. EIBFN=X’eibfn’, RESP=resp, RESP2=resp2. Instance=instance.</td>
</tr>
<tr>
<td>DFHLD0801</td>
<td>applid CLDM bad STARTCODE.</td>
</tr>
<tr>
<td>DFHLD0802</td>
<td>applid CLDM invalid input. Format is CLDM PATH=value or CLDM SYSOUT=value. Instance=instance.</td>
</tr>
<tr>
<td>DFHLD0803</td>
<td>applid CLDM CICS kernel inquire error.</td>
</tr>
<tr>
<td>DFHLD0804</td>
<td>applid CLDM CICS kernel anchor error.</td>
</tr>
<tr>
<td>DFHLD0805</td>
<td>applid CLDM output format routine, program, failed.</td>
</tr>
<tr>
<td>DFHLD0806</td>
<td>applid CLDM file system write failed. RETCODE=X’retcode’ (usserr), RSNCODE=X’rsncode’, FILE=file.</td>
</tr>
<tr>
<td>DFHLD0807</td>
<td>applid CLDM file system open failed. RETCODE=X’retcode’ (usserr), RSNCODE=X’rsncode’, FILE=file.</td>
</tr>
<tr>
<td>DFHLD0808</td>
<td>applid CLDM file system close failed. RETCODE=X’retcode’ (usserr), RSNCODE=X’rsncode’, FILE=file.</td>
</tr>
<tr>
<td>DFHLD0809</td>
<td>applid CLDM mismatched quotation marks.</td>
</tr>
<tr>
<td>DFHLD0810</td>
<td>applid CLDM absolute path name required.</td>
</tr>
<tr>
<td>DFHLD0811</td>
<td>applid CLDM complete. recordnum data records output.</td>
</tr>
<tr>
<td>DFHLD0812</td>
<td>applid CLDM unable to obtain loader domain state lock.</td>
</tr>
<tr>
<td>DFHLG0789</td>
<td>date time applid Deletion of log stream lsn data was suppressed by the Logger Resource Manager Interface. MVS Logger codes: X’ret’, X’rsn’.</td>
</tr>
<tr>
<td>DFHME0140</td>
<td>applid CICSplex SM messages cannot be issued because the English message table modname cannot be found.</td>
</tr>
<tr>
<td>DFHMN0112 I</td>
<td>date time applid CICS Monitoring compression status has been changed to {NOCOMPRESS</td>
</tr>
<tr>
<td>DFHMQ0100 E</td>
<td>date time applid Cannot retrieve data from a START command. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp2.</td>
</tr>
<tr>
<td>DFHMQ0101 E</td>
<td>date time applid Cannot open the initiation queue. MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHMQ0102 E</td>
<td><code>date time applid</code> Cannot start the CICS transaction <code>tran-id</code>. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp2.</td>
</tr>
<tr>
<td>DFHMQ0103 E</td>
<td><code>date time applid</code> CKTI has read a trigger message with an incorrect MQTM-StrucId of <code>struc-id</code>.</td>
</tr>
<tr>
<td>DFHMQ0104 E</td>
<td><code>date time applid</code> CKTI does not support version <code>version-id</code>.</td>
</tr>
<tr>
<td>DFHMQ0105 E</td>
<td><code>date time applid</code> CKTI cannot start a process type of <code>process-type</code>.</td>
</tr>
<tr>
<td>DFHMQ0106 D</td>
<td><code>date time applid</code> MQGET failure. CKTI will end. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0107 I</td>
<td><code>date time applid</code> A request to end CKTI has been received. CKTI ended.</td>
</tr>
<tr>
<td>DFHMQ0108 D</td>
<td><code>date time applid</code> Unexpected invocation. CKTI terminated.</td>
</tr>
<tr>
<td>DFHMQ0109 D</td>
<td><code>date time applid</code> MQCLOSE failed. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0110 I</td>
<td><code>date time applid</code> Queue name = <code>q-name</code>.</td>
</tr>
<tr>
<td>DFHMQ0111 D</td>
<td><code>date time applid</code> CKTI has read a trigger message with an incorrect length of <code>length</code>.</td>
</tr>
<tr>
<td>DFHMQ0112 D</td>
<td><code>date time applid</code> MQOPEN error. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0113 I</td>
<td><code>date time applid</code> This message cannot be processed.</td>
</tr>
<tr>
<td>DFHMQ0114 D</td>
<td><code>date time applid</code> MQINQ failed. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0116 D</td>
<td><code>date time applid</code> Cannot open the queue manager. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0117 D</td>
<td><code>date time applid</code> Cannot query the queue manager. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0118 I</td>
<td><code>date time applid</code> <code>MsgID=X’msg-id’</code>.</td>
</tr>
<tr>
<td>DFHMQ0119 D</td>
<td><code>date time applid</code> CICS detected an IRC failure. Cannot start transaction <code>tran-id</code>.</td>
</tr>
<tr>
<td>DFHMQ0120 D</td>
<td><code>date time applid</code> MQPUT failed. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0121 D</td>
<td><code>date time applid</code> No dead-letter queue defined for queue manager.</td>
</tr>
<tr>
<td>DFHMQ0122 D</td>
<td><code>date time applid</code> Cannot close the queue manager. MQCC=<code>mqcc</code> MQRC=<code>mqr</code>.</td>
</tr>
<tr>
<td>DFHMQ0123 D</td>
<td><code>date time applid</code> The dead-letter queue is not of type local.</td>
</tr>
<tr>
<td>DFHMQ0124 D</td>
<td><code>date time applid</code> The dead-letter queue is not of usage normal.</td>
</tr>
<tr>
<td>DFHMQ0211 E</td>
<td><code>date time applid</code> Unable to LINK to program DFHMQPRM. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp2 EIBRCODE=X’eibr’ code’.</td>
</tr>
<tr>
<td>DFHMQ0212 E</td>
<td><code>date time applid</code> DFHMQPRM missing in SIT/SIT Override INITPARM.</td>
</tr>
<tr>
<td>DFHMQ0213 E</td>
<td><code>date time applid</code> Queue manager name missing in DFHMQPRM. Command rejected.</td>
</tr>
<tr>
<td>DFHMQ0214 E</td>
<td><code>date time applid</code> Initiation queue name not found. CKTI not started.</td>
</tr>
<tr>
<td>DFHMQ0216 E</td>
<td><code>date time applid</code> Queue manager name invalid. Connection rejected.</td>
</tr>
<tr>
<td>DFHMQ0217 E</td>
<td><code>date time applid</code> Initiation queue name invalid. CKTI not started.</td>
</tr>
<tr>
<td>DFHMQ0220 E</td>
<td><code>date time applid</code> Unable to LINK to program DFHMQCON. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp2 EIBRCODE=X’eibr’ code’.</td>
</tr>
<tr>
<td>DFHMQ0221 E</td>
<td><code>date time applid</code> Unable to INQUIRE SYSTEM CICSSTATUS. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp2 EIBRCODE=X’eibr’ code’.</td>
</tr>
</tbody>
</table>
| DFHMQ0223 E    | `date time applid` Unable to LINK to program DFHMQQCN. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp2 EIBRCODE=X’eibr’ code’.

Chapter 50. New messages
<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0230 E</td>
<td>date time applid Unable to receive input. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0232 E</td>
<td>date time applid Unable to RETURN TRANSID tran-id IMMEDIATE. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0235 E</td>
<td>date time applid Unrecognizable screen. Re-submit CKQC.</td>
</tr>
<tr>
<td>DFHMQ0236 E</td>
<td>date time applid Display functions only supported using panel interface.</td>
</tr>
<tr>
<td>DFHMQ0237 E</td>
<td>date time applid Panel interface not supported on console.</td>
</tr>
<tr>
<td>DFHMQ0239 E</td>
<td>date time applid Unable to LINK to program DFHMQBAS. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0240 I</td>
<td>date time applid Task not associated with a terminal. Request rejected.</td>
</tr>
<tr>
<td>DFHMQ0241 E</td>
<td>date time applid Unable to receive input. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0242 D</td>
<td>date time applid Invalid input. Connect rejected.</td>
</tr>
<tr>
<td>DFHMQ0243 D</td>
<td>date time applid Unsupported terminal type. Must be a console or 3270 device.</td>
</tr>
<tr>
<td>DFHMQ0244 E</td>
<td>date time applid CICS is being quiesced. Connect rejected.</td>
</tr>
<tr>
<td>DFHMQ0300 I</td>
<td>date time applid Already connected to queue manager mqgr-name. Connect rejected.</td>
</tr>
<tr>
<td>DFHMQ0301 I</td>
<td>date time applid API exit CSQCAPX found and will be used.</td>
</tr>
<tr>
<td>DFHMQ0302 E</td>
<td>date time applid Unable to EXTRACT EXIT DFHMQTRU. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0304 E</td>
<td>date time applid Failed to ENABLE DFHMQTRU. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0305 E</td>
<td>date time applid Unable to INQUIRE MAXTASKS. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0306 E</td>
<td>date time applid Unable to START transaction CKTI. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0307 I</td>
<td>date time applid Successful connection to queue manager ssnm.</td>
</tr>
<tr>
<td>DFHMQ0308 I</td>
<td>date time applid Queue manager mqgr-name is stopped. Connect request deferred.</td>
</tr>
<tr>
<td>DFHMQ0309 E</td>
<td>date time applid Unable to connect to queue manager mqgr-name. MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0310 I</td>
<td>date time applid Duplicate connect to queue manager mqgr-name. Connect rejected.</td>
</tr>
<tr>
<td>DFHMQ0311 E</td>
<td>date time applid Unable to start alert monitor CKAM. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0312 E</td>
<td>date time applid Unable to GETMAIN DFHMQLOC storage. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0313 I</td>
<td>date time applid *UOWID=conn-name.X’uow-id’ is in doubt.</td>
</tr>
<tr>
<td>DFHMQ0314 I</td>
<td>date time applid UOWIDs highlighted with * will not be automatically resolved.</td>
</tr>
<tr>
<td>DFHMQ0315 E</td>
<td>date time applid Unable to LOAD API exit CSQCAPX. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0316 I</td>
<td>date time applid More messages. Check console for full display.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0318 I</td>
<td>date time applid UOWID=conn-name.X’uow-id’ created by Transid transid Taskid taskid is in doubt.</td>
</tr>
<tr>
<td>DFHMQ0319 E</td>
<td>date time applid Unable to INQUIRE SYSTEM RELEASE. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0321 I</td>
<td>date time applid There is no active connection. Stop connection rejected.</td>
</tr>
<tr>
<td>DFHMQ0322 D</td>
<td>date time applid Invalid input. Stop connection rejected.</td>
</tr>
<tr>
<td>DFHMQ0323 I</td>
<td>date time applid command received from TERMD=termid TRANID=tranid USERID=userid.</td>
</tr>
<tr>
<td>DFHMQ0326 E</td>
<td>date time applid Connection status {Connecting</td>
</tr>
<tr>
<td>DFHMQ0331 I</td>
<td>date time applid Adapter shutdown completed.</td>
</tr>
<tr>
<td>DFHMQ0332 I</td>
<td>date time applid Queue manager qmgr-name is already stopped. MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0333 E</td>
<td>date time applid Unable to disconnect from queue manager qmgr-name . MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0334 I</td>
<td>date time applid Adapter shutdown successful.</td>
</tr>
<tr>
<td>DFHMQ0336 I</td>
<td>date time applid command received from a PLT program.</td>
</tr>
<tr>
<td>DFHMQ0341 I</td>
<td>date time applid shutdowntype requested by alert monitor CKAM.</td>
</tr>
<tr>
<td>DFHMQ0342 I</td>
<td>date time applid request received from alert monitor.</td>
</tr>
<tr>
<td>DFHMQ0343 E</td>
<td>date time applid MQOPEN failed. MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0344 E</td>
<td>date time applid MQINQ failed. MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0345 E</td>
<td>date time applid MQCLOSE failed. MQCC=mqcc MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0350 I</td>
<td>date time applid Unable to LOAD API exit CSQCAPX. Program not found.</td>
</tr>
<tr>
<td>DFHMQ0351 I</td>
<td>date time applid Unable to LOAD API exit CSQCAPX. Program is disabled.</td>
</tr>
<tr>
<td>DFHMQ0360 D</td>
<td>date time applid Unable to RETRIEVE RTRANSID. Monitor terminated. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0361 D</td>
<td>date time applid Unexpected invocation. Monitor terminated.</td>
</tr>
<tr>
<td>DFHMQ0362 D</td>
<td>date time applid Unable to EXTRACT EXIT DFHMQTRU. Monitor terminated. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0363 D</td>
<td>date time applid Unable to perform WAIT EXTERNAL. Monitor terminated. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0364 I</td>
<td>date time applid Monitor terminated normally.</td>
</tr>
<tr>
<td>DFHMQ0365 E</td>
<td>date time applid Unable to LINK to program DFHMQQCN. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0366 E</td>
<td>date time applid Unable to LINK to program DFHMQDSC. EIBFN=X’eibfn’ EIBRESP=eibresp EIBRESP2=eibresp EIBRCODE=X’eibrcode’.</td>
</tr>
<tr>
<td>DFHMQ0368 E</td>
<td>date time applid Invalid PEB type X’type’ at location X’location’. PEB ignored.</td>
</tr>
<tr>
<td>DFHMQ0369 E</td>
<td>date time applid More than 99 notify messages outstanding. This message is postponed temporarily.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMHQ0380 E</td>
<td>date time applid No active connection. (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0381 D</td>
<td>date time applid No initiation queue name specified at connect time. (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0382 D</td>
<td>date time applid CKTI with the same initiation queue name is being started. (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0383 D</td>
<td>date time applid Another CKTI with the same initiation queue name is still running. (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0384 D</td>
<td>date time applid Another CKTI with the same initiation queue name is being stopped. (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0385 D</td>
<td>date time applid CKTI not found. (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0386 I</td>
<td>date time applid (\text{STARTCKTI}</td>
</tr>
<tr>
<td>DFHMHQ0389 I</td>
<td>date time applid Invalid input. Start/Stop CKTI rejected.</td>
</tr>
<tr>
<td>DFHMHQ0400 I</td>
<td>date time applid UOWID=\text{conn-name}:X'\text{uow-id}'</td>
</tr>
<tr>
<td>DFHMHQ0402 I</td>
<td>date time applid Resolved with COMMIT.</td>
</tr>
<tr>
<td>DFHMHQ0403 I</td>
<td>date time applid Resolved with BACKOUT.</td>
</tr>
<tr>
<td>DFHMHQ0404 E</td>
<td>date time applid Resolve failed. MQCC=\text{mqcc} MQRC=\text{mqr}.</td>
</tr>
<tr>
<td>DFHMHQ0405 E</td>
<td>date time applid Execute resolve failed. MQCC=\text{mqcc} MQRC=\text{mqr}.</td>
</tr>
<tr>
<td>DFHMHQ0406 E</td>
<td>date time applid Cannot resolve, syncpoint disposition lost.</td>
</tr>
<tr>
<td>DFHMHQ0407 E</td>
<td>date time applid Cannot resolve, syncpoint disposition unknown.</td>
</tr>
<tr>
<td>DFHMHQ0408 I</td>
<td>date time applid Only partial resynchronization achieved. Check above messages.</td>
</tr>
<tr>
<td>DFHMHQ0409 I</td>
<td>date time applid Resynchronization completed successfully.</td>
</tr>
<tr>
<td>DFHMHQ0410 I</td>
<td>date time applid CICS immediate shutdown detected. Adapter terminated.</td>
</tr>
<tr>
<td>DFHMHQ0411 I</td>
<td>date time applid CICS warm shutdown detected. Adapter is quiescing.</td>
</tr>
<tr>
<td>DFHMHQ0412 I</td>
<td>date time applid CICS abend detected. Adapter terminated.</td>
</tr>
<tr>
<td>DFHMHQ0414 I</td>
<td>date time applid Abending task ID \text{task-id} Abend Code \text{abend-code}.</td>
</tr>
<tr>
<td>DFHMHQ0415 I</td>
<td>date time applid Task ID task-id will continue. Force purge ignored.</td>
</tr>
<tr>
<td>DFHMHQ0416 I</td>
<td>date time applid Address X'address' is out of range. Area of length length is not traced.</td>
</tr>
<tr>
<td>DFHMHQ0418 E</td>
<td>date time applid Unable to LOAD program CSQAICM. EIBFN=X'eibfn' EIBRESP=\text{eibr} EIBRESP2=\text{eibr} EIBRCODE=X'eibr'.</td>
</tr>
<tr>
<td>DFHMHQ0420 E</td>
<td>date time applid Unable to send map map-id mapset DFHMQ1x. EIBFN=X'eibfn' EIBRESP=\text{eibr} EIBRESP2=\text{eibr} EIBRCODE=X'eibr'.</td>
</tr>
<tr>
<td>DFHMHQ0421 I</td>
<td>applid Tab cursor was not on a valid object.</td>
</tr>
<tr>
<td>DFHMHQ0422 E</td>
<td>date time applid Unable to RETURN TRANSID CKBM. EIBFN=X'eibfn' EIBRESP=\text{eibr} EIBRESP2=\text{eibr} EIBRCODE=X'eibr'.</td>
</tr>
</tbody>
</table>
| DFHMHQ0423 E   | date time applid Unable to XCTL to program pgm-name. EIBFN=X'eibfn' EIBRESP=\text{eibr} EIBRESP2=\text{eibr} EIBRCODE=X'eibr'.
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0424 I</td>
<td>applid Invalid key entered.</td>
</tr>
<tr>
<td>DFHMQ0425 E</td>
<td>applid No parameter window for this function.</td>
</tr>
<tr>
<td>DFHMQ0430 E</td>
<td>date time applid Unknown map name map-id. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp2 EIBRCODE=X’ebrcode’.</td>
</tr>
<tr>
<td>DFHMQ0431 E</td>
<td>applid Invalid action number. Re-enter.</td>
</tr>
<tr>
<td>DFHMQ0432 E</td>
<td>applid Invalid task number. Re-enter.</td>
</tr>
<tr>
<td>DFHMQ0433 E</td>
<td>date time applid Invalid option. Must be 1, 2, or 3.</td>
</tr>
<tr>
<td>DFHMQ0434 E</td>
<td>date time applid Queue manager name missing. Must be entered.</td>
</tr>
<tr>
<td>DFHMQ0439 E</td>
<td>date time applid Invalid Stop option. Must be 1 or 2.</td>
</tr>
<tr>
<td>DFHMQ0440 E</td>
<td>date time applid Unable to send map map-id mapset DFHMQHx. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp2 EIBRCODE=X’ebrcode’.</td>
</tr>
<tr>
<td>DFHMQ0443 E</td>
<td>date time applid Unable to RETURN TRANSID CKRT. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp2 EIBRCODE=X’ebrcode’.</td>
</tr>
<tr>
<td>DFHMQ0451 I</td>
<td>date time applid Nothing to reset. Reset completed.</td>
</tr>
<tr>
<td>DFHMQ0452 I</td>
<td>date time applid Invalid input. Reset rejected.</td>
</tr>
<tr>
<td>DFHMQ0453 I</td>
<td>applid Status of connection to qmgr-name is {Connecting</td>
</tr>
<tr>
<td>DFHMQ0455 E</td>
<td>date time applid Unable to WRITEQ TS. EIBFN=X’eibfn’ EIBRESP=ebresp EIBRESP2=ebresp2 EIBRCODE=X’ebrcode’. Queue name is q-name.</td>
</tr>
<tr>
<td>DFHMQ0456 I</td>
<td>applid No tasks found. Display completed.</td>
</tr>
<tr>
<td>DFHMQ0457 I</td>
<td>applid No CKTI found. Display rejected.</td>
</tr>
<tr>
<td>DFHMQ0458 E</td>
<td>date time applid Invalid input. Display rejected.</td>
</tr>
<tr>
<td>DFHMQ0460 I</td>
<td>applid Bottom of display.</td>
</tr>
<tr>
<td>DFHMQ0461 I</td>
<td>applid Top of display.</td>
</tr>
<tr>
<td>DFHMQ0462 E</td>
<td>date time applid Invalid input. Request rejected.</td>
</tr>
<tr>
<td>DFHMQ0480 E</td>
<td>date time applid MQCC=MQCC MQRC=MQRC QRPL at X’qrpl-address’ FRB at X’frb-address’.</td>
</tr>
<tr>
<td>DFHMQ0481 E</td>
<td>date time applid Unexpected error. MQCC=MQCC MQRC=MQRC FRB at X’frb-address’.</td>
</tr>
<tr>
<td>DFHMQ0500</td>
<td>{Connecting</td>
</tr>
<tr>
<td>DFHMQ0501</td>
<td>{Initiation Queue Name:}</td>
</tr>
<tr>
<td>DFHMQ0502</td>
<td>{More - +</td>
</tr>
<tr>
<td>DFHMQ0503</td>
<td>{Off</td>
</tr>
<tr>
<td>DFHMQ0504</td>
<td>{In Queue</td>
</tr>
<tr>
<td>DFHMQ0505</td>
<td>{Not specified at connect time}</td>
</tr>
<tr>
<td>DFHMQ0506</td>
<td>{Start Task Initiator</td>
</tr>
<tr>
<td>DFHMQ0700 I</td>
<td>date time applid tranid trannum CICS-MQ Bridge initialization in progress.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0702 I</td>
<td>date time applid tranid trannum CICS-MQ bridge monitor initialization complete.</td>
</tr>
<tr>
<td>DFHMQ0703 I</td>
<td>date time applid tranid trannum WaitInterval=interval, Auth=auth-option Q=q-name.</td>
</tr>
<tr>
<td>DFHMQ0704 E</td>
<td>date time applid tranid trannum EIBRESP=eibr EIBRESP2=eibrsp2 returned for EXEC CICS call. EIBFN=eibfn.</td>
</tr>
<tr>
<td>DFHMQ0705 E</td>
<td>date time applid tranid trannum Parameter at offset nn in input string is invalid.</td>
</tr>
<tr>
<td>DFHMQ0707 I</td>
<td>date time applid tranid trannum CICS-MQ Bridge is not supported on non-z/OS platforms.</td>
</tr>
<tr>
<td>DFHMQ0710 E</td>
<td>date time applid tranid trannum MQCC=mqcc MQRC=mqrc returned for MQ-call.</td>
</tr>
<tr>
<td>DFHMQ0711 E</td>
<td>date time applid tranid trannum Unable to open bridge queue q-name.</td>
</tr>
<tr>
<td>DFHMQ0712 I</td>
<td>date time applid tranid trannum CICS-MQ Bridge quiescing.</td>
</tr>
<tr>
<td>DFHMQ0713 I</td>
<td>date time applid tranid trannum CICS-MQ Bridge terminated normally.</td>
</tr>
<tr>
<td>DFHMQ0714 I</td>
<td>date time applid tranid trannum CICS-MQ Bridge task starting.</td>
</tr>
<tr>
<td>DFHMQ0715 E</td>
<td>date time applid tranid trannum Invalid COMMAREA length length in message.</td>
</tr>
<tr>
<td>DFHMQ0716 E</td>
<td>date time applid tranid trannum MQCIH required for UOW middle and last messages.</td>
</tr>
<tr>
<td>DFHMQ0717 E</td>
<td>date time applid tranid trannum UOW first or only received when UOW middle or last expected.</td>
</tr>
<tr>
<td>DFHMQ0718 E</td>
<td>date time applid tranid trannum UOW middle or last received when UOW first or only expected.</td>
</tr>
<tr>
<td>DFHMQ0720 E</td>
<td>date time applid tranid trannum Authentication option IDENTIFY or VERIFY_ requires a security manager to be active.</td>
</tr>
<tr>
<td>DFHMQ0721 E</td>
<td>date time applid tranid trannum Invalid MQCIH.</td>
</tr>
<tr>
<td>DFHMQ0724 E</td>
<td>date time applid tranid trannum Bridge queue q-name is not defined as local.</td>
</tr>
<tr>
<td>DFHMQ0725 I</td>
<td>date time applid tranid trannum Messages on bridge queue are not persistent by default.</td>
</tr>
<tr>
<td>DFHMQ0729 I</td>
<td>date time applid tranid trannum No dead-letter queue defined to queue manager.</td>
</tr>
<tr>
<td>DFHMQ0730 I</td>
<td>date time applid tranid trannum Unable to open dead-letter queue. MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0731 I</td>
<td>date time applid tranid trannum Unable to inquire on dead-letter queue, MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0732 I</td>
<td>date time applid tranid trannum Unable to put message to dead-letter queue. MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0733 I</td>
<td>date time applid tranid trannum Dead-letter queue not defined with USAGE(NORMAL).</td>
</tr>
<tr>
<td>DFHMQ0734 I</td>
<td>date time applid tranid trannum Dead-letter queue max message length length is too small.</td>
</tr>
<tr>
<td>DFHMQ0735 I</td>
<td>date time applid tranid trannum CICS or queue manager quiesced before bridge task started.</td>
</tr>
<tr>
<td>DFHMQ0736 I</td>
<td>date time applid tranid trannum Bridge quiesced before task started.</td>
</tr>
<tr>
<td>DFHMQ0737 E</td>
<td>date time applid tranid trannum CICS or queue manager quiesced, bridge task backed out.</td>
</tr>
<tr>
<td>DFHMQ0738 E</td>
<td>date time applid tranid trannum CICS-MQ Bridge quiesced, task backed out.</td>
</tr>
<tr>
<td>DFHMQ0739 E</td>
<td>date time applid tranid trannum Bridge terminated, timeout interval expired before middle or lastUOW message received.</td>
</tr>
<tr>
<td>DFHMQ0740 E</td>
<td>date time applid tranid trannum Client application requested backout.</td>
</tr>
<tr>
<td>DFHMQ0745 E</td>
<td>date time applid tranid trannum Unable to put message to reply queue. MQRC=mqrc.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0746 E</td>
<td>date time applid tranid trannum Invalid CCSID. ccsid1 expected but ccsid2 received.</td>
</tr>
<tr>
<td>DFHMQ0747 E</td>
<td>date time applid tranid trannum Invalid encoding. encoding1 expected but encoding2 received.</td>
</tr>
<tr>
<td>DFHMQ0748 E</td>
<td>date time applid tranid trannum Message removed from the request queue during backout processing.</td>
</tr>
<tr>
<td>DFHMQ0749 E</td>
<td>date time applid tranid trannum Authentication error. MQCC=mcqcc MQRC=mqrc Userid=user-id.</td>
</tr>
<tr>
<td>DFHMQ0750 E</td>
<td>date time applid tranid trannum CICS-MQ Bridge internal error.</td>
</tr>
<tr>
<td>DFHMQ0751 E</td>
<td>date time applid tranid trannum EIBRESP=eibresp EIBRESP2=eibresp2. Unable to LINK to program program-name.</td>
</tr>
<tr>
<td>DFHMQ0753 E</td>
<td>date time applid tranid trannum Message has been processed previously and returned to the queue using backout.</td>
</tr>
<tr>
<td>DFHMQ0754 E</td>
<td>date time applid tranid trannum Bridge task abend-code in program program-name.</td>
</tr>
<tr>
<td>DFHMQ0755 E</td>
<td>date time applid tranid trannum Bridge queue is not shareable.</td>
</tr>
<tr>
<td>DFHMQ0756 E</td>
<td>date time applid tranid trannum Dead-letter queue not defined as local.</td>
</tr>
<tr>
<td>DFHMQ0757 E</td>
<td>date time applid tranid trannum Unable to open reply-to queue. MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0758 E</td>
<td>date time applid tranid trannum Unable to START bridge task. EIBRESP=eibresp EIBRESP2=eibresp2. Userid userid is not authorized.</td>
</tr>
<tr>
<td>DFHMQ0759 E</td>
<td>date time applid tranid trannum Transaction transid is transid not defined to CICS.</td>
</tr>
<tr>
<td>DFHMQ0760 I</td>
<td>date time applid tranid trannum MsgId=msgid.</td>
</tr>
<tr>
<td>DFHMQ0761 I</td>
<td>date time applid tranid trannum CorrelId=CorrelId.</td>
</tr>
<tr>
<td>DFHMQ0762 I</td>
<td>date time applid tranid trannum Queue name=q-name.</td>
</tr>
<tr>
<td>DFHMQ0763 I</td>
<td>date time applid tranid trannum Queue manager=queue-manager-name.</td>
</tr>
<tr>
<td>DFHMQ0764 E</td>
<td>date time applid tranid trannum Invalid userid. user-id1 expected but user-id2 received.</td>
</tr>
<tr>
<td>DFHMQ0766 I</td>
<td>date time applid tranid trannum Bridge queue not defined with INDXTYPE(CORRELID).</td>
</tr>
<tr>
<td>DFHMQ0767 I</td>
<td>date time applid tranid trannum Unable to open backout-requeue queue. MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0768 E</td>
<td>date time applid tranid trannum Backout-requeue queue not defined as local.</td>
</tr>
<tr>
<td>DFHMQ0769 I</td>
<td>date time applid tranid trannum Unable to inquire on backout-requeue queue. MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0770 I</td>
<td>date time applid tranid trannum Backout-requeue queue not defined with USAGE(NORMAL).</td>
</tr>
<tr>
<td>DFHMQ0771 I</td>
<td>date time applid tranid trannum Unable to put message to backout-requeue queue. MQRC=mqrc.</td>
</tr>
<tr>
<td>DFHMQ0772 E</td>
<td>date time applid tranid trannum Invalid FacilityLike value xxx in message.</td>
</tr>
<tr>
<td>DFHMQ0773 E</td>
<td>date time applid tranid trannum Invalid or expired Facility token in message.</td>
</tr>
<tr>
<td>DFHMQ0774 E</td>
<td>date time applid tranid trannum Unable to start transaction on CICS system sys-name.</td>
</tr>
<tr>
<td>DFHMQ0775 I</td>
<td>date time applid tranid trannum Unable to start transaction on this CICS system.</td>
</tr>
<tr>
<td>DFHMQ0776 E</td>
<td>date time applid tranid trannum Invalid FacilityKeepTime value xxx in message.</td>
</tr>
<tr>
<td>DFHMQ0777 E</td>
<td>date time applid tranid trannum Link3270 error. RC=code.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHMQ0778 E</td>
<td>date time applid tranid trannum Abend abend-code in transaction tran-id.</td>
</tr>
<tr>
<td>DFHMQ0779 E</td>
<td>date time applid tranid trannum Mapset does not match. mapset-id1 expected but mapset-id2 received.</td>
</tr>
<tr>
<td>DFHMQ0780 E</td>
<td>date time applid tranid trannum Map name does not match. map-id1 expected but map-id2 received.</td>
</tr>
<tr>
<td>DFHMQ0781 E</td>
<td>date time applid tranid trannum Invalid bridge vector.</td>
</tr>
<tr>
<td>DFHMQ0782 E</td>
<td>date time applid tranid trannum File DFHBRNSF is not available.</td>
</tr>
<tr>
<td>DFHMQ0783 I</td>
<td>date time applid tranid trannum Msg=BOTH, PassTktA=applid.</td>
</tr>
<tr>
<td>DFHMQ0784 E</td>
<td>date time applid tranid trannum Input=parm_string.</td>
</tr>
<tr>
<td>DFHMQ0785 E</td>
<td>date time applid tranid Link3270 routing failed - not supported by CICS system.</td>
</tr>
<tr>
<td>DFHMQ0786 E</td>
<td>date time applid tranid Link3270 routing failed - connection error.</td>
</tr>
<tr>
<td>DFHMQ0787 E</td>
<td>date time applid tranid Link3270 routing failed - TERMERR.</td>
</tr>
<tr>
<td>DFHMQ0788 E</td>
<td>date time applid tranid Link3270 routing failed - TRANDEF error.</td>
</tr>
<tr>
<td>DFHMQ0789 E</td>
<td>date time applid tranid Link3270 routing failed - URM error. RC=code CompCode=compcode.</td>
</tr>
<tr>
<td>DFHMQ0790 E</td>
<td>date time applid tranid trannum Transaction not running.</td>
</tr>
<tr>
<td>DFHMQ0791 E</td>
<td>date time applid tranid trannum Invalid header format found in message.</td>
</tr>
<tr>
<td>DFHMQ0999I</td>
<td>date time applid tasknum Trace point: trace function IXCARM REQUEST=reqtype failed, return code retcode, reason code rsncode.</td>
</tr>
<tr>
<td>DFHNC0123</td>
<td>applid APPLID is already in use by another CICS in the sysplex. CICS is terminated.</td>
</tr>
<tr>
<td>DFHPI0115</td>
<td>date time applid tranid The service provider pipeline has returned a response message to the MQ transport, but the inbound request did not expect a response. The response message is ignored.</td>
</tr>
<tr>
<td>DFHPI0116</td>
<td>date time applid A one-way request has been received as a Websphere MQ persistent message, but the provider pipeline has abended or backed out changes to recoverable resources. The BTS process processname of processtype processstype has completed with status ABENDED and this process can be re-tried or used to provide information for reporting the failure.</td>
</tr>
<tr>
<td>DFHPI0117</td>
<td>date time applid BTS Process processname of processtype processstype, which has completed with status ABENDED, has been cancelled. A provider pipeline started with a persistent Websphere MQ message has abended or backed out, but a response has been sent to the requester.</td>
</tr>
<tr>
<td>DFHPI0118</td>
<td>applid CICS has attempted to use BTS processes to support pipelines started with Websphere MQ persistent messages. This attempt failed. CICS will continue, using channel based containers for the pipeline, but there is a risk of data loss in the event of a system failure. Ensure that BTS processstype, repository and local request queue are correctly defined and installed.</td>
</tr>
<tr>
<td>DFHPI0403</td>
<td>date time applid tranid The CICS pipeline HTTP transport mechanism failed to receive a response because [the socket receive was timed out]. The RESPWAIT interval was exceeded.</td>
</tr>
<tr>
<td>DFHPI0511</td>
<td>date time applid tranid The CICS Pipeline Manager has failed to receive a response from the target Secure Token Service sts_URI. The response message failed to parse.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHPI10512</td>
<td><code>date time applid tranid</code> The CICS Pipeline Manager has received a fault from the target Secure Token Service: <code>sts_URI</code>. The fault had a fault code of <code>fault_code</code>.</td>
</tr>
<tr>
<td>DFHPI10513</td>
<td><code>date time applid tranid</code> The CICS Pipeline Manager has failed to find the required credentials in a response from the Secure Token Service: <code>sts_URI</code>.</td>
</tr>
<tr>
<td>DFHPI10514</td>
<td><code>date time applid tranid</code> The CICS Pipeline Manager has failed to find the required credentials in a request. An element <code>local_name</code>, in namespace: <code>namespace</code>, was expected.</td>
</tr>
<tr>
<td>DFHPI0602</td>
<td><code>date time applid tranid trannum</code> The CICS SOAP handler failed to parse a message. The parser error code is <code>errcode</code>. The error was found at offset <code>offset</code> into the message.</td>
</tr>
<tr>
<td>DFHPI0721 E</td>
<td><code>date time applid userid PIPELINE pipeline</code> encountered an error in the configuration file <code>filename</code> for pipeline at offset <code>X'offset'</code>. The value <code>attribvalue</code> for attribute <code>attribname</code> is not valid.</td>
</tr>
<tr>
<td>DFHPI0722 E</td>
<td><code>date time applid userid PIPELINE pipeline</code> encountered an error in the configuration file <code>filename</code> for the pipeline. The WSSE_Handler configuration has values specified for mode and trust that are not valid in this pipeline.</td>
</tr>
<tr>
<td>DFHPI0723 E</td>
<td><code>date time applid userid PIPELINE pipeline</code> encountered an error in the configuration file <code>filename</code> for the pipeline. The value for the algorithm specified for the <code>element</code> is not supported.</td>
</tr>
<tr>
<td>DFHPI0724 E</td>
<td><code>date time applid userid PIPELINE pipeline</code> encountered an error in the configuration file <code>filename</code> for the pipeline. The WSSE_Handler configuration has both <code>&lt;authentication&gt;</code> and <code>&lt;sts_authentication&gt;</code> elements specified. You must only specify one of these elements.</td>
</tr>
<tr>
<td>DFHPI0725 E</td>
<td><code>date time applid userid PIPELINE pipeline</code> encountered an error in the configuration file <code>filename</code> for the pipeline. The element <code>element</code> must be specified.</td>
</tr>
<tr>
<td>DFHPI0726 E</td>
<td><code>date time applid userid PIPELINE pipeline</code> encountered an error in the configuration file <code>filename</code> for the pipeline. The element <code>element</code> is a duplicate or unrecognized element.</td>
</tr>
<tr>
<td>DFHPI0731</td>
<td><code>date time applid</code> An attempt to register unit of work - <code>X'uowid'</code> with a remote WSAT coordinating transaction has failed.</td>
</tr>
<tr>
<td>DFHPI0732</td>
<td><code>date time applid</code> A request to rollback unit of work - <code>X'uowid'</code> has been received from a remote WS-AT coordinating transaction.</td>
</tr>
<tr>
<td>DFHPI0733</td>
<td><code>date time applid</code> A transaction timed out while waiting for a Prepare message from a remote WS-AT coordinator. The unit of work - <code>X'uowid'</code> will be rolled back.</td>
</tr>
<tr>
<td>DFHPI0801</td>
<td><code>date time applid</code> A one way message has been found in an atomic transaction message exchange for transaction <code>TRAN</code>.</td>
</tr>
<tr>
<td>DFHPI0917</td>
<td><code>date time applid</code> WEBSERVICE <code>webservice</code> might perform unpredictably as the PIPELINE pipeline is non-SOAP.</td>
</tr>
<tr>
<td>DFHPI0996</td>
<td><code>date time applid</code> The Outbound Router program, DFHPIRT, has received a non-NORMAL response while attempting to read a container. The resulting error code is <code>X'code'</code> and the container name is <code>container_name</code>.</td>
</tr>
<tr>
<td>DFHPI0997</td>
<td><code>date time applid tranid pipeline</code> The CICS pipeline manager has encountered an error: (PIPELINE not found</td>
</tr>
<tr>
<td>DFHPI1000</td>
<td><code>date time applid</code> The Outbound Router program, DFHPIRT, has detected an invalid URI in the DFHWS-STSACTION container. The URI was 'URI'.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
</table>
| DFHPI1007        | *date time applid trannum* SOAP message processing failed because of incorrect input
  
  |                  | (XML_FORMAT_ERROR | UNEXPECTED_CONTENT | HEADER_FORMAT_ERROR | UNDEFINED_ELEMENT | UNDEFINED_NAME_SPACE | ARRAY_OVERFLOW | NAME_TOO_LONG | PREFIX_TOO_LONG | NAME_SPACE_TOO_LONG | UNEXPECTED_XOP_INCLUDE | XOP_INCLUDE_ERROR) error_qualifier). |
| DFHPI1008        | *date time applid trannum* SOAP message generation failed because of incorrect input
  
  |                  | (ARRAY_CONTAINER_TOO_SMALL | INPUT_STRUCTURE_TOO_SMALL | INPUT_ARRAY_TOO_LARGE | INPUT_ARRAY_TOO_SMALL | CONTAINER_NOT_FOUND | CONTAINER_NOT_BIT) error_qualifier). |
| DFHPI1009        | *date time applid trannum* SOAP message processing failed. A conversion error
  
  |                  | (UNKNOWN_CONVERSION | INPUT_TOO_LONG | OUTPUT_OVERFLOW | NEGATIVE_UNSIGNED | NO_FRACTION_DIGITS | FRACTION_TOO_LONG | INVALID_CHARACTER | ODD_HEX_DIGITS | INVALID_BASE64 | NOTPURE_DBCS | INVALID_FIELD_SIZE | EXPONENT_OVERFLOW | EXPONENT_UNDERFLOW) error_qualifier). |
| DFHPI1010        | *date time applid trannum* SOAP message generation failed. A conversion error
  
<p>|                  | (UNKNOWN_CONVERSION | NEGATIVE_UNSIGNED | INVALID_CHARACTER | INVALID_PACKED_DEC | INVALID_ZONED_DEC | INCOMPLETE_DBCS | ODD_DBCS_BYTES | INVALID_FIELD_SIZE | EXPONENT_OVERFLOW | EXPONENT_UNDERFLOW) error_qualifier). |
| DFHPI1100 E      | <em>date time applid userid</em> PIPELINE pipeline encountered an error while processing an inbound MIME message. The problem with the MIME message is: (it contained an invalid character | it had an invalid header | it had an invalid MIME header | it had a boundary error | it did not contain a root part | it used an unsupported encoding | it caused an unexpected response). |
| DFHPI1101 E      | <em>date time applid userid</em> PIPELINE pipeline encountered an error while processing an inbound MIME message in compatibility mode. The problem with the MIME message was it contained: (a body that could not be parsed | an include for which there was no attachment). |
| DFHPI1102 E      | <em>date time applid userid</em> PIPELINE pipeline encountered an error while processing an outbound MIME message in compatibility mode. Generation of the MIME message failed because: (it contained a body that could not be parsed | a container had an invalid CCSID | a container had the wrong type). |
| DFHPI1103 E      | <em>date time applid userid</em> PIPELINE pipeline encountered an error while processing an outbound message in MIME compatibility mode. The problem with the MIME message was (it contained a body that could not be parsed | it had an include for which there was no attachment | it caused an unexpected exception). |
| DFHPI9000 E      | ResourceBundle not found issuing message: value.                                                                                                                                                             |
| DFHPI9001 E      | Message not found issuing message: value.                                                                                                                                                                   |
| DFHPI9002 E      | A WSDL operation name is too long to be supported by CICS value.                                                                                                                                             |
| DFHPI9003 E      | A WSDL part name is too long to be supported by CICS: value.                                                                                                                                               |
| DFHPI9004 E      | The WSDL specifies a style value of document and contains a part name that refers to an XML type. Document style WSDL must only refer to XML elements.                                                        |
| DFHPI9010 E      | Simple data type type is not atomic. List and union data types are not supported.                                                                                                                       |
| DFHPI9011 E      | Unsupported super type super_type found for type base_type.                                                                                                                                                 |
| DFHPI9012 E      | Schema wild cards (&lt;any&gt; tags) are not supported.                                                                                                                                                          |</p>
<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI9013 E</td>
<td>Schema model groups with maxOccurs or minOccurs not equal to 1 are not supported. Problem found for type: value.</td>
</tr>
<tr>
<td>DFHPI9014 E</td>
<td>No model group found for model group definition definition.</td>
</tr>
<tr>
<td>DFHPI9015 E</td>
<td>A schema particle with unrecognized content has been found value.</td>
</tr>
<tr>
<td>DFHPI9016 E</td>
<td>Required schema element element cannot be found.</td>
</tr>
<tr>
<td>DFHPI9017 E</td>
<td>Unsupported attribute attribute found for schema element element.</td>
</tr>
<tr>
<td>DFHPI9018 E</td>
<td>Schema element element is missing a type definition.</td>
</tr>
<tr>
<td>DFHPI9019 E</td>
<td>Schema type type is not supported.</td>
</tr>
<tr>
<td>DFHPI9020 W</td>
<td>Schema attribute attribute has been found and ignored for type type.</td>
</tr>
<tr>
<td>DFHPI9021 E</td>
<td>A schema type with unrecognized content has been found: value.</td>
</tr>
<tr>
<td>DFHPI9022 W</td>
<td>Schema type type is being restricted to a total of value digits in the response message of operation operation.</td>
</tr>
<tr>
<td>DFHPI9023 W</td>
<td>Schema type type is being restricted to a total of value digits for operation operation.</td>
</tr>
<tr>
<td>DFHPI9024 E</td>
<td>Recursion within type type is not supported.</td>
</tr>
<tr>
<td>DFHPI9025 E</td>
<td>Required schema type type cannot be found.</td>
</tr>
<tr>
<td>DFHPI9026 E</td>
<td>URI URI cannot be resolved. Consider checking that the HTTP Proxy is correct.</td>
</tr>
<tr>
<td>DFHPI9027 E</td>
<td>The XML parser has found an error: value at line line and column column in document document</td>
</tr>
<tr>
<td>DFHPI9028 E</td>
<td>The length of schema element element is set to value characters. CICS only supports up to value2 characters.</td>
</tr>
<tr>
<td>DFHPI9029 E</td>
<td>Implicit padding (slack bytes) are not supported for PL/I. Please change the language structure to ensure that all slack bytes are explicitly referenced and that top level structures start on a double-word boundary. Slack bytes are needed near or around field field.</td>
</tr>
<tr>
<td>DFHPI9030 E</td>
<td>Implicit padding (slack bytes) are not supported for PL/I. Please change the language structure to ensure that all slack bytes are explicitly referenced and that top level structures start on a double-word boundary. Slack bytes are needed near or around structure structure.</td>
</tr>
<tr>
<td>DFHPI9031 E</td>
<td>A structure or array is unexpectedly empty.</td>
</tr>
<tr>
<td>DFHPI9032 W</td>
<td>Schema attribute wild cards (&lt;anyAttribute&gt; tags) are not supported.</td>
</tr>
<tr>
<td>DFHPI9033 E</td>
<td>XML Schema element cannot be found in document document.</td>
</tr>
<tr>
<td>DFHPI9036 W</td>
<td>Abstract Data Types are not supported. Problems may be experienced with type type in element element.</td>
</tr>
<tr>
<td>DFHPI9037 E</td>
<td>XML Schema model groups are not supported within &lt;choice&gt; structures. Problem found in type type.</td>
</tr>
<tr>
<td>DFHPI9038 E</td>
<td>The number of options for an enumerated set of options exceeds the maximum supported value of 255.</td>
</tr>
<tr>
<td>DFHPI9039 E</td>
<td>Substitution groups within xsd:choice constructs are not supported. The substitution group name is name.</td>
</tr>
<tr>
<td>DFHPI9050 E</td>
<td>An internal error has occurred. Please contact IBM Support.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHPI9501 E</td>
<td>The HTTPPROXY parameter is invalid. The correct format is proxy.hostname.com:8080 or similar.</td>
</tr>
<tr>
<td>DFHPI9502 E</td>
<td>One or more incorrect parameters have been specified.</td>
</tr>
<tr>
<td>DFHPI9503 E</td>
<td>Required parameter parameter is missing.</td>
</tr>
<tr>
<td>DFHPI9504 E</td>
<td>Parameter parameter has been specified but is not valid for program program.</td>
</tr>
<tr>
<td>DFHPI9505 E</td>
<td>Invalid value specified for the LANG parameter. Valid values are COBOL, PLI-ENTERPRISE, PLI-OTHER, C or CPP.</td>
</tr>
<tr>
<td>DFHPI9506 E</td>
<td>Parameter parameter exceeds the maximum valid length of value characters.</td>
</tr>
<tr>
<td>DFHPI9507 W</td>
<td>Parameter parameter is not set therefore parameter parameter2 is ignored.</td>
</tr>
<tr>
<td>DFHPI9509 E</td>
<td>Parameter parameter contains invalid characters.</td>
</tr>
<tr>
<td>DFHPI9510 W</td>
<td>Invalid value specified for the PGMINT parameter. Valid values are CHANNEL or COMMAREA. The default value of CHANNEL is assumed.</td>
</tr>
<tr>
<td>DFHPI9511 W</td>
<td>Parameter PGMINT is set to CHANNEL but parameter CONTID is not set. The default value of value is assumed.</td>
</tr>
<tr>
<td>DFHPI9512 W</td>
<td>Parameter CONTID is set but not needed for PGMINT=COMMAREA. Parameter CONTID is ignored.</td>
</tr>
<tr>
<td>DFHPI9513 W</td>
<td>The value of parameter WSBIND is missing a file extension, .wsbind is assumed.</td>
</tr>
<tr>
<td>DFHPI9514 W</td>
<td>The value of parameter WSBIND specified a file extension other than</td>
</tr>
<tr>
<td>DFHPI9515 E</td>
<td>PDS library library cannot be found.</td>
</tr>
<tr>
<td>DFHPI9516 E</td>
<td>PDS library library exists but cannot be read.</td>
</tr>
<tr>
<td>DFHPI9517 E</td>
<td>PDS library library exists but cannot be written to.</td>
</tr>
<tr>
<td>DFHPI9518 W</td>
<td>PDS library library specifies a record length less than 80 characters, output may be truncated.</td>
</tr>
<tr>
<td>DFHPI9519 E</td>
<td>Codepage codepage is not recognized.</td>
</tr>
<tr>
<td>DFHPI9520 E</td>
<td>Parameter RESPMEM and parameter REQMEM must supply different values.</td>
</tr>
<tr>
<td>DFHPI9521 E</td>
<td>The record format of PDS member member must be FB and have a record length of 80.</td>
</tr>
<tr>
<td>DFHPI9522 E</td>
<td>File file cannot be read.</td>
</tr>
<tr>
<td>DFHPI9523 E</td>
<td>An unexpected error occurred whilst processing file file. The problem is: value.</td>
</tr>
<tr>
<td>DFHPI9524 E</td>
<td>File file cannot be written to.</td>
</tr>
<tr>
<td>DFHPI9525 E</td>
<td>Cannot write a file because directory directory does not exist.</td>
</tr>
<tr>
<td>DFHPI9526 E</td>
<td>Cannot write a file because directory directory is not writable.</td>
</tr>
<tr>
<td>DFHPI9527 E</td>
<td>Cannot write to the log file, file, is not writable.</td>
</tr>
<tr>
<td>DFHPI9528 E</td>
<td>Cannot find or read file file.</td>
</tr>
<tr>
<td>DFHPI9529 W</td>
<td>Characters beyond column column have been truncated for line line.</td>
</tr>
<tr>
<td>DFHPI9530 I</td>
<td>Parameter parameter is not recognized and has been ignored.</td>
</tr>
<tr>
<td>DFHPI9531 E</td>
<td>Parameter STRUCTURE must only contain ( or ) characters in the first or last position.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI9532 E</td>
<td>Parameter STRUCTURE must be of the form STRUCTURE=(request_structure_name, response_structure_name).</td>
</tr>
<tr>
<td>DFHPI9533 E</td>
<td>Parameter parameter contains an invalid character character at position position in value value.</td>
</tr>
<tr>
<td>DFHPI9534 E</td>
<td>Non-unique operation signature found: value.</td>
</tr>
<tr>
<td>DFHPI9535 E</td>
<td>WSDL operation operation has an operation signature greater than value characters long and therefore is not supported by CICS.</td>
</tr>
<tr>
<td>DFHPI9536 E</td>
<td>User Defined Type type cannot be found.</td>
</tr>
<tr>
<td>DFHPI9537 W</td>
<td>Compiler directive directive has been ignored.</td>
</tr>
<tr>
<td>DFHPI9538 E</td>
<td>The required struct entry cannot be found.</td>
</tr>
<tr>
<td>DFHPI9539 E</td>
<td>An invalid character character has been found.</td>
</tr>
<tr>
<td>DFHPI9540 E</td>
<td>Unsupported keyword keyword has been found.</td>
</tr>
<tr>
<td>DFHPI9541 E</td>
<td>Fixed point decimal types are not supported.</td>
</tr>
<tr>
<td>DFHPI9542 E</td>
<td>Unsupported macro macro has been found.</td>
</tr>
<tr>
<td>DFHPI9543 E</td>
<td>Constant constant is not supported in array dimension.</td>
</tr>
<tr>
<td>DFHPI9544 W</td>
<td>Unsupported keyword keyword has been found and ignored.</td>
</tr>
<tr>
<td>DFHPI9545 W</td>
<td>Assignment operator detected and ignored.</td>
</tr>
<tr>
<td>DFHPI9546 W</td>
<td>Initialization operator detected and ignored.</td>
</tr>
<tr>
<td>DFHPI9547 E</td>
<td>Top level variables are not supported: value.</td>
</tr>
<tr>
<td>DFHPI9548 E</td>
<td>Top-level structure structure must be named value.</td>
</tr>
<tr>
<td>DFHPI9549 E</td>
<td>A type definition has been found with no instance and no label.</td>
</tr>
<tr>
<td>DFHPI9550 E</td>
<td>Duplicate type name name found.</td>
</tr>
<tr>
<td>DFHPI9551 E</td>
<td>Structure structure cannot be found.</td>
</tr>
<tr>
<td>DFHPI9552 E</td>
<td>Value value is not a valid integer.</td>
</tr>
<tr>
<td>DFHPI9553 E</td>
<td>PICTURE picture is not supported for BINARY or DISPLAY types.</td>
</tr>
<tr>
<td>DFHPI9554 E</td>
<td>PICTURE picture is not supported.</td>
</tr>
<tr>
<td>DFHPI9555 E</td>
<td>Top level structure found within the main structure.</td>
</tr>
<tr>
<td>DFHPI9556 E</td>
<td>An unexpected error occurred whilst writing to file file. The problem is: value.</td>
</tr>
<tr>
<td>DFHPI9557 E</td>
<td>ERRORS and WARNINGS have been generated processing file file.</td>
</tr>
<tr>
<td>DFHPI9558 E</td>
<td>ERRORS have been generated processing file file.</td>
</tr>
<tr>
<td>DFHPI9559 W</td>
<td>Illegal character character has been found at the start of a name and replaced with X.</td>
</tr>
<tr>
<td>DFHPI9560 W</td>
<td>Illegal character character has been found in a name and replaced with X.</td>
</tr>
<tr>
<td>DFHPI9561 I</td>
<td>Identifier identifier has generated a name-clash for operation operation. Subsequent declarations have been renamed to ensure their uniqueness.</td>
</tr>
<tr>
<td>DFHPI9562 E</td>
<td>Parameter PGMINT is specified with value COMMAREA but there is too much data required for a COMMAREA.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHP19563 E</td>
<td>Unsupported PL/I source code detected in line.</td>
</tr>
<tr>
<td>DFHP19564 W</td>
<td>A terminating ; is missing, it is assumed to be at the end of the file.</td>
</tr>
<tr>
<td>DFHP19565 E</td>
<td>ALIGNED and UNALIGNED keywords are not supported for an entire structure.</td>
</tr>
<tr>
<td>DFHP19566 E</td>
<td>The FIXED and FLOAT attributes are both missing: value.</td>
</tr>
<tr>
<td>DFHP19567 E</td>
<td>Too many digits have been specified for a packed decimal field value.</td>
</tr>
<tr>
<td>DFHP19568 E</td>
<td>The UNSIGNED attribute is not supported unless PLI-ENTERPRISE is specified: value.</td>
</tr>
<tr>
<td>DFHP19569 E</td>
<td>Unsupported PL/I source code detected after line.</td>
</tr>
<tr>
<td>DFHP19570 E</td>
<td>FIXED BINARY types with length greater than 31 are not supported unless PLI-ENTERPRISE is specified: value.</td>
</tr>
<tr>
<td>DFHP19571 W</td>
<td>ORDINAL references are always treated as SIGNED FIXED BINARY (7) data types. If this is incorrect then please replace the ordinal reference with an equivalent FIXED BINARY variable: value.</td>
</tr>
<tr>
<td>DFHP19572 E</td>
<td>ORDINAL types are only supported if PLI-ENTERPRISE is specified value.</td>
</tr>
<tr>
<td>DFHP19573 E</td>
<td>BIT fields are only supported if they are in multiples of 8 value.</td>
</tr>
<tr>
<td>DFHP19574 E</td>
<td>Lengths less than one are not supported for array data types dataType.</td>
</tr>
<tr>
<td>DFHP19575 E</td>
<td>The length of a PICTURE cannot be found: value.</td>
</tr>
<tr>
<td>DFHP19576 E</td>
<td>FIXED BINARY data types with a scaling factor of the form (p,q) with q not equal to 0 are not supported: value.</td>
</tr>
<tr>
<td>DFHP19577 E</td>
<td>Precision factor factor is out of supported range value.</td>
</tr>
<tr>
<td>DFHP19578 E</td>
<td>FIXED DECIMAL data types with a scaling factor of the form (p,q) with q greater than p are not supported: value.</td>
</tr>
<tr>
<td>DFHP19579 E</td>
<td>FIXED DECIMAL data types with a scaling factor of the form (p,q) with q less than 0 are not supported: value.</td>
</tr>
<tr>
<td>DFHP19580 I</td>
<td>PDS member member has been replaced.</td>
</tr>
<tr>
<td>DFHP19581 E</td>
<td>An unexpected exception occurred when writing to the PDS.</td>
</tr>
<tr>
<td>DFHP19582 I</td>
<td>File file has been replaced.</td>
</tr>
<tr>
<td>DFHP19583 E</td>
<td>The supplied WSDL contains an element with different minOccurs and maxOccurs values. This is only supported when PGMINT is set to CHANNEL.</td>
</tr>
<tr>
<td>DFHP19584 E</td>
<td>The WSDL file contains at least one request message but the REQMEM parameter has not been set.</td>
</tr>
<tr>
<td>DFHP19585 E</td>
<td>The WSDL file contains at least one response message but the RESPMEM parameter has not been set.</td>
</tr>
<tr>
<td>DFHP19586 W</td>
<td>A reserved word word has been detected in the WSDL, it has been changed to value.</td>
</tr>
<tr>
<td>DFHP19587 I</td>
<td>Program program has completed SUCCESSFULLY.</td>
</tr>
<tr>
<td>DFHP19588 E</td>
<td>WSDL binding binding has no operation elements in the WSDL.</td>
</tr>
<tr>
<td>DFHP19589 E</td>
<td>The supplied WSDL requires too much data for a CICS Commarea. The PGMINT parameter must be set to CHANNEL.</td>
</tr>
<tr>
<td>DFHP19590 E</td>
<td>A style attribute has not been specified for WSDL operation operation.</td>
</tr>
</tbody>
</table>
### Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI9591 E</td>
<td>No input message has been found for WSDL operation operation.</td>
</tr>
<tr>
<td>DFHPI9592 W</td>
<td>An expected soapAction attribute is missing for WSDL operation operation.</td>
</tr>
<tr>
<td>DFHPI9593 W</td>
<td>An unexpected soapAction attribute has been found for WSDL operation operation. This can only be used with SOAP version 1.1.</td>
</tr>
<tr>
<td>DFHPI9594 E</td>
<td>An unexpected soapAction attribute has been found for WSDL operation operation. This can only be used with SOAP version 1.1.</td>
</tr>
<tr>
<td>DFHPI9595 E</td>
<td>The WSDL binding contains a mixture of rpc and document style attributes. This is not supported.</td>
</tr>
<tr>
<td>DFHPI9596 E</td>
<td>The WSDL Binding for operation operation is missing an input message.</td>
</tr>
<tr>
<td>DFHPI9597 E</td>
<td>The WSDL file specifies a 'use' attribute value of value. Only literal WSDL is supported.</td>
</tr>
<tr>
<td>DFHPI9598 E</td>
<td>WSDL binding binding references more than one transport protocol. Only one protocol is supported.</td>
</tr>
<tr>
<td>DFHPI9599 E</td>
<td>WSDL binding binding is not associated with a transport protocol.</td>
</tr>
<tr>
<td>DFHPI9600 E</td>
<td>The WSDL file contains multiple binding elements. The BINDING parameter must be set to specify which one to use.</td>
</tr>
<tr>
<td>DFHPI9601 E</td>
<td>Binding element element cannot be found in the WSDL file. Only one of the following values may be specified: value.</td>
</tr>
<tr>
<td>DFHPI9602 E</td>
<td>WSDL binding binding is not a SOAP binding.</td>
</tr>
<tr>
<td>DFHPI9603 E</td>
<td>Multiple WSDL service elements exist for a single binding element. Only one is supported unless the 'WSDL-SERVICE' parameter is set.</td>
</tr>
<tr>
<td>DFHPI9604 E</td>
<td>File file does not contain valid WSDL.</td>
</tr>
<tr>
<td>DFHPI9605 E</td>
<td>The value of the XML encoding tag must match that of the underlying file system. For example, the value UTF-8 may be appropriate.</td>
</tr>
<tr>
<td>DFHPI9606 E</td>
<td>The value of the XML encoding tag must match that of the underlying file system. For example, the value EBCDIC-CP-US may be appropriate.</td>
</tr>
<tr>
<td>DFHPI9607 E</td>
<td>An unexpected error occurred whilst processing WSDL operation operation. The problem is: value.</td>
</tr>
<tr>
<td>DFHPI9608 W</td>
<td>WARNINGS have been generated processing file file.</td>
</tr>
<tr>
<td>DFHPI9609 I</td>
<td>Parameter parameter has value value.</td>
</tr>
<tr>
<td>DFHPI9610 W</td>
<td>Platform platform is not a supported platform for this API.</td>
</tr>
<tr>
<td>DFHPI9611 W</td>
<td>All content after the first ';' for line line is ignored.</td>
</tr>
<tr>
<td>DFHPI9612 E</td>
<td>Provider mode Web services with more than one operation must specify 'PGMINT=CHANNEL'.</td>
</tr>
<tr>
<td>DFHPI9613 E</td>
<td>Mapping level level is not recognized.</td>
</tr>
<tr>
<td>DFHPI9614 I</td>
<td>Mapping level old has been requested. The most current mapping level available is new.</td>
</tr>
<tr>
<td>DFHPI9615 E</td>
<td>The version of Java in use is current. The minimum version of Java required is required.</td>
</tr>
<tr>
<td>DFHPI9616 W</td>
<td>National characters in COBOL are assumed to be DBCS characters line.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI9617 E</td>
<td>The supplied WSDL contains an element with unknown length content which should be stored in a separate CONTAINER. This is only supported when PGMINT is set to CHANNEL.</td>
</tr>
<tr>
<td>DFHPI9618 E</td>
<td>The keyword keyword has been specified. This requires the use of LANG=PLI-ENTERPRISE.</td>
</tr>
<tr>
<td>DFHPI9619 E</td>
<td>Parameter parameter has been specified. It is not supported at mapping level level.</td>
</tr>
<tr>
<td>DFHPI9620 E</td>
<td>CCSID CCSID is not recognized.</td>
</tr>
<tr>
<td>DFHPI9621 W</td>
<td>CCSID CCSID is not recognized as an EBCDIC CCSID. Use of this CCSID may cause problems when the Web service is executed.</td>
</tr>
<tr>
<td>DFHPI9622 E</td>
<td>Invalid value specified for the parameter parameter. The length specified must be a positive integer between min and max.</td>
</tr>
<tr>
<td>DFHPI9623 E</td>
<td>Invalid value specified for the CHAR-VARYING parameter. Valid values are: NULL, NO or YES.</td>
</tr>
<tr>
<td>DFHPI9624 E</td>
<td>Invalid value specified for the FLOAT parameter. Valid values are IEEE, HEX or HEXADEC.</td>
</tr>
<tr>
<td>DFHPI9625 E</td>
<td>Invalid value specified for the CHAR-VARYING parameter. Valid values are: NULL or NO.</td>
</tr>
<tr>
<td>DFHPI9626 W</td>
<td>Parameter parameter has been specified but is not valid when parameter parameter2 is set. The parameter is ignored.</td>
</tr>
<tr>
<td>DFHPI9627 E</td>
<td>Minimum runtime level level is not recognized.</td>
</tr>
<tr>
<td>DFHPI9628 E</td>
<td>Parameter parameter has been specified but it is not compatible with the specified minimum runtime level.</td>
</tr>
<tr>
<td>DFHPI9629 I</td>
<td>The minimum runtime level required for this Web service is level.</td>
</tr>
<tr>
<td>DFHPI9630 W</td>
<td>The minimum runtime level required for this Web service is greater than the mapping level due to the use of the parameter parameter.</td>
</tr>
<tr>
<td>DFHPI9631 E</td>
<td>Field field requires a character array length of length but the largest length that can be used in language is maxlength.</td>
</tr>
<tr>
<td>DFHPI9632 E</td>
<td>URI URI is invalid. The reported problem is: problem.</td>
</tr>
<tr>
<td>DFHPI9633 E</td>
<td>Invalid value specified for the SOAPVER parameter. Valid values are: 1.1, 1.2 or ALL.</td>
</tr>
<tr>
<td>DFHPI9634 E</td>
<td>WSDL service element service cannot be found in the WSDL document.</td>
</tr>
<tr>
<td>DFHPI9635 E</td>
<td>WSDL reusable binding binding may only be used if the WSDL-SERVICE parameter is specified.</td>
</tr>
<tr>
<td>DFHPI9636 E</td>
<td>WSDL operation operation cannot be found.</td>
</tr>
<tr>
<td>DFHPI9637 W</td>
<td>One or more WSDL operations have not been processed for a provider mode Web service.</td>
</tr>
<tr>
<td>DFHPI9638 W</td>
<td>The minimum runtime level required for this Web service is greater than the mapping level due to the use of WSDL 2.0.</td>
</tr>
<tr>
<td>DFHPI9639 E</td>
<td>WSDL 2.0 has been used but it is not compatible with the specified minimum runtime level.</td>
</tr>
<tr>
<td>DFHPI9640 I</td>
<td>This Web service should be installed into a PIPELINE that uses SOAP version soapver.</td>
</tr>
<tr>
<td>DFHPI9641 E</td>
<td>Unsupported message content model contentModel found whilst processing operation operation.</td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHPI9642 E</td>
<td>WSDL Message Exchange Pattern <em>mep</em> is unsupported. This pattern is specified for operation <em>operation</em>.</td>
</tr>
<tr>
<td>DFHPI9643 I</td>
<td>This Web service requires a capability implied by URI <em>URI</em>. It must be installed into an appropriate PIPELINE.</td>
</tr>
<tr>
<td>DFHPI9644 I</td>
<td>This Web service supports a capability implied by URI <em>URI</em>.</td>
</tr>
<tr>
<td>DFHPI9645 I</td>
<td>Operation <em>operation</em> requires a capability implied by URI <em>URI</em>. It must be installed into an appropriate PIPELINE.</td>
</tr>
<tr>
<td>DFHPI9646 I</td>
<td>Operation <em>operation</em> supports a capability implied by URI <em>URI</em>.</td>
</tr>
<tr>
<td>DFHPI9647 I</td>
<td>The request message for operation <em>operation</em> requires a capability implied by URI <em>URI</em>. It must be installed into an appropriate PIPELINE.</td>
</tr>
<tr>
<td>DFHPI9648 I</td>
<td>The request message for operation <em>operation</em> supports a capability implied by URI <em>URI</em>.</td>
</tr>
<tr>
<td>DFHPI9649 I</td>
<td>The response message for operation <em>operation</em> requires a capability implied by URI <em>URI</em>. It must be installed into an appropriate PIPELINE.</td>
</tr>
<tr>
<td>DFHPI9650 I</td>
<td>The response message for operation <em>operation</em> supports a capability implied by URI <em>URI</em>.</td>
</tr>
<tr>
<td>DFHPI9651 E</td>
<td>The value of parameter <em>parameter1</em> is incompatible with the value of parameter <em>parameter2</em>.</td>
</tr>
<tr>
<td>DFHPI9652 W</td>
<td>A required but unsupported WSDL extensibility element has been detected. The element is of type <em>type</em>.</td>
</tr>
<tr>
<td>DFHPI9653 W</td>
<td>An unresolved PolicyReference element has been found and ignored. The URI associated with this PolicyReference is <em>URI</em>.</td>
</tr>
<tr>
<td>DFHPI9654 W</td>
<td>An unsupported Policy element has been found. The element is of type <em>type</em> in namespace <em>namespace</em>.</td>
</tr>
<tr>
<td>DFHPI9655 E</td>
<td>The supplied WSDL file contains a message exchange pattern of in-opt-out. This is only supported when PGMINT is set to CHANNEL.</td>
</tr>
<tr>
<td>DFHPI9656 E</td>
<td>The WSDL file does not contain any binding elements. There must be at least one WSDL binding.</td>
</tr>
<tr>
<td>DFHPI9657 W</td>
<td>The WSDL file contains <em>elementType</em> elements but the <em>parameter</em> parameter has not been specified. These elements are ignored.</td>
</tr>
<tr>
<td>DFHPI9658 E</td>
<td>Directory <em>directory</em> cannot be read.</td>
</tr>
<tr>
<td>DFHPI9659 E</td>
<td>Directory <em>directory</em> is not a valid directory.</td>
</tr>
<tr>
<td>DFHPI9660 I</td>
<td>WS-Policy file <em>file</em> has been processed.</td>
</tr>
<tr>
<td>DFHPI9661 E</td>
<td>File <em>file</em> is not a CICS WS-Policy file.</td>
</tr>
<tr>
<td>DFHPI9662 E</td>
<td>An exception was thrown whilst processing WS-Policy file <em>file</em>. The exception message is: <em>exception</em>.</td>
</tr>
<tr>
<td>DFHPI9663 E</td>
<td>Operation <em>Operation</em> specified a SOAP MEP of <em>specified_MEP</em>. The only SOAP MEP supported is <em>supported_MEP</em>.</td>
</tr>
<tr>
<td>DFHPI9668 E</td>
<td>Invalid value specified for the XML-ONLY parameter. Valid values are: TRUE or FALSE.</td>
</tr>
<tr>
<td>DFHPI9676 E</td>
<td>The supplied WSDL contains constructs that are only supported when 'PGMINT' is set to 'CHANNEL'.</td>
</tr>
<tr>
<td>DFHRD0126 I</td>
<td><em>date time applid terminal userid tranid INSTALL IPCONN(IPCONN-name)</em></td>
</tr>
<tr>
<td>DFHRD0127 I</td>
<td><em>date time applid terminal userid tranid INSTALL LIBRARY(library-name)</em></td>
</tr>
</tbody>
</table>
Table 34. New messages in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Message number</th>
<th>Message text</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFHSI8421</td>
<td>date time applid PLT program programe has been invoked during the second stage of initialization.</td>
</tr>
<tr>
<td>DFHSI8431</td>
<td>date time applid PLT program programe has been invoked during the third stage of initialization.</td>
</tr>
<tr>
<td>DFHSI8445</td>
<td>applid An attempt to GETMAIN storage intended for the Language Interface work area failed.</td>
</tr>
<tr>
<td>DFHSJ0206</td>
<td>date time applid The runtime options specified in DFHJVMRO are too long. The Language Environment enclave cannot be initialized. The JVM was not started.</td>
</tr>
<tr>
<td>DFHSJ0521</td>
<td>date time applid Option TMPREFIX found in JVM profile jvmprop should only be used under guidance from IBM.</td>
</tr>
<tr>
<td>DFHSJ0522</td>
<td>date time applid Deprecated option TMSUFFIX found in JVM profile jvmprop. Value will be added to ibm,JVM.shareable.application.class.path after the CICS-supplied jar files.</td>
</tr>
<tr>
<td>DFHSJ0523</td>
<td>date time applid Deprecated option CLASSPATH found in JVM profile jvmprop. Use CLASSPATH_SUFFIX instead.</td>
</tr>
<tr>
<td>DFHSJ0524</td>
<td>date time applid Obsolete JVM option option found in JVM profile profile. Specify REUSE=YES or REUSE=NO. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0525</td>
<td>date time applid Obsolete JVM option Xresettable found in JVM profile profile has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0526</td>
<td>date time applid Obsolete option option found in JVM properties file jomprops has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0527</td>
<td>date time applid Obsolete option option found in JVM profile jvmprop has been ignored.</td>
</tr>
<tr>
<td>DFHSJ0528</td>
<td>date time applid Deprecated option MAX_RESETS_TO_GC found in JVM Profile JVMprof. Use GC_HEAP_THRESHOLD instead.</td>
</tr>
<tr>
<td>DFHSJ0529</td>
<td>date time applid Value value for GC_HEAP_THRESHOLD found in JVM Profile JVMprof must be between 50 and 100.</td>
</tr>
<tr>
<td>DFHSJ0530</td>
<td>date time applid Value value for IDLE_TIMEOUT found in JVM profile profile must be between 0 and 10080.</td>
</tr>
<tr>
<td>DFHSJ0531</td>
<td>date time applid JAVA_HOME directory directory specified in JVM profile jvmprop failed to open. The JVM cannot be started. Runtime error message is crrmsg.</td>
</tr>
<tr>
<td>DFHSJ0532</td>
<td>date time applid Insufficient permission to access the JAVA_HOME directory directory specified in the JVM profile jvmprop. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0533</td>
<td>date time applid JAVA_HOME directory directory specified in JVM profile jvmprop does not contain a valid Java installation. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0534</td>
<td>date time applid Deprecated option CICS_DIRECTORY found in JVM profile jvmprop. Use CICS_HOME instead. Value will be treated as CICS_HOME.</td>
</tr>
<tr>
<td>DFHSJ0535</td>
<td>date time applid CICS_HOME directory directory specified in JVM profile jvmprop failed to open. The JVM cannot be started. Runtime error message is crrmsg.</td>
</tr>
<tr>
<td>DFHSJ0536</td>
<td>date time applid Insufficient permission to access the CICS_HOME directory directory specified in JVM profile jvmprop. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0537</td>
<td>date time applid Incorrect CICS version in CICS_HOME directory directory specified in JVM profile jvmprop. The JVM cannot be started.</td>
</tr>
<tr>
<td>DFHSJ0538</td>
<td>date time applid Deprecated option LIBPATH found in JVM profile jvmprop. Use LIBPATH_SUFFIX instead.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>--------------</td>
</tr>
<tr>
<td>DFHSJ0539</td>
<td><em>date time applid</em> Deprecated option <em>option</em> found in JVM profile <em>profile</em>. Use <em>option2</em> instead.</td>
</tr>
<tr>
<td>DFHSJ0709</td>
<td><em>date time applid</em> The runtime options specified in DFHJVMRO are too long. The Language Environment enclave cannot be initialized. The master JVM was not started.</td>
</tr>
<tr>
<td>DFHSM0601 I</td>
<td><em>applid</em> Limit of above the bar storage available is <em>gdsalimit</em></td>
</tr>
<tr>
<td>DFHSM0602</td>
<td><em>applid</em> Insufficient storage to allocate the minimum above the bar memory object.</td>
</tr>
<tr>
<td>DFHSM0603</td>
<td><em>applid</em> Insufficient storage to allocate the recommended 2GB above the bar memory object.</td>
</tr>
<tr>
<td>DFHSM0606</td>
<td><em>applid</em> The amount of MVS above the bar storage available to CICS is critically low.</td>
</tr>
<tr>
<td>DFHSM0607</td>
<td><em>applid</em> The amount of MVS above the bar storage available to CICS is no longer critically low.</td>
</tr>
<tr>
<td>DFHSO0128 A</td>
<td><em>applid</em> Information to specify a bind to an LDAP server cannot be obtained from the PROXY segment of CRLPROFILE profile.</td>
</tr>
<tr>
<td>DFHSO0129 A</td>
<td><em>applid</em> The LDAP server whose name was obtained from CRLPROFILE is inactive. Certificate revocation checks have been disabled.</td>
</tr>
<tr>
<td>DFHSO0131</td>
<td><em>date time applid</em> The TCPIPSERVICE TCPIPSERVICE cannot be opened on the IP address <em>ipaddress</em> because the maximum number of ports has been reached.</td>
</tr>
<tr>
<td>DFHSO0132</td>
<td>An invalid function has been passed to DFHSOLX.</td>
</tr>
<tr>
<td>DFHST0236</td>
<td>DFHSTUP has reached its reporting limit of 520 applids, subsequent applid reporting is now suppressed.</td>
</tr>
<tr>
<td>DFHTC1600</td>
<td><em>applid</em> The value for SYSIDNT, <em>sysid1</em>, does not match the one specified in the last cold or initial start, <em>sysid2</em>. CICS normal operation may be affected.</td>
</tr>
<tr>
<td>DFHTD0247</td>
<td><em>applid</em> NOSPACE condition on a PUT to the intrapartition data set (DD name <em>ddname</em>). The data set is full.</td>
</tr>
<tr>
<td>DFHTD0386</td>
<td><em>applid</em> The high RBA value of the primary extent for intrapartition data set (DD name <em>ddname</em>) is <em>highrba</em>. This exceeds the maximum allowable value of 2GB, and will be capped to a value of X’80000000’ minus the CI size of the data set.</td>
</tr>
<tr>
<td>DFHTI0100</td>
<td><em>applid</em> This is the Beta version of CICS TS which expires on <em>date</em>.</td>
</tr>
<tr>
<td>DFHTI0101</td>
<td><em>applid</em> CICS failed to initialize. Beta version of CICS TS expired on <em>date</em>.</td>
</tr>
<tr>
<td>DFHWB0154 E</td>
<td><em>date time applid client_ip_addr</em> TCPIPSERVICE The request receiver SOCB notify gate is unable to obtain storage.</td>
</tr>
<tr>
<td>DFHWB0364</td>
<td><em>date time applid</em> An attempt to establish security for userid <em>userid</em> has failed. The requested static response cannot be returned. SAF codes are (’X’safresp’,’X’safresas’). ESM codes are (’X’esmres,’X’esmresas’). Host IP address: <em>hostaddr</em>. Client IP address: <em>clientaddr</em>. TCPIPSERVICE: tcipservice.</td>
</tr>
<tr>
<td>DFHWB0756</td>
<td><em>date time applid tranid</em> The host on the received HTTP request is invalid. Client IP address: <em>clientaddr</em>. TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHWB0757</td>
<td><em>date time applid tranid</em> A precondition specified by an If-Modified-Since header has failed. Client IP address: <em>clientaddr</em>. TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHWB0758</td>
<td><em>date time applid tranid</em> An attempt to access static data <em>data</em> has failed because the transaction user does not have READ access to the resource. Client IP address: <em>clientaddr</em>. TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>Message number</td>
<td>Message text</td>
</tr>
<tr>
<td>----------------</td>
<td>-------------</td>
</tr>
<tr>
<td>DFHWB0759</td>
<td>date time applid tranid An attempt to access static data data has failed because the resource is not found. Client IP address: clientaddr TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHWB0760</td>
<td>date time applid tranid An attempt to read HFS file filename has failed. Client IP address: clientaddr TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHWB0761</td>
<td>date time applid tranid An attempt to send a static response has failed due to an internal error. Client IP address clientaddr TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHWB0762</td>
<td>date time applid tranid The received HTTP request specifies the OPTIONS method but cannot be handled by CICS. Status code statuscode. Host IP address: hostaddr. Client IP address: clientaddr TCPIPSERVICE: TCPIPSERVICE.</td>
</tr>
<tr>
<td>DFHWB1560</td>
<td>date time applid userid URIMAP URIMAP has been created.</td>
</tr>
<tr>
<td>DFHWB1570</td>
<td>date time applid userid URIMAP URIMAP was successfully discarded.</td>
</tr>
<tr>
<td>DFHXXQ0123</td>
<td>IXCARM REQUEST=request failed, return code retcode, reason code rsncode.</td>
</tr>
<tr>
<td>DFHXS1116</td>
<td>date time applid tranid Security violation by user userid at IP address location for HFS file hfsfile. USS codes are (X’ussvalue’,X’ussreturn’,X’ussreason’).</td>
</tr>
<tr>
<td>DFHZC3403E</td>
<td>date time applid termid tranid Invalid SEND after LU6.1 session RTIMOUT. sense ((instance) Module name: (DFHZSDX))</td>
</tr>
<tr>
<td>DFHZC6312E</td>
<td>date time applid Install for connection cccc failed. An IPCONN with this name already exists and its applid is not netname.</td>
</tr>
<tr>
<td>EYUVC1019E</td>
<td>You cannot mix passwords and password phrases in a change request.</td>
</tr>
<tr>
<td>EYUVC1020E</td>
<td>The CICS external security manager interface has not been initialized. Sign-on request failed.</td>
</tr>
<tr>
<td>EYUVC1021E</td>
<td>the ESM is currently not accepting signons. Please try later.</td>
</tr>
<tr>
<td>EYUVC1022E</td>
<td>Your user ID is invalid. Please retype.</td>
</tr>
<tr>
<td>EYUVC1023E</td>
<td>Incorrect password length. Sign-on is terminated.</td>
</tr>
<tr>
<td>EYUVC10234E</td>
<td>Incorrect new password length. Sign-on is terminated.</td>
</tr>
</tbody>
</table>
Chapter 51. Deleted abend codes

These abend codes are discontinued in CICS Transaction Server for z/OS, Version 4 Release 2.

Deleted abend codes in CICS Transaction Server for z/OS, Version 4 Release 2

No abend codes have been deleted.

Deleted abend codes in CICS Transaction Server for z/OS, Version 4 Release 1

Table 35. Deleted abend codes in CICS Transaction Server for z/OS, Version 4 Release 1

<table>
<thead>
<tr>
<th>Abend code</th>
<th>Abend text</th>
</tr>
</thead>
<tbody>
<tr>
<td>AMQL</td>
<td>DFHMQCON issued a call to CICS enqueue domain to create an enqueue pool for use in later CICS-MQ adapter processing, but the call to enqueue domain failed.</td>
</tr>
</tbody>
</table>
# Chapter 52. New abend codes

These abend codes are new for CICS Transaction Server for z/OS, Version 4 Release 2.

## New abend codes in CICS Transaction Server for z/OS, Version 4 Release 2

<table>
<thead>
<tr>
<th>Abend code</th>
<th>Abend text</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABRP</td>
<td>The bridge client is no longer available.</td>
</tr>
<tr>
<td>ACSO</td>
<td>An IPIC conversation failure occurred when an attach between CICS systems was issued.</td>
</tr>
<tr>
<td>ADDK</td>
<td>CICS failed to obtain or release a lock on either the Global Work Area (GWA) or the DBCTL Global Block (DGB) of the adapter.</td>
</tr>
<tr>
<td>AECE</td>
<td>An unexpected error occurred in the event processing deferred filtering task CEPF.</td>
</tr>
<tr>
<td>AECM</td>
<td>An attempt was made to attach a CICS event processing deferred filtering task CEPF, but the transaction was not attached internally by CICS.</td>
</tr>
<tr>
<td>AITN</td>
<td>An attempt to change the TCB DFHMIERS that was running on has failed.</td>
</tr>
<tr>
<td>ASJ7</td>
<td>An error has caused the JVM server to receive a SIGABRT signal.</td>
</tr>
<tr>
<td>ASJS</td>
<td>A Java application running in a JVM server invoked the System.exit() method.</td>
</tr>
<tr>
<td>AJST</td>
<td>DFHJSON was called, but no channel was provided.</td>
</tr>
</tbody>
</table>

## New abend codes in CICS Transaction Server for z/OS, Version 4 Release 1

<table>
<thead>
<tr>
<th>Abend code</th>
<th>Abend text</th>
</tr>
</thead>
<tbody>
<tr>
<td>AALA</td>
<td>An error (INVALID, DISASTER, or unexpected EXCEPTION response) has occurred on a call to the Atomservice Manager. The domain that detected the original error provides a trace entry and possibly a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>AALC</td>
<td>An error (INVALID, DISASTER, or unexpected EXCEPTION response) has occurred on a call to the JVM server resource manager. The domain that detected the original error provides a trace entry and possibly a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>AAM4</td>
<td>An error (INVALID, DISASTER, or unexpected EXCEPTION response) has occurred on a call to the Resource Lifecycle Manager. The domain that detected the original error provides a trace entry and possibly a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>ACRQ</td>
<td>An attempt has been made to route unsupported function across an IPIC connection. If message DFHIS1035 is issued immediately before the ACRQ abend, the ACRQ abend is caused by an attempt to route to a backlevel release. If message DFHIS1035 is not issued, the ACRQ abend is caused by an attempt to route an APPC device.</td>
</tr>
<tr>
<td>AECA</td>
<td>An attempt has been made to run one of the CICS internal EP adapter transactions, CEPQ or CEFT, as a user transaction.</td>
</tr>
<tr>
<td>AECC</td>
<td>An error occurred while emitting an event. This problem is likely to have been caused by an error in the specification of the event or in the configuration of the EP adapter.</td>
</tr>
<tr>
<td>Abend code</td>
<td>Abend text</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>AECO</td>
<td>An unexpected error occurred while emitting an event.</td>
</tr>
<tr>
<td>AECY</td>
<td>The task was purged before a request to the storage manager (SM) domain was able to complete successfully. The domain that first detected the purged condition will have provided an exception trace.</td>
</tr>
<tr>
<td>AECZ</td>
<td>An error (INVALID, DISASTER or unexpected EXCEPTION response) has occurred on a call to the storage manager (SM) domain. The domain that detected the original error will have provided an exception trace, a console message and, possibly, a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>AEPD</td>
<td>An unexpected error occurred while dispatching events.</td>
</tr>
<tr>
<td>AEPM</td>
<td>An attempt was made to attach a CICS EP dispatcher task, but the transaction was not attached internally by CICS.</td>
</tr>
<tr>
<td>AEPO</td>
<td>An unexpected error occurred in the EP dispatcher event queue server task.</td>
</tr>
<tr>
<td>AFDK</td>
<td>A file control update request was made against a NSR file while transaction isolation was active for the task. Using NSR files with transaction isolation active is not supported. The TRANISO system initialization parameter is YES and the transaction definition has ISOLATE set to YES.</td>
</tr>
<tr>
<td>AIPM</td>
<td>The transaction was connected to another transaction in another CICS system by means of an IPIC link. This other transaction has abnormally stopped.</td>
</tr>
<tr>
<td>AIPN</td>
<td>IP interconnectivity program DFHISLQP has been initiated incorrectly, probably by entering a transaction ID that refers to it, CISQ, at a terminal. This program must be initiated only by CICS internal processes.</td>
</tr>
<tr>
<td>AIPO</td>
<td>IP interconnectivity program DFHISLQP has been initiated with incorrect attach parameters by CICS internal processes. This initiation be the result of a configuration error or a storage overwrite.</td>
</tr>
<tr>
<td>AIPP</td>
<td>IP interconnectivity program DFHISLQP received an INVALID, DISASTER, or EXCEPTION response from a call to the intersystems communication (IS) domain to process requests that are locally queued for an IPCONN.</td>
</tr>
<tr>
<td>AIPR</td>
<td>IP interconnectivity program DFHISLQP received an PURGED response from a call to the intersystems communication (IS) domain to acquire or release an IPCONN.</td>
</tr>
<tr>
<td>AKEJ</td>
<td>A backlevel XPI call has been detected by the kernel (KE) domain.</td>
</tr>
<tr>
<td>ALIL</td>
<td>CICS has tried to change to an OPEN TCB on which to run the JAVA, XPLINK, or OPENAPI program, but the change mode was unsuccessful. CICS might be short-on-storage and have insufficient storage to allow creation of the new TCB.</td>
</tr>
<tr>
<td>ASJO</td>
<td>The JVM server resolution transaction CJSR, has encountered an internal error. The CICS system transaction CJSR provides support for initializing new JVM servers. If this fails, it is likely that there is an underlying error with the CICS system.</td>
</tr>
<tr>
<td>AW2A</td>
<td>The DFHW2A Web 2.0 alias program ran in a transaction that was not attached by CICS Web support. This is typically caused by attempting to issue the CW2A transaction directly from a terminal. This is not supported.</td>
</tr>
<tr>
<td>AW2B</td>
<td>The CICS-supplied Atom service routines use the transaction work area to contain the responses that are returned to the Atom feed manager. The service routine has determined that the transaction work area is too small to contain the required responses.</td>
</tr>
<tr>
<td>AXFN</td>
<td>The user domain module, DFHUSAD, has returned a condition not expected by DFHUSAD.</td>
</tr>
<tr>
<td>AXFV</td>
<td>The user domain module, DFHUSAD, has returned a condition not expected by DFHUSAD.</td>
</tr>
</tbody>
</table>
## New abend codes in CICS Transaction Server for z/OS, Version 3 Release 2

### Table 37. New abend codes in CICS Transaction Server for z/OS, Version 3 Release 2

<table>
<thead>
<tr>
<th>Abend code</th>
<th>Abend text</th>
</tr>
</thead>
<tbody>
<tr>
<td>AALY</td>
<td>An error (INVALID, DISASTER or unexpected EXCEPTION response) has occurred on a call to the ISC/IP Domain. The domain that detected the original error provides a trace entry and possibly a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>AALZ</td>
<td>An error (INVALID, DISASTER or unexpected EXCEPTION response) has occurred on a call to the Document Handler. The domain that detected the original error provides a trace entry and possibly a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>AAM3</td>
<td>An error (INVALID, DISASTER or unexpected EXCEPTION response) has occurred on a call to the Loader Domain. The domain that detected the original error provides a trace entry and possibly a system dump (depending on the options specified in the dump table).</td>
</tr>
<tr>
<td>ADCF</td>
<td>This abend is issued when the module DFHDLIDP detects that the CICS-DBCTL Interface has been configured using a DRA startup table (DFSPPPxx) which specifies option PCBLOC=31, and the application is amode 24. PCBLOC=31 specifies that the PCB address list and PCBs can be stored above the line. This is incompatible with amode 24 applications.</td>
</tr>
<tr>
<td>AEZY</td>
<td>CODEPAGEERR condition not handled. This is one of a number of abends issued by the EXEC interface program. Because of their similar characteristics these abends are described as a group. See the description of abend AEIA for further details.</td>
</tr>
<tr>
<td>AFCI</td>
<td>The transaction issued a file request resulting in a call to the main file control program (DFHFCFR). During the processing of the request the transaction was purged. That is, the transaction was the subject of an explicit PURGE or FORCEPURGE request, was timed out, or was selected by CICS for termination in an attempt to alleviate an SOS condition.</td>
</tr>
<tr>
<td>AFDI</td>
<td>A call to directory domain failed when trying to locate an fct entry.</td>
</tr>
<tr>
<td>AFDJ</td>
<td>A call to lock manager failed when trying to locate an fct entry.</td>
</tr>
<tr>
<td>AIPA</td>
<td>IP interconnectivity program DFHISCOP has been initiated invalidly, probably by entering a transaction id that refers to it, for example CISC or CISS, at a terminal. This program must only be initiated by CICS internal processes.</td>
</tr>
<tr>
<td>AIPB</td>
<td>IP interconnectivity receiver program DFHISRRP has been initiated invalidly, probably by entering a transaction id that refers to it, for example CISR, at a terminal. This program must only be initiated by CICS internal processes.</td>
</tr>
<tr>
<td>AIPC</td>
<td>IP interconnectivity error and message program DFHISEMP has been initiated invalidly, probably by entering a transaction id that refers to it, for example CISE, at a terminal. This program must only be initiated by CICS internal processes.</td>
</tr>
<tr>
<td>AIPD</td>
<td>IP interconnectivity program DFHISCOP has been initiated with invalid attach parameters by CICS internal processes. This could be the result of a configuration error or a storage overwrite. DFHISCOP should be defined as the initial program for the IS domain connectivity transactions; these are CISC and the transactions for TCPIPSERVICEs with protocol IPIC, CISS by default. This error could occur if DFHISCOP is defined as the initial program for some other CICS internal transaction.</td>
</tr>
<tr>
<td>Abend code</td>
<td>Abend text</td>
</tr>
<tr>
<td>------------</td>
<td>-----------</td>
</tr>
<tr>
<td>AIPE</td>
<td>IP interconnectivity program DFHISCOP received an INVALID, DISASTER, or EXCEPTION response from a call to the intersystems communication (IS) domain to acquire or release an IPCONN.&lt;br&gt;The domain that detected the original error provides an exception trace, a console message and, possibly, a system dump.</td>
</tr>
<tr>
<td>AIPF</td>
<td>IP interconnectivity program DFHISCOP received a PURGED response from a call to the intersystems communication (IS) domain to acquire or release an IPCONN.&lt;br&gt;The domain that detected the original error provides an exception trace, a console message and, possibly, a system dump.</td>
</tr>
<tr>
<td>AIPG</td>
<td>IP interconnectivity long-running request/response receiver program received an INVALID, DISASTER, or EXCEPTION response from its PROCESS_INPUT call to the intersystems communication (IS) domain.&lt;br&gt;The domain that detected the original error provides an exception trace, a console message and, possibly, a system dump.</td>
</tr>
<tr>
<td>AIPH</td>
<td>IP interconnectivity long-running error and message program received an INVALID, DISASTER, or EXCEPTION response from its PROCESS_ERROR call to the intersystems communication (IS) domain.&lt;br&gt;The domain that detected the original error provides an exception trace, a console message and, possibly, a system dump.</td>
</tr>
<tr>
<td>AIPI</td>
<td>IP interconnectivity program DFHISREX has been initiated invalidly, probably by entering a transaction id that refers to it, CISX, at a terminal. This program must only be initiated by CICS internal processes.</td>
</tr>
<tr>
<td>AIPJ</td>
<td>The IS attach client module DFHISXM received an INVALID, DISASTER, or unexpected EXCEPTION response from its INITIALIZE_RECEIVER call to module DFHISIS.&lt;br&gt;The call was issued during initialization of a transaction that was started by a transaction attach message received on an IP connection. The call was made as part of processing to associate the transaction with its intended user. The attempt to associate the intended user with the transaction has failed.&lt;br&gt;The userid for the intended user of the transaction may not be correctly defined.&lt;br&gt;Security attributes defined for the IPCONN may not be consistent with the security parameters received in the transaction attach message.</td>
</tr>
<tr>
<td>AIPK</td>
<td>The IS attach client module DFHISXM received a PURGED response from its INITIALIZE_RECEIVER call to module DFHISIS.</td>
</tr>
<tr>
<td>AIPL</td>
<td>The IS attach client module DFHISXM received an INVALID, DISASTER, or unexpected EXCEPTION response from its BIND_RECEIVER call to module DFHISIS.</td>
</tr>
<tr>
<td>AITJ</td>
<td>A mirror transaction processing a request from a client connected using IP interconnectivity has failed while trying to receive data from, or send data to, a client. This could be a read time out, or a more serious error in the flows that prevented CICS from correctly processing the data.</td>
</tr>
<tr>
<td>AITK</td>
<td>The ISCINVREQ condition has been raised. This can happen when the resource proves to be on yet another remote system, that is, when daisy-chaining is active.</td>
</tr>
<tr>
<td>AITL</td>
<td>The IPIC client sent a CCSID that was not recognized.</td>
</tr>
<tr>
<td>AITM</td>
<td>A command has been received by the mirror program to call itself.</td>
</tr>
</tbody>
</table>
Table 37. New abend codes in CICS Transaction Server for z/OS, Version 3 Release 2 (continued)

<table>
<thead>
<tr>
<th>Abend code</th>
<th>Abend text</th>
</tr>
</thead>
<tbody>
<tr>
<td>AKEX</td>
<td>A program check has been detected by the kernel (KE) domain while executing under a TCB that is not enabled for EXEC CICS commands. This is probably because of an attempt to execute a CICS command in an environment where this is not possible.</td>
</tr>
<tr>
<td>AMQA</td>
<td>DFHMQCON had enabled DFHMQTRU with a global work area smaller than that needed by DFHMQTRU. This could be due to a mismatch of version level between DFHMQCON and DFHMQTRU.</td>
</tr>
<tr>
<td>AMQB</td>
<td>DFHMQCON had enabled DFHMQTRU with a task local work area smaller than that needed by DFHMQTRU. This could be due to a mismatch of version level between DFHMQCON and DFHMQTRU.</td>
</tr>
<tr>
<td>AMQC</td>
<td>Unrecognizable WebSphere MQ API call. All supported API calls are documented in the WebSphere MQ Application Programming Reference manual.</td>
</tr>
<tr>
<td>AMQD</td>
<td>Unrecognizable RMI API call. The CICS-MQ task related user exit (TRUE) was invoked with an unrecognizable request type.</td>
</tr>
<tr>
<td>AMQE</td>
<td>An attempt to EXEC CICS LOAD the data conversion service module CSQA VICM was unsuccessful.</td>
</tr>
<tr>
<td>AMQF</td>
<td>An internal logic error has been detected in the CICS bridge monitor.</td>
</tr>
<tr>
<td>AMQG</td>
<td>The CICS DPL bridge program has detected an error in a request message for this unit of work.</td>
</tr>
<tr>
<td>AMQH</td>
<td>The CICS bridge monitor or DPL bridge program abended due to an unexpected return code from an EXEC CICS API call.</td>
</tr>
<tr>
<td>AMQI</td>
<td>The CICS bridge monitor or DPL bridge program abended due to an unexpected return code from an MQ API call.</td>
</tr>
<tr>
<td>AMQJ</td>
<td>The CICS DPL bridge program abended before processing any messages for the unit of work.</td>
</tr>
<tr>
<td>AMQK</td>
<td>The CICS DPL bridge program abended during error processing.</td>
</tr>
<tr>
<td>AMQN</td>
<td>The Link3270 bridge has returned one or more bridge vectors. DFHMQBP0 has detected that one of the bridge vector lengths is invalid.</td>
</tr>
<tr>
<td>APGA</td>
<td>An error has occurred obtaining a lock within the Program Manager domain.</td>
</tr>
<tr>
<td>APGB</td>
<td>An error has occurred releasing a lock within the Program Manager domain.</td>
</tr>
<tr>
<td>APGC</td>
<td>A transaction has tried to allocate an excessive amount of storage for containers. A transaction must not allocate more than 10% of the storage available for holding containers above the bar.</td>
</tr>
<tr>
<td>APIR</td>
<td>The Web Services Atomic Transaction (WS-AT) handler has detected a problem. The WSAT application handler program has encountered an attempt to use one-way messages in a WS-AT message. This combination is not permitted in WS-AT. The program is abnormally terminated.</td>
</tr>
<tr>
<td>APIS</td>
<td>CICS detected an error during transaction initialization for a Web services task.</td>
</tr>
<tr>
<td>APIU</td>
<td>The Pipeline MQ Listener program has encountered an attempt to parse a target URI that is longer than 255 bytes. The maximum length of a target URI in the RFH2 header is expected to be 255 bytes.</td>
</tr>
<tr>
<td>ARZ5</td>
<td>The target request stream task detected that the source task was no longer active. The target task is unable to process the request it was attached for.</td>
</tr>
<tr>
<td>ASJA</td>
<td>An error has occurred obtaining a lock within the Java domain.</td>
</tr>
<tr>
<td>Abend code</td>
<td>Abend text</td>
</tr>
<tr>
<td>------------</td>
<td>------------</td>
</tr>
<tr>
<td>ASJB</td>
<td>An error has occurred releasing a lock within the Java domain.</td>
</tr>
<tr>
<td>ASJC</td>
<td>The CICS_HOME directory is inaccessible, does not exist, or contains a version of CICS Java support which is not the same as this release of CICS.</td>
</tr>
<tr>
<td>ASJK</td>
<td>An attempt was made to attach transaction CJGC, but the transaction was not attached internally by CICS. &lt;br&gt;The CICS system transaction CJGC provides support for initiating Garbage Collection in a JVM. It can only be attached internally by CICS.</td>
</tr>
<tr>
<td>ASJL</td>
<td>An attempt was made to attach a transaction specifying DFHSJGC as the program to be given control, but the transaction id was not CJGC. &lt;br&gt;DFHSJGC is for use by CICS system transaction CJGC, which provides support for initiating Garbage Collection in a JVM.</td>
</tr>
<tr>
<td>ASJM</td>
<td>An attempt was made to attach transaction CJPI, but the transaction was not attached internally by CICS. &lt;br&gt;The CICS system transaction CJPI provides support for initializing new JVMs. It can only be attached internally by CICS.</td>
</tr>
<tr>
<td>ASJN</td>
<td>An attempt was made to attach a transaction specifying DFHSJPI as the program to be given control, but the transaction id was not CJPI. &lt;br&gt;DFHSJPI is for use by CICS system transaction CJPI, which provides support for initializing new JVMs.</td>
</tr>
<tr>
<td>ASJR</td>
<td>An attempt was made to start a JVM in resetable mode by specifying [-]Xresettable=YES or REUSE=RESET.</td>
</tr>
<tr>
<td>ATSU</td>
<td>A DISASTER response caused by an IOERR was received from a request to the Temporary Storage (TS) Domain.</td>
</tr>
<tr>
<td>AWC9</td>
<td>CICS detected an error during transaction initialization for a CICS IPCONN acquire server-side transaction.</td>
</tr>
<tr>
<td>AWSY</td>
<td>A problem was encountered in the DFHPIRT outbound router program. This usually implies that one of the containers used by DFHPIRT was not populated correctly.</td>
</tr>
</tbody>
</table>
Part 6. Appendixes
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- CICS Transaction Server for z/OS Program Directory, GI13-0565
- CICS Transaction Server for z/OS What’s New, GC34-7192
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- CICS Transaction Server for z/OS Upgrading from CICS TS Version 3.2, GC34-7189
- CICS Transaction Server for z/OS Upgrading from CICS TS Version 4.1, GC34-7190
- CICS Transaction Server for z/OS Installation Guide, GC34-7171

**Access to CICS**
- CICS Internet Guide, SC34-7173
- CICS Web Services Guide, SC34-7191

**Administration**
- CICS System Definition Guide, SC34-7185
- CICS Customization Guide, SC34-7161
- CICS Resource Definition Guide, SC34-7181
- CICS Operations and Utilities Guide, SC34-7213
- CICS RACF Security Guide, SC34-7179
- CICS Supplied Transactions, SC34-7184

**Programming**
- CICS Application Programming Guide, SC34-7158
- CICS Application Programming Reference, SC34-7159
- CICS System Programming Reference, SC34-7186
- CICS Front End Programming Interface User’s Guide, SC34-7169
- CICS C++ OO Class Libraries, SC34-7162
- CICS Distributed Transaction Programming Guide, SC34-7167
- CICS Business Transaction Services, SC34-7160
- Java Applications in CICS, SC34-7174

**Diagnosis**
- CICS Problem Determination Guide, GC34-7178
- CICS Performance Guide, SC34-7177
- CICS Messages and Codes Vol 1, GC34-7175
- CICS Messages and Codes Vol 2, GC34-7176
- CICS Diagnosis Reference, GC34-7166
- CICS Recovery and Restart Guide, SC34-7180
- CICS Data Areas, GC34-7163
- CICS Trace Entries, SC34-7187
- CICS Debugging Tools Interfaces Reference, GC34-7165

**Communication**
- CICS Intercommunication Guide, SC34-7172
- CICS External Interfaces Guide, SC34-7168

**Databases**
- CICS DB2 Guide, SC34-7164
- CICS IMS Database Control Guide, SC34-7170

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CICSPlex SM books for CICS Transaction Server for z/OS

General
CICSPlex SM Concepts and Planning, SC34-7196
CICSPlex SM Web User Interface Guide, SC34-7214

Administration and Management
CICSPlex SM Administration, SC34-7193
CICSPlex SM Operations Views Reference, SC34-7202
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CICSPlex SM Managing Resource Usage, SC34-7198
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CICSPlex SM Messages and Codes, GC34-7201
CICSPlex SM Problem Determination, GC34-7203

Other CICS publications

The following publications contain further information about CICS, but are not provided as part of CICS Transaction Server for z/OS, Version 4 Release 2.

Designing and Programming CICS Applications, SR23-9692
CICS Application Migration Aid Guide, SC33-0768
CICS Family: API Structure, SC33-1007
CICS Family: Client/Server Programming, SC33-1435
CICS Family: Interproduct Communication, SC34-6853
CICS Family: Communicating from CICS on System/390, SC34-6854
CICS Transaction Gateway for z/OS Administration, SC34-5528
CICS Family: General Information, GC33-0155
CICS 4.1 Sample Applications Guide, SC33-1173
CICS/ESA 3.3 XRF Guide , SC33-0661
Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully.

You can perform most tasks required to set up, run, and maintain your CICS system in one of these ways:

• using a 3270 emulator logged on to CICS
• using a 3270 emulator logged on to TSO
• using a 3270 emulator as an MVS system console

IBM Personal Communications provides 3270 emulation with accessibility features for people with disabilities. You can use this product to provide the accessibility features you need in your CICS system.
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CICS Transaction Server for z/OS
Version 4 Release 2
Upgrading from CICS TS Version 3.1

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