CICS Transaction Server for z/OS
Version 5 Release 3

What's New

GC34-7437-00

CICS Transaction Server for z/OS
Version 5 Release 3

What's New

GC34-7437-00

Note
Before using this information and the product it supports, read the information in "Notices" on page 39.

This edition applies to the IBM CICS Transaction Server for z/OS Version 5 Release 3 (product number 5655-Y04) and to all subsequent releases and modifications until otherwise indicated in new editions.

Contents

Preface

What this book is about

This book is a summary of the new features and capabilities of the latest version of CICS® Transaction Server for z/OS®. Details of how to use these features is provided in the rest of the product documentation.

This book also summarizes any changes to CICS externals, such as the application programming interface, for this version of CICS Transaction Server for z/OS.

Who this book is for

This book is primarily aimed at application programmers and system programmers who need to understand the scope of the new release of CICS Transaction Server for z/OS.

Chapter 1. What's new?

CICS Transaction Server for z/OS, Version 5 Release 3 continues to extend the cloud-style development, deployment and operations capabilities from previous releases.

Table 1. Here are key features of CICS TS for z/OS 5.3. The features in this table are not exclusive to each of the job roles shown; many are of interest across roles.

For application developers	For system programmers	For build engineers and release engineers
"Support for more Liberty features" on page 2	"New policy thresholds" on page 9	"Automation for application deployment" on page 17: the CICS TS build toolkit, DFHDPLOY utility, integration with IBM UrbanCode™ Deploy
"Easier management of logs from JVM server" on page 3	"Automatic recovery of application availability state" on page 9	
"New Java capabilities" on page 3	"New private resource, PACKAGESET, for DB2 collections" on page 10	
"z/OS Connect" on page 4	"Transaction tracking for CICS-MQ bridge" on page 10	
"HTTP requests are processed by directly-attached user transactions" on page 4	"New statistics" on page 10	
"AT-TLS support for inbound HTTPS requests" on page 5	"Additional information on EYU9XENF" on page 11	
"Tailoring values in HTTP server- and user-agent headers" on page 6	"Increased security capabilities" on page 11	
"More threadsafe commands" on page 6	"Controlling RNL processing through the SIT: NQRNL" on page 12	
"TRANSACTION resources as application entry points" on page 7	"Performance improvements" on page 12	
"Changes to EXEC CICS ASSIGN" on page 8	"Creating the USERAUTH attribute from the DFH0IPCC migration utility" on page 13	
"Returning consistent data on INQUIRE PROGRAM" on page 8	"Additional checks during initialization" on page 13	
"Deleting a channel" on page 8	"New features of DFHCSDUP" on page 14	
"Using the integrated translator for EXCI programs in PL/I" on page 8	"New PHASEIN support for SET BUNDLE" on page 14	
"Changes to the JSON transformer linkable interface" on page 8	"Using the extended addressing space (EAS) of an extended address volume (EAV) DASD volume" on page 14	
"Querying a channel" on page 9	"Avoiding the storm drain effect with CICS to IMS, IBM MQ, and VSAM RLS " on page 15	

Table 1. Here are key features of CICS TS for z/OS 5.3 (continued). The features in this table are not exclusive to each of the job roles shown; many are of interest across roles.

For application developers	For system programmers	For build engineers and release engineers
	"More information provided by messages" on page 15	
	"Using HTTP TRACE: now inactive by default" on page 15	
	"Change of defaults on STGPROT and TRTABSZ" on page 15	
	"CICS is aware when a protected DB2 thread is canceled" on page 16	
	"Obsolete options" on page 16	
"Changes to CICS Explorer" on page 16		
"Changes to documentation" on page 18		

Support for more Liberty features

CICS Transaction Server for z/OS, Version 5 Release 3 extends its support for JEE web applications through the WebSphere® Application Server Liberty profile, Version 8.5.5.

Table 2. New Liberty features supported in a CICS Liberty JVM server

Feature	Name	Description
Contexts and Dependency Injection	cdi-1.0	Provides a mechanism to inject components such as EJBs or Managed Beans into other components such as JSPs or EJBs.
EJB Lite	ejbLite-3.1	Enables support for Enterprise JavaBeans written to the EJB Lite subset of the EJB 3.1 specification.
Local JMX Connector	localConnector-1.0	Allows the use of a local JMX connector that is built into the JVM to access JMX resources in the server.
Managed Beans	managedBeans-1.0	Provides a common foundation for different Java™ EE components types that are managed by a container. Common services provided to Managed Beans include resource injection, lifecycle management and the use of interceptors.
MongoDB Java Driver	mongodb-2.0	Provides support for the MongoDB Java Driver and allows remote database instances to be configured in the server configuration. Applications interact with these databases through the MongoDB APIs.

Table 2. New Liberty features supported in a CICS Liberty JVM server (continued)

Feature	Name	Description
Monitor	monitor-1.0	Enables performance monitoring of WebSphere Liberty profile runtime components using a JMX client.
OSGi Console	osgiConsole-1.0	Enables an OSGi console to aid with debug of the runtime.
Rest JMX Connector	restConnector-1.0	Enables remote access by JMX clients via a REST-based connector and requires SSL and user security configuration.
Database Session Persistence	sessionDatabase-1.0	Enables persistence of HTTP sessions to a datasource using JDBC.

Learn more...

Back to top

Easier management of logs from JVM server

In previous releases, it could be difficult to manage zFS log files from JVM server application and system objects. Changes in this release make this easier:

JVM server output logs, OSGi output, and Liberty logs are consolidated into a single directory structure.

This directory structure is unique to each JVM server. Files are prefixed, where appropriate, according to their relative location. Symbolic links make it easier to navigate between logs. If you have a strong preference for using the log output in the separate locations of previous releases, you can set an option in the JVM profile to do that.

Learn more...

Timestamps in JVM server output logs can be localized.

The timestamp takes the local time zone that you specify on the TZ variable in your JVM profile. If you don't specify a time zone, the timestamps continue to show UTC (Coordinated Universal Time).

Learn more...

Old log files can be deleted.

A new option in the JVM profile, called LOG_FILES_MAX, allows you to specify how many iterations of each log file to keep. If you don't specify this option, or set it to zero, all logs are kept.

New Java capabilities

Connecting to IBM® MQ

You can use the IBM MQ classes for Java Message Service (JMS) to access IBM MQ resources, as an alternative to the IBM MQ classes for Java. This support is for Java programs running in an OSGi JVM server only, with IBM MQ for z/OS Version 7.1 and 8.

Support is provided for using the classic (JMS 1.1) and simplified (JMS 2.0) interfaces, provided that CICS is connected to a level of IBM MQ queue manager that supports the appropriate level of JMS and is using a suitable version of the IBM MQ classes for JMS.

This support relies on service enhancements to IBM MQ. Version 7.1 requires MQ APAR PI29770 (built on fix pack 7.1.0.6) or any later fix pack level. V8.0 requires base APAR PI28482 and fix pack 8.0.0.2 or any later fix pack level. CICS TS V5.2 is also supported and requires APAR PI32151.

Learn more...

Passing an existing document into a Java program

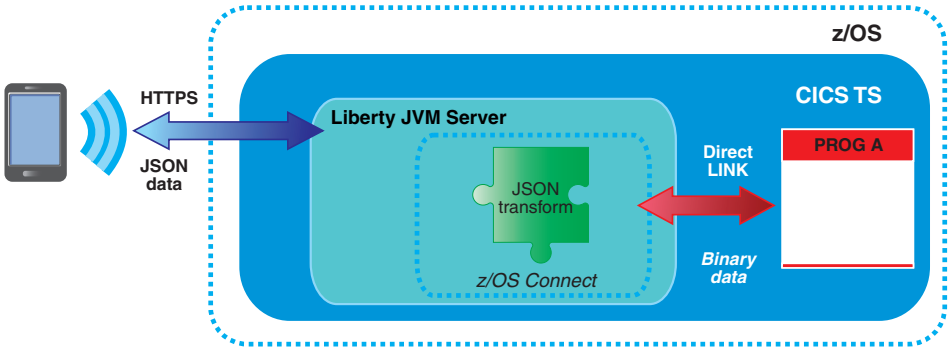
The document services of the JCICS application programming interface have a new constructor, `Document(byte[] docToken)`, to allow you to pass an existing document, such as one created by a COBOL program, into the Java program. The Java program can then work with that document through the JCICS API.

Learn more...

Back to top

z/OS Connect

IBM z/OS Connect is designed to enable better and more manageable connectivity between mobile systems and back end z/OS systems and applications. You can now use z/OS Connect inside a CICS region. It provides a consistent interface for mobile systems using REST and JSON, shields back end systems from having to understand those protocols and formats, and shields mobile application developers from having to understand CICS.



Learn more...

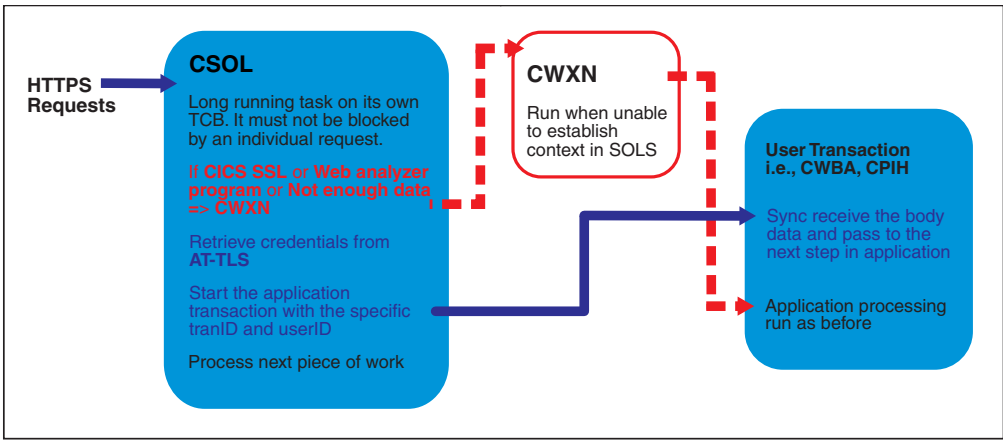
Back to top

HTTP requests are processed by directly-attached user transactions

The pipeline processing of HTTP requests is streamlined so that, in most situations, you no longer need an intermediate web attach task (CWXN transaction). This reduces CPU and memory overheads for most types of SOAP and JSON-based HTTP CICS web services.

The socket listener task, CSOL, is optimized to attach user transactions directly for fast-arriving HTTP requests. The web attach task is bypassed, which reduces the CPU time that is required to process each request.

To qualify for optimization, both the TCPIPSERVICE and URIMAP resource attributes, and the request, must meet specific criteria. Using the analyzer program disqualifies the HTTP requests from directly attaching the transaction.



Learn more...

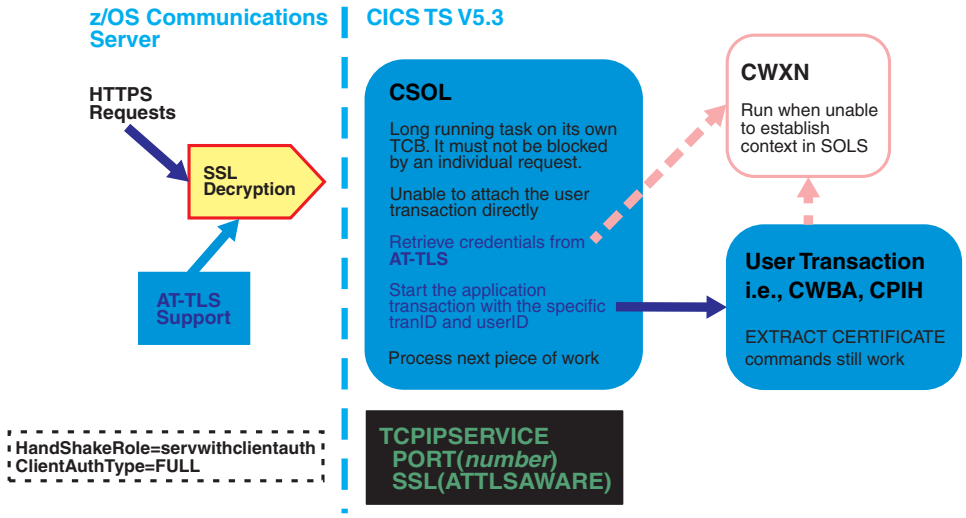
Back to top

AT-TLS support for inbound HTTPS requests

Inbound HTTPS requests can have SSL support provided by the Application Transparent Transport Layer Security (AT-TLS) feature of IBM® Communications Server. In CICS, TCPIPSERVICE resources define the association between ports and CICS services, including CICS web support. These resources can be configured as AT-TLS aware and obtain security information from AT-TLS. Using AT-TLS moves the role of configuring SSL(TLS) from CICS to AT-TLS, and can reduce CPU times, compared to using the CICS implementation of SSL(TLS).

You can define TCPIPSERVICE resources to get security information from AT-TLS. A new option, ATTLSAWARE, is added to the SSLTYPE parameter on commands to create, alter, and install TCPIPSERVICE through CEDA, CSD, and the resource definition utility DFHCSDUP.

If you specify ATTLSAWARE, CICS expects that the SSL session that will be used is configured and controlled by the AT-TLS function of TCP/IP. CICS inquires on the state of a socket connection established by a client. The query returns information, such as the CIPHER suite used for the TLS session and client certificate (if present).



Learn more...

Back to top

Tailoring values in HTTP server- and user-agent headers

Two new SIT parameters allow you to suppress or replace fields in the headers provided by CICS on HTTP requests and responses. HTTPSERVERHDR sets the value for the Server field. HTTPUSRAGENTHDR sets the value for the User-Agent field. These settings are reflected in the value that is returned on the PARTNER option of the INQUIRE IPCONN command.

Learn more...

Back to top

More threadsafe commands

Over thirty commands have been made threadsafe:

Table 3. Commands divided by type

INQUIRE commands	DISCARD commands	SET commands
INQUIRE ENQMODEL	DISCARD ENQMODEL	SET ENQMODEL
INQUIRE JOURNALMODEL	DISCARD JOURNALMODEL	SET JOURNALNAME
INQUIRE JOURNALNAME	DISCARD JOURNALNAME	SET TCLASS
INQUIRE RRMS	DISCARD TCPIPSERVICE	SET TCPIP
INQUIRE STORAGE	DISCARD TDQUEUE	SET TCPIPSERVICE
INQUIRE STREAMNAME	DISCARD TRANCLASS	SET TDQUEUE
INQUIRE SUBPOOL	DISCARD TSMODEL	SET TRANCLASS
INQUIRE TASK LIST	PERFORM SECURITY REBUILD	SET TSQNAME
INQUIRE TCLASS	PERFORM SSL REBUILD	SET TSQUEUE
INQUIRE TDQUEUE	WRITE OPERATOR	SET UOW

Table 3. Commands divided by type (continued)

INQUIRE commands	DISCARD commands	SET commands
INQUIRE TCPIP		SET WEB
INQUIRE TCPIPSERVICE		
INQUIRE TRANCLASS		
INQUIRE TSMODEL		
INQUIRE TSPOOL		
INQUIRE TSQNAME		
INQUIRE TSQUEUE		
INQUIRE UOW		
INQUIRE UOWENQ		
INQUIRE WEB		

Back to top

TRANSACTION resources as application entry points

An application entry point identifies a resource that is an access point to an application. Application entry points are used to control users' access to different versions of an application that is deployed on a platform. They are also used to create an application context to monitor the resource usage for applications and to identify an application being run. TRANSACTION resources can now be used as application entry points, in addition to the PROGRAM and URIMAP resources from previous releases. By defining a TRANSACTION as an application entry point you can now scope policies to a particular transaction ID, whether deployed with CICS cloud applications or in standalone CICS bundles.

New attributes are added to INQUIRE TRANSACTION:

- APPLICATION to return the name of the application for which the TRANSACTION resource is defined as an entry point.
- APPLMAJORVER, APPLMINORVER, APPLMICROVER to return the version of the application.
- OPERATION, to return the operation name of the application for which the TRANSACTION resource is defined as an application entry point.
- PLATFORM, to return the name of the platform on which the application is deployed and for which the TRANSACTION is declared as an application entry point.
- AVAILSTATUS, to return the availability of the application.

You can query these attributes with CEMT.

New statistics and messages provide information about the transaction entry points. A field, XMR_TRAN_ENTRYPOINT, is added to the resource statistics that are reported for transactions. This field shows whether the transaction is defined as an application entry point.

For more information, see Application entry points and INQUIRE TRANSITION, and Transactions: resource statistics.

Back to top

Changes to EXEC CICS ASSIGN

Retrieving the offset of an abend on ASSIGN

CICS already provides information about the abend code and abend program name on the ASSIGN command when ASRA, ASRB, and ASRD abends occur. This release adds the offset of the abend to the values that can be requested on ASSIGN. You can use this information to help with recovery routing in your applications.

Determining the length of a terminal input string on ASSIGN

The INPUTMSGLEN option allows you to test for the length of a terminal input string, *before* you receive the input.

Learn more...

Back to top

Returning consistent data on INQUIRE PROGRAM

EXEC CICS INQUIRE PROGRAM now returns consistent data about a program, when the request is made after a SET PROGRAM PHASEIN request but before the program is loaded. In previous releases, a mix of information was returned, such as the program length from the copy that was previously loaded, but the load library name from the version that was phased in.

Learn more...

Back to top

Deleting a channel

You can now explicitly delete all the containers that are in a channel. This allows the application that owns the channel to delete the storage for the channel and its associated containers before the channel goes out of scope: for example, in a long-running task. There is a new EXEC CICS command, DELETE CHANNEL, and equivalent JCICS method, void delete(), on the Channel class.

DELETE CHANNEL.

Back to top

Using the integrated translator for EXCI programs in PL/I

This release removes the restriction for programs in PL/I. The warning message, DFH7006, is removed, and a set of sample procedures is provided to show how to build an EXCI program using the integrated translator.

Learn more...

Back to top

Changes to the JSON transformer linkable interface

The JSON transformer linkable interface is extended to permit data transformations to and from JSON without the use of a JVM server.

If the DFHJSON-JVMSERVR container is not provided, or has a length of zero, this indicates to the DFHJSON program that data transformation is to be attempted by using components that are internal to CICS. Potential CPU reductions are offered for these operations, compared to performing them within a JVM server.

Querying a channel

You can now query the number of containers in a channel, and the total amount of storage that they occupy. There is a new EXEC CICS command, QUERY CHANNEL, and equivalent JCICS method, getContainerCount(), on the Channel class.

Learn more....

Back to top

New policy thresholds

Policies allow you to control the behaviour of running applications and platforms. You define threshold conditions and the actions to be taken when the conditions are met. This release extends the range of threshold policies.

EXEC CICS requests
: You can define threshold policies for the number of EXEC CICS (API and SPI) requests performed by a user task.

IBM MQ and IMS™ DLI requests
: You can define a threshold policy for the number of IBM MQ requests or IMS DLI requests issued by a CICS task. The database request rule type is extended with a DLI command rule item to define a threshold for the number of EXEC DLI or CALLDLI requests. A new rule type, WebSphere MQ request, defines a threshold for the number of MQI requests that are processed by the CICS-WebSphere MQ adapter for a CICS task.

Shared temporary storage (TS) queues
: You can define threshold policies for the amount of user data written to a shared TS queue, or the number of requests that are issued to a shared TS queue by a CICS task. In previous releases, policy thresholds could be set only on auxiliary and main TS queues.

Named counter requests
: You can define threshold policies for the number of EXEC CICS, EXEC CICS GET COUNTER and GET DCOUNTER requests performed by a user task.

Learn more....

Automatic recovery of application availability state

The availability status of an CICS cloud application is restored if you start or restart a CICS region in the platform after the time when you make the application available. In previous releases, an enabled status was restored, but you had to take additional action to make the application available for use.

Learn more...

Back to top

New private resource, PACKAGESET, for DB2® collections

The new private resource PACKAGESET makes the handling of DB2 data in a cloud environment easier and more flexible by enabling you to specify different DB2 collections across different environments. Using PACKAGESET, CICS can now issue the EXEC SQL SET CURRENT PACKAGESET command on behalf of the application. The PACKAGESET resource is optional, and existing mechanisms to manage different collections across different environments remain available, for example, multiple plans, dynamic plan exits, or setting the package set yourself in the application.

Learn more...

Back to top

Transaction tracking for CICS-MQ bridge

CICS transaction tracking identifies relationships between tasks in an application as they flow across CICS systems, and visualizes them in CICS Explorer®. Seeing these relationships simplifies problem determination, reporting, and auditing. Transaction tracking now covers transactions that are started by the CICS-MQ bridge.

Both IBM MQ trigger or bridge monitor tasks can use CICS transaction tracking by setting adapter fields in the origin data of the task that they start within a CICS region.

The user exit programming interface (XPI) for monitoring now includes a SET_TRACKING_DATA call on DFHMNTDX. This call sets the transaction tracking origin data tag for the issuing task.

Learn more...

Back to top

New statistics

There are new statistics to help in monitoring and managing the CICS system.

Peak depth of TD queues

A field, TQRPNITM, is added to the resource statistics that are reported for transient data queues. This field contains the peak depth of the transient data queue. This information can help you to take action if there are too many records on the queue.

Learn more...

Transaction CPU time

New metrics for transaction CPU time measurements are added to global CICS statistics. These statistics are gathered even if CICS monitoring is turned off. This capability gives you greater insight into the CPU use of CICS regions, without having to collect and process SMF 110 monitoring records.

Three new fields are added to the monitoring domain statistics. These fields show the accumulated transaction CPU time for each completed transaction during the statistics interval.

- MNGCPUT shows the total transaction CPU time accumulated for the CICS dispatcher-managed TCB modes used by the completed transactions.
- MNGTONCP shows the total transaction CPU time, on a standard processor, accumulated for the CICS dispatcher-managed TCB modes used by the completed transactions.
- MNGOFLCP shows the total transaction CPU time, on a standard processor, that was eligible for offload to a specialty processor (zIIP or zAAP). This time is accumulated for the CICS dispatcher-managed TCB modes used by the completed transactions.

Learn more...

Back to top

Additional information on EYU9XENF

The CICSPlex® SM batch utility, EYU9XENF, reports CICS ESSS (Environment Services System Services) information on a specific release in an LPAR. The utility report now clarifies the status of connections to the ESSS by showing the job ID or task ID of each one. It also shows the service level of the ESSS program.

Learn more...

Back to top

Increased security capabilities

Enhanced Password Algorithm
Stronger encryption of passwords comes from support for the Enhanced Password Algorithm. This algorithm was implemented in RACF® with APAR OA43999.

Signing on from 3270 with a Kerberos token: EXEC CICS SIGNON TOKEN
The new EXEC CICS SIGNON TOKEN command saves flowing a password. This command enables applications to validate a Kerberos security token, as determined by an external security manager, and to associate a new user ID with the current terminal. This command is threadsafe.

Learn more...

Requesting a PassTicket: EXEC CICS REQUEST PASSTICKET
A PassTicket is a secure representation of a password that a program can use to sign on to an application. Using a PassTicket in place of a password means that applications don't have to store passwords, nor ask users to re-enter them, in order to sign on to the target system. Passwords are not transmitted across the network. The REQUEST PASSTICKET command requests an external security manager (ESM), such as RACF®, to build a PassTicket. Message DFHXS1500 indicates that a PassTicket request failed because the request was not authorized by the external security manager. This command is threadsafe.

Learn more...

Offloading authentication requests to open TCBs
Offloading authentication requests to open TCBs reduces contention on resource-owning transaction control blocks (TCBs).

Identifying token type used in sign on

Exit XSNON has a new parameter, UEPSGTYP, that identifies if the SIGNON was by USERID or TOKEN. This new parameter enables you to see how many sign ons were done using the new Kerberos mechanism, and you can now log who performs the sign on.

Learn more...

Seeing the number of invalid password attempts

If you supply an incorrect password on a VERIFY PASSWORD request, the invalid attempt count is increased for the user ID. If you supply multiple incorrect passwords on successive VERIFY PASSWORD requests, the user ID might be revoked by the external security manager. CICS already issued message DFHXS1201 when you supplied an incorrect password on a VERIFY PASSWORD request. Now, when you supply a correct password following one or more invalid attempts, CICS issues message DFHXS1206. The new message includes a count of the invalid attempts that were made prior to the valid attempt.

AT-TLS support

The new TCPIPSERVICE option of SSL(ATTLSAWARE) allows CICS to fully use AT-TLS including access to client certificates to identify users. See AT-TLS support for inbound HTTPS requests for details.

Back to top

Controlling RNL processing through the SIT: NQRNL

CICS uses z/OS global resource serialization to provide sysplex-wide protection of application resources. z/OS global resource serialization includes resource name lists (RNLs) that specify the scope of resources. RNL processing can cause the scope of resources to change from the scope that was specified in the ENQMODEL resource definition in CICS. A new system initialization parameter, NQRNL, allows you to specify that z/OS global resource serialization should use RNL processing for enqueue and dequeue requests from CICS.

Learn more...

Back to top

Performance improvements

Internal performance improvements in CICS® Transaction Server for z/OS®, Version 5 Release 3 contribute to reducing CPU.

HTTPS requests with SSL support provided by CICS

Performance is improved for HTTPS requests where SSL support is provided by CICS. Although these requests still need the CWXN transaction, there is a reduction in the number of switches between task control blocks (TCBs).

Exploiting new hardware instructions in the IBM System z9®

CICS exploits new hardware instructions added on the IBM System z9 and later systems. These include the use of store clock fast, cache alignment of some key CICS control blocks, the use of prefetch, reduced lock contention within monitoring algorithms, improvements to the MRO session management algorithms, and further tuning of internal procedures.

These improvements in efficiency flow through to CICS, especially for CICS trace, CICS monitoring, and for MRO connections that have high session counts.

Learn more...

Performance tuning of HTTP connections

The new **SOTUNING** SIT parameter specifies whether performance tuning for HTTP connections occur to protect CICS from unconstrained resource demand. If the **SOTUNING** SIT parameter is set to the default value of **YES**, if the region becomes overloaded CICS temporarily stops listening for new HTTP connection requests. If overloading continues, CICS closes existing HTTP persistent connections and marks all new HTTP connections as non-persistent. These actions prevent oversupply of new HTTP work from being received and queued within CICS, allowing feedback to TCP/IP port sharing and Sysplex Distributor, promoting a balanced sharing of workload with other regions that are sharing the same IP endpoint and allowing the CICS region to recover more quickly.

If SOTUNING is set to **YES**, CICS periodically closes persistent connections to allow more efficient sharing of workload across regions that share IP endpoints, using technologies such as TCP/IP shared ports and Sysplex distributor.

Learn more...

Controlling the way JSON is parsed

A `java_parser` attribute is provided to the `<provider_pipeline_json>` element of the z/OS Connect for CICS pipeline configuration file, which allows you to control where the JSON input message gets parsed.

Learn more...

Back to top

Creating the USERAUTH attribute from the DFH0IPCC migration utility

The DFH0IPCC migration utility converts APPC and MRO connections to IPIC connection definitions. When a CONNECTION entry has ATTACHSEC values of LOCAL, IDENTIFY, or VERIFY, a USERAUTH attribute is created on the IPCONN definition.

Learn more...

Back to top

Additional checks during initialization

Checks during initialization for mismatch of program releases

CICS now checks during initialization that no CICS nucleus module comes from an earlier release than the release that is currently being started. If a mismatch is detected, message DFHLD0110I is issued, and CICS initialization stops.

Checks during initialization for required hardware

CICS now checks during initialization for the required level of hardware. This release requires a z9® or subsequent 64 bit z/Architecture® processor

with a configuration that has a terminal and a tape device capable of reading one of the types of tape on which CICS TS is supplied. For more information about prerequisites for this release, see Requirements for CICS TS.

Back to top

New features of DFHCSDUP

Copying individual resources between groups

DFHCSDUP COPY allows you to copy a single resource definition from one group to another. In previous releases, this was possible only with CEDA. The group from which the resource definitions are copied can be on the primary CSD, or it can be on another CSD file that is specified by the FROMCSD parameter on DFHCSDUP COPY.

Learn more...

Showing the maintenance level of the CSD

DFHCSDUP LIST shows the current status of the CSD file. If maintenance has been applied to the CSD an additional heading is shown:

```
LAST CSD MAINTENANCE UPGRADE USED filename AT PTF ptfnumber LEVEL
```

For example, maintenance applied through DFHCSDUP UPGRADE USING(DFHCURDM) indicates the PTF level of DFHCURDM that was used.

Learn more...

Back to top

New PHASEIN support for SET BUNDLE

The new PHASEIN support for the SET BUNDLE command enables the registration of a new version of an OSGi bundle with the OSGi framework, to replace any version currently registered. The new version of any OSGi services that are implemented by the new version of an OSGi bundle are then used by any new invocation of a Java program that is defined to use this OSGi service. Existing requests will continue to use the old version until the request completes.

Learn more...

Back to top

Using the extended addressing space (EAS) of an extended address volume (EAV) DASD volume

You can place CICS DFHRPL libraries, such as SDFHLOAD, and dynamic program LIBRARY concatenations in the EAS of an EAV DASD volume. In previous releases, if the DFHLDSVC module tried to access dynamic program LIBRARY resources from the EAS, an IEC142I 113-44 message was issued and the request failed.

Learn more...

Back to top

Avoiding the storm drain effect with CICS to IMS, IBM MQ, and VSAM RLS

CICS now informs the z/OS Workload Manager when requests fail because connections to IMS, IBM MQ, and VSAM RLS are unavailable. This extends the support for connections to DB2 in previous releases. The CICSPlex SM dynamic routing program uses this information to avoid routing more work to a CICS region that is affected by the "storm drain effect".

Learn more...

Back to top

More information provided by messages

Some new messages, and extensions to existing messages, help with problem diagnosis or automation. In addition to the messages referenced in this section, there are many new messages to support the new features of this release. You can find the full list in Changes to messages and codes.

Identifying when a shared data table is full

A CICS message is issued when an EXEC CICS WRITE command is issued to a shared data table fails because the data table is full. Previously, this information was returned only on a NOSPACE condition on the WRITE command. Being notified by a CICS message allows you to use automation packages to disable access to the data table.

Learn more...

Identifying the web service that is in error

To help with problem diagnosis in a situation where multiple web services are deployed in a requester pipeline, the CICS message, DFHPI0997, now identifies the web service that is in error. In previous releases, you couldn't identify from the message specifically which web service timed out, particularly when there were multiple services that were defined in the requester pipeline.

CICS issues a message when the CICS-MQ adapter is already active

For consistency with the behavior of the CICS-DB2 attach, CICS now issues a message, DFHMQ0245, when CICS makes an attempt to connect and the CICS-MQ adapter is already active and connected to a queue manager.

Back to top

Using HTTP TRACE: now inactive by default

HTTP TRACE is a debugging tool that you can use to diagnose certain types of connectivity problems. However, its support could lead to potential security vulnerabilities. In this release, HTTP TRACE requests are no longer supported by CICS. They receive an HTTP 501 (Not Implemented) response.

Back to top

Change of defaults on STGPROT and TRTABSZ

A couple of changes improve the serviceability of CICS Transaction Server for z/OS, Version 5 Release 3 .

Default setting for storage protection is YES

The default setting of the system initialization parameter that controls storage protection, STGPROT, is changed from NO to YES.

CICS uses storage protection facilities that are available in the operating system to prevent CICS code and control blocks from being overwritten accidentally by user application programs. The STGPROT parameter specifies whether your CICS region uses these facilities.

Learn more...

Default size for internal trace table is increased

The default setting of the system initialization parameter that controls the size of the CICS internal trace table, TRTABSZ, is increased from 4MB to 12MB.

Learn more...

Back to top

Changes to CICS Explorer®

CICS Explorer is included with CICS Transaction Server for z/OS, Version 5 Release 3 and is updated to support the new capabilities of this release.

Learn more...

Back to top

CICS is aware when a protected DB2 thread is canceled

A DB2ENTRY can specify that a number of threads are not terminated immediately when they are not in use, but they are protected for a period of time. These threads can be reused by subsequent transactions. In previous releases, the DB2 request could fail for a CICS transaction that was attempting to reuse a protected DB2 thread. CICS is now aware if a DB2 thread that it is trying to reuse has been canceled in DB2, and ensures that a subsequent transaction can use that thread correctly.

Back to top

Obsolete options

PASSWORD on FILE resource

The PASSWORD attribute on FILE resource definitions specified the 1- to 8-character password that was used to verify user access to the file. PASSWORD is obsolete because it is superseded by other RACF® control mechanisms.

ACTJVMTCBS and MAXJVMTCBS on INQUIRE and SET DISPATCHER

ACTJVMTCBS and MAXJVMTCBS are obsolete. ACTJVMTCBS was used only on INQUIRE DISPATCHER to inquire on the number of J8 and J9 mode TCBs currently allocated to user tasks. MAXJVMTCBS was used on both INQUIRE and SET DISPATCHER to process the maximum number of J8 and J9 mode TCBs allowed in the JVM pool. The JVM pool no longer exists.

BEAN, CORBASERVER, JVMPOOL, JVMPROFILE, and REQUESTMODEL on PERFORM STATISTICS

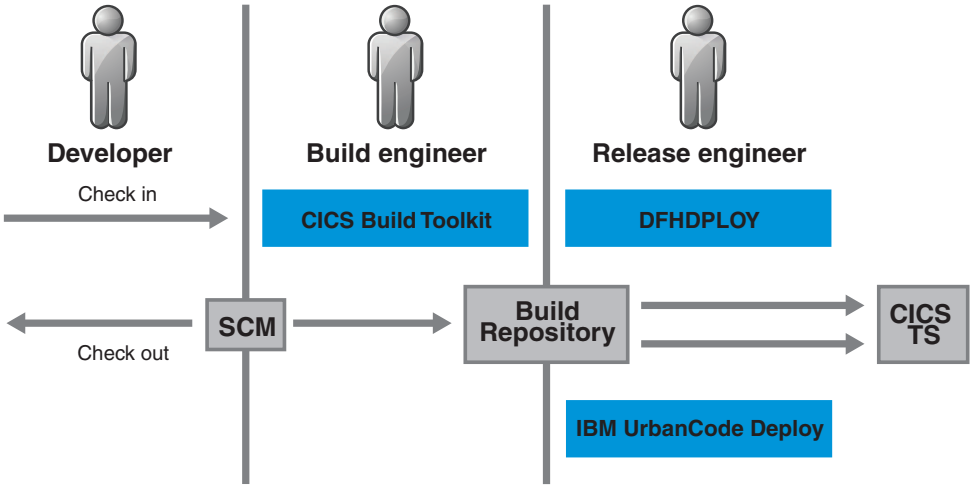
BEAN, CORBASERVER, JVMPOOL, JVMPROFILE, and REQUESTMODEL

options are obsolete. These options were used to request statistics for enterprise beans, CorbaServer entries, pooled JVMs and their profiles, and request models, which CICS no longer supports.

Back to top

Automation for application deployment

The CICS Build Toolkit, the JCL utility called DFHDPLOY, and the ability to use UrbanCode Deploy with CICS components all make it easier to automate builds and to deploy them to the right environments.



CICS Build Toolkit for automated builds

The CICS build toolkit provides a command-line interface for automating the building of CICS projects created using CICS Explorer. This includes CICS bundles, CICS applications, CICS application bindings, and projects that are referenced by CICS bundles, such as OSGi applications, OSGi bundles, enterprise applications and dynamic web projects.

You can automate the build of CICS applications by calling the CICS build toolkit from your build scripts. In a continuous integration environment, a build script can automatically run when developers make updates to their applications. This build script can check out the latest application version from source control along with its dependencies. The script then calls the CICS build toolkit to build the projects that form the application. Finally, the script copies the built projects to a suitable location, such as an artifact repository or a staging area on zFS.

You can automate the resolving of variables in CICS bundles by calling the CICS build toolkit from your deployment scripts. A script will typically use the built projects together with a properties file that defines values for variables in the target environment.

The CICS build toolkit is supported on z/OS, Linux, and Microsoft Windows operating systems.

Learn more...

Deploying through batch

DFHDPLOY is a batch utility to support the automated provisioning of CICS bundles, OSGi bundles within CICS bundles, and CICS applications. Commands in the DFHDPLOY utility allow you to connect to a CICSplex and deploy CICS resources, to set their state after deployment, and to remove them when they are no longer required. These commands are:

- SET APPLICATION
- SET CICSPLEX
- DEPLOY APPLICATION
- UNDEPLOY APPLICATION
- DEPLOY BUNDLE
- UNDEPLOY BUNDLE

Learn more...

Deploying through IBM UrbanCode Deploy

IBM UrbanCode Deploy orchestrates and automates the deployment of applications, middleware configurations, and database changes. CICS provides a plug-in for IBM UrbanCode Deploy. This plug-in allows IBM UrbanCode to install and discard resources, change the state - for example: enable or open - of resources, and perform actions such as new copy and phase-in of programs, and pipeline scans.

The CICS plug-in is available to download from the IBM UrbanCode website.

Learn more...

Back to top

Changes to documentation

Self-service PDFs

From IBM Knowledge Center, you can build your own collections of information. You can create a PDF of the collection, and download it for use offline. When IBM updates the information, any changes are reflected automatically in your collections.

This release provides collections of topics that match the manuals. These collections contain the same information as you find online in IBM Knowledge Center, but they have a structure that originated in previous versions of CICS. You can create PDFs from CICS manuals.

Program Directories in IBM Knowledge Center

CICS Program Directories are now provided online in IBM Knowledge Center. This is intended to make it easier for you to search them and use them alongside the other CICS information. Find the Program Directories here.

New look for Upgrading

Information about upgrading from earlier releases is now in one document. The document shows changes between versions, and the actions that you need to perform to get what you have today working on the new release. Find the Upgrading documentation here.

Parallel Sysplex® Application Migration information moved into CICS documentation from z/OS

The *z/OS Parallel Sysplex Application Migration* manual (SA22-7662) contained information that was relevant to CICS. This information, from

Part 1: Introduction and Part 2: Migrating CICS Applications, is updated and merged into the CICS documentation.

Back to top

Chapter 2. Changes to externals in this release

CICS Transaction Server for z/OS, Version 5 Release 3 changes a number of externals, including commands, transactions, resources, system initialization parameters, messages, trace and user exits.

For a summary of changes across all supported releases, see Changes between releases.

Table 4. Changes between releases

For application programmers	For system programmers
"Changes to the CICS API "	"Changes to installing" on page 30
"Changes to resource definitions" on page 22	"Changes to resource definitions" on page 22
"Changes to the CICS utilities" on page 22	"Changes to the CICS utilities" on page 22
"Changes to messages and codes" on page 23	"Changes to messages and codes" on page 23
	"Changes to compiler support" on page 31
	"Changes to SIT parameters" on page 31
	"Changes to JVM profiles" on page 31
	"Changes to control tables" on page 32
	"Changes to CICS SPI" on page 32
	"Changes to CICS-supplied transactions" on page 34
	"Changes to CICS monitoring" on page 34
	"Changes to statistics" on page 34
	"Changes to GLUEs and TRUEs" on page 35
	"Changes to XPI" on page 35
	"Changes to user-replaceable programs" on page 35
	"Changes to dump" on page 35
	"Changes to samples" on page 36
	"Changes to CICSPlex SM resource tables" on page 36

Note: The links in Table 1 are not exclusive to each job role, many links are of interest across job roles.

Changes to the CICS API

Table 5. Changes to EXEC CICS commands in this release

API	This release
ASSIGN	**CHANGED**: new options ABOFFSET to return the offset of an abend, and INPUTMSGLEN to test for the length of a terminal input string, *before* you receive the input.
DELETE CHANNEL	**NEW**
EXTRACT TCPIP	**CHANGED**: new value, ATTLSAWARE, on SSLTYPE parameter.
QUERY CHANNEL	**NEW**
REQUEST PASSTICKET	**NEW**

Table 5. Changes to EXEC CICS commands in this release (continued)

API	This release
SIGNON TOKEN	**NEW**
VERIFY TOKEN	**CHANGED**: ENCRYPTOKEN parameter returns a 4-byte encryption token when the TOKENTYPE is KERBEROS.
WRITE	**CHANGED**: a CICS message is issued when an EXEC CICS WRITE command is issued to a shared data table fails because the data table is full.
WRITE OPERATOR	**THREADSAFE**

Table 6. Changes to JCICS API in this release

Class	Method	This release
Channel	void delete()	**NEW**: to delete a channel
Channel	getContainerCount()	**NEW**: to query a channel
Document	Document (byte[] docToken)	**NEW**: to use a document that was created in a COBOL program

Back to top

Changes to resource definitions

Table 7. Changes to resource definitions in this release

Resource	This release
DFHCSDUP COPY	**NEW**: to copy a single resource definition from one group to another
DFHCSDUP LIST	**CHANGED**: shows the maintenance level of the CSD
FILE resources	**REMOVED**: PASSWORD attribute is obsolete
PACKAGESET	**NEW**: CICS application resource which represents a DB2 collection
TCPIPSERVICE resources	**CHANGED**: ATTLSAWARE option added to the SSLTYPE parameter

Back to top

Changes to the CICS utilities

Table 8. Changes to CICS-supplied utilities in this release

Utility	This release
DFHCSDUP	**CHANGED:** • Report data sets produced by the LIST function of DFHCSDUP now include release information for the CSD • New options: BEFORE and AFTER on ADD, resource type on COPY
Dump utilities (DFHDU 700 and DFHPD 700)	**CHANGED**: the name of the dump formatting utility changes every release in line with the level number for CICS. For this release, its name is DFHPD700.
The CICS trace utility program, DFHTU 700	**CHANGED**: the name of the trace formatting utility changes every release in line with the level number for CICS. For this release, its name is DFHPDU700.
The DFH0IPCC migration utility	**CHANGED**: creates USERAUTH attribute on the IPCONN definition if a CONNECTION has ATTACHSEC values of LOCAL, IDENTIFY, or VERIFY.

Table 8. Changes to CICS-supplied utilities in this release (continued)

Utility	This release
DFHDPLOY	**NEW**: provides a set of commands that can be used in a script to deploy, undeploy, and set the state of CICS applications and CICS bundles.
EUYXENF	**CHANGED**: shows the job ID or task ID or each connection to the ESSS, and the level of the ESSS program.

Back to top

Changes to messages and codes

Table 9. Changes to messages and codes in this release

New messages	Changed messages	Removed messages
• **DFHAM4961** indicates that the installation of a JVM server has failed because the PROFILEDIR was too long. • **DFHAP0006** indicates that an abend occurred at offset X. The module, application, version, and platform details are included. • **DFHCA4961** indicates that the installation of the JVMSERVER resource failed because the PROFILEDIR specified is too long. • **DFHDB2080** indicates that an abend has occurred in the set packageset program DFHD2SPS. • **DFHDB2083** indicates that the set packageset program DFHD2SPS is disabled. • **DFHDB2084** indicates that a link to the set packageset program DFHD2SPS failed. • **DFHDB2087** indicates that a resource definition for the set packageset program DFHD2SPS was not found.	• **DFHDB2003** now indicates which DB2 subsystem is already connected to. • **DFHEC1013** now includes optional inserts when the value specified for the CICSEPSchemaVersion or CICSEPSchemaRelease attribute is invalid. • **DFHEP2003** now includes optional inserts for when the value specified for the CICSEPSchemaVersion or CICSEPSchemaRelease attribute is invalid. • **DFHEP2007** now includes optional inserts for when the value specified for the CICSEPSchemaVersion or CICSEPSchemaRelease attribute is invalid. • **DFHMP2003** now includes an optional insert when the length of the policy name is invalid. • **DFHMP2004** now includes optional inserts if the value specified for the policySchemaVersion or policySchemaRelease attribute is invalid.	• **DFH7006** because the integrated translator can now be used with EXCI programs written in PL/I.

Table 9. Changes to messages and codes in this release (continued)

New messages	Changed messages	Removed messages
• **DFHDB2088** indicates that a fetch for the set packageset program DFHD2SPS failed. • **DFHDB2089** indicates that the CICS-DB2 set packageset program issued an EXEC SQL SET CURRENT PACKAGESET command, which failed with an SQL code. • **DFHDB8300** indicates that a CICS bundle has failed to install the PACKAGESET. • **DFHDB8301** indicates that a CICS bundle has failed to install a PACKAGESET because the resource name was not specified or is more than 128 characters in length. • **DFHDB8302** indicates that an abnormal end (abend) or program check has occurred in a module. This implies that there may be an error in the CICS code. Alternatively, unexpected data has been input, or storage has been overwritten. • **DFHDB8303** indicates that a CICS bundle has successfully installed a named PACKAGESET on a named platform, as either enabled or disabled. • **DFHDB8304** indicates that a CICS bundle has successfully installed the named PACKAGESET of a named application, version, and platform, as either enabled or disabled. • **DFHDB8305** indicates that the named PACKAGESET on a named platform has been enabled or disabled. • **DFHDB8306** indicates that the named PACKAGESET of a named application, version, and platform has been enabled or disabled.	• **DFHPG0113** now returns more information about the status of the application entry point. The application entry point can be set as disabled and unavailable, or disabled. The program that was adopted by the application as a program entry point can be either replaced or deleted. • **DFHPI0997** now identifies the web service that is in error. Previously, you couldn't identify from the message specifically which web service timed out, particularly when there were multiple services that were defined in the requester pipeline. • **DFHSJ0911** now returns an error in creating a JVM server if the PROFILEDIR is over the maximum length of 240 characters. • **DFHSJ1104** now specifies if the OSGi bundle has not been **installed** or if it has not been **enabled**. • **DFHSJ1105** now includes the bundle version. • **EYUXL0905E** now includes service level and prefix information.	

Table 9. Changes to messages and codes in this release (continued)

New messages	Changed messages	Removed messages
• **DFHDB8307** indicates that the PACKAGESET on the named platform has been discarded. • **DFHDB8308** indicates that the PACKAGESET of the named application, version, and platform has been discarded. • **DFHDB8309** indicates that the CICS bundle has failed to install one PACKAGESET because another PACKAGESET is already installed on the platform. Only one PACKAGESET can be installed on a platform. • **DFHDB8310** indicates that the CICS bundle failed to install one PACKAGESET because another PACKAGESET is already installed for the application, version, and platform. Only one PACKAGESET can be installed as part of an application. • **DFHDB8311** indicates that the CICS bundle has failed to install a PACKAGESET. • **DFHFC0432** indicates that a data table request for a given file has failed because the table is full. The reason for it being full is included. Previously, this information was returned only on a NOSPACE condition on EXEC CICS WRITE. • **DFHFC6044** indicates that a file in a bundle has moved to disabled status. • **DFHKE0108** and **DFHKE0109** indicate that CICS detected hardware earlier than IBM z9 during initialization. CICS initialization stops. • **DFHLD0110** indicates that there is a mismatch between the CICS release being started during initialization and the release of the CICS nucleus modules. CICS initialization stops.		

Table 9. Changes to messages and codes in this release (continued)

New messages	Changed messages	Removed messages
• **DFHLD0519** indicates that the installation of LIBRARY has failed because a LIBRARY of that name is already installed. The LIBRARY name is included. • **DFHMP3007** and **DFHMP3008** indicate that the task for operation of application version on platform has exceeded a policy threshold. Details are included for transaction ID, operation, application, version, platform, bundle ID, policy name, rule name, rule type, category, threshold, and current count. • **DFHMQ0245** indicates that the CICS-MQ Adapter is already active. • **DFHMQ0793** indicates that you can check for associated messages to determine whether the WebSphere MQ message was reprocessed or moved to another queue. Previous messages might explain why the remote system was unable to commit. • **DFHPG0114** indicates that an application entry point for operation has been set because PROGRAM has been replaced or deleted. • **DFHPG0313** indicates that a PROGRAM has been made unavailable as an application entry point for operation. • **DFHPG0314** indicates an application entry point for an operation has been disassociated with a PROGRAM. • **DFHPG0503** indicates that the public version of the application entry point program for operation of the application has changed to a different version on a different platform. This supersedes the previous version on a previous platform. • **DFHSJ1107** indicates that a particular version of a bundle has been enabled or disabled. • **DFHSJ1108** indicates that an attempt to install a bundle into a jvmserver has failed.		

Table 9. Changes to messages and codes in this release (continued)

New messages	Changed messages	Removed messages
• **DFHSJ1109** indicates that an attempt to determine the highest semantic version of a bundle has failed while processing a SET BUNDLE PHASEIN command. • **DFHSJ1110** indicates that the phasein of a new version of a bundle has completed successfully. • **DFHSR0002** indicates that an abend has occurred at offset X. The module, application, version and platform details are included. • **DFHSM0121** indicates that the RENTPGM parameter is set to PROTECT and, as a result, reentrant programs are loaded into read-only storage. Previously, a message was issued only if RENTPGM is set to NOPROTECT. • **DFHSO0147** indicates the TCP/IP listener task has received a connection from a client that is not secure. The TCPIPSERVICE is defined with SSL(ATTLSAWARE) so new connections must be secured by AT-TLS. • Four new messages show the status of CICS internal trace and GTF trace. These messages are shown whether the trace is stopped and started through system initialization parameter (INTTR and GTFTR), transaction (CETR and CEMT), or EXEC CICS command. – **DFHTR0130** indicates that internal trace is being started. DFHTR0140 GTF trace is being started. DFHTR0141 GTF trace has been stopped. – **DFHTR0131** indicates that internal trace has been stopped. – **DFHTR0140** indicates that GTF trace is being started. – **DFHTR0141** indicates that GTF trace has been stopped.		

Table 9. Changes to messages and codes in this release (continued)

New messages	Changed messages	Removed messages
• **DFHTR3004** indicates that the auxiliary trace print program, DFHTU700, could not obtain the necessary storage to generate the trace summary table. The print job continues, but the trace summary table is not produced. • **DFHWB0806** indicates that an application entry point for an operation has been associated or disassociated with a URIMAP, and now includes the operation name as an insert. • **DFHWB0809** indicates that an application entry point for an operation has been associated or disassociated with a URIMAP. • **DFHWB0810** indicates that a URIMAP has been made available or unavailable as an application entry point for an operation. • **DFHWB1581** indicates that an application entry point for the operation of an application has been set disabled and unavailable because URIMAP has been deleted. The version and platform names are included. • **DFHWB1582** indicates that an application entry point for the operation has been set disabled and unavailable because URIMAP has been deleted.		

Table 9. Changes to messages and codes in this release (continued)

New messages	Changed messages	Removed messages
• A number of messages provide information about using transactions as application entry points: – **DFHXM0604** indicates that the specified application has set a transaction as an entry point because the resource is already defined as an entry point. – **DFHXM0605** indicates that the specified application has set a transaction as an application entry point. – **DFHXM0606** indicates that the application has removed the entry point from the transaction. – **DFHXM0607** indicates that the transaction resource name is invalid. – **DFHXM0608** indicates the availability status of a transaction after a change to an application entry point. – **DFHXM0609** indicates that an application has changed the availability status of a transaction application entry point. – **DFHXM0610** indicates that an application has changed the association of an application entry point from an application with a specified transaction. – **DFHXM0611** indicates that an application entry point is unavailable because the specified transaction was deleted. • **DFHXS1206** indicates the number of invalid attempts that preceded input of a valid password. The count of password failures is reset and CICS continues. • **DFHXS1500** indicates that a PassTicket request failed because the request was not authorized by the external security manager.		

Table 10. Changes to abend codes in this release

New abend codes	Changed abend codes	Removed abend codes
• **AD31** occurs if an unexpected EXCEPTION response has occured on a local call to a directory manager (DD) domain to locate a PACKAGESET control block. • **AD32** occurs when an error (INVALID or DISASTER response) has occurred on a local call to a directory manager (DD) domain to locate a PACKAGESET control block. • **AD35** occurs when the CICS-DB2 attachment facility fails to link to the set packageset program DFHD2SPS because it is disabled. • **AD36** occurs when the CICS-DB2 attachment facility fails to link to the set packagset program DFHD2SPS because no program definition was found. • **AD37** occurs when the CICS-DB2 attachment facility fails to link to the set packagset program DFHD2SPS because the program could not be loaded. • **AD38** occurs when the CICS-DB2 attachment facility fails to link to the set packagset program DFHD2SPS because the program is defined as remote. • **AD39** occurs when the CICS-DB2 attachment facility fails to link to the set packagset program DFHD2SPS. • **AD4A** occurs when the CICS-DB2 set packageset program issues a EXEC SQL SET CURRENT PACKAGESET command fail. • **AWBD** occurs if a web receive either received an exception response or failed to authenticate the user.		

Back to top

Changes to installing

- CICS checks during initialization that no CICS nucleus module comes from an earlier release than the release that is currently being started.
- CICS checks during initialization for the required level of hardware.
- You can place CICS DFHRPL libraries, such as SDFHLOAD, and dynamic program LIBRARY concatenations in the EAS of an EAV DASD volume.

Back to top

Changes to compiler support

Table 11. Changes to compiler support in this release

Procedure	This release
DFHZXTCL	**NEW**: translates, compiles, and link-edits EXCI COBOL application programs using the integrated CICS translator.
DFHZXTDL	**NEW**: translates, compiles, and link-edits EXCI C application programs using the integrated CICS translator.
DFHZXTEL	**NEW**: translates, compiles, and link-edits EXCI C++ application programs using the integrated CICS translator.
DFHZXTPL	**NEW**: translates, compiles, and link-edits EXCI PL/I application programs using the integrated CICS translator.

Back to top

Changes to SIT parameters

Table 12. Changes to system initialization parameters in this release

API	This release
ENCRYPTION	**DEPRECATED**: replaced by MINTLSLEVEL, although ENCRYPTION remains available for compatibility with previous releases. SSLV3 is removed as an option.
HTTPSERVERHDR	**NEW**: sets the value for HTTP Server field
HTTPUSRAGENTHDR	**NEW**: sets the value for HTTP User-Agent field
MINTLSLEVEL	**NEW**: replaces ENCRYPTION
NQRNL	**NEW**: specifies that z/OS global resource serialization uses RNL processing for enqueue and dequeue requests from CICS
SOTUNING	**NEW**: controls the performance tuning for HTTP connections
STGPROT	**CHANGED** : default is changed to YES
TRTABSZ	**CHANGED** : default is increased to 12MB
VERIFY TOKEN	**CHANGED**: ENCRYPTOKEN parameter returns a 4-byte encryption token when the TOKENTYPE is KERBEROS.

Back to top

Changes to JVM profiles

Table 13. Changes to JVM profiles in this release

Option	This release
JVMTRACE	**CHANGED**: default location changed from WORK_DIR to WORK_DIR/applid/jvmserver unless **LOG_PATH_COMPATABILITY=true**
LOG_FILES_MAX	**NEW**: Allows you to specify how many JVM server log files should be retained in the USS filing system
OSGI_CONSOLE	**NEW**: adds the JARs necessary to attach and run an OSGi console to your OSGi framework in the JVMSERVER
STDOUT	**CHANGED**: default location changed from WORK_DIR to WORK_DIR/applid/jvmserver unless **LOG_PATH_COMPATABILITY=true**
STDERR	**CHANGED**: default location changed from WORK_DIR to WORK_DIR/applid/jvmserver unless **LOG_PATH_COMPATABILITY=true**

Table 13. Changes to JVM profiles in this release (continued)

Option	This release
TZ	**CHANGED**: TZ setting is now respected for JVMSERVER timestamped files

Back to top

Changes to control tables

Table 14. Changes to resource definitions in this release

Resource	This release
DFHMCT TYPE=INITIAL	**CHANGED**: TSQUEUE option includes information about requests to shared temporary storage queues.
DFHMCT TYPE=RECORD	**CHANGED**: allows for the new DFHTEMP fields to count TS queue requests.

Back to top

Changes to CICS SPI

Table 15. Changes to the system programming interface commands in this release

Command	This release
INQUIRE DISPATCHER	**OBSOLETE**: the options ACTJVMTCBS and MAXJVMTCBS are obsolete.
INQUIRE ENQMODEL	**THREADSAFE**
INQUIRE IPCONN	**CHANGED**: the value in the PARTNER option on the INQUIRE IPCONN command is affected by the new system initialization parameter, HTTPUSRAGENTHDR.
INQUIRE JOURNALMODEL	**THREADSAFE**
INQUIRE JOURNALNAME	**THREADSAFE**
INQUIRE JVMSERVER in Reference > System programming	**CHANGED**: when running INQUIRE JVMSERVER on a JVM server with an instance of Liberty inside it, the baseline level of current thread count will not be 0, even if no threads are running. This is because threads are now pooled within Liberty for efficiency.
INQUIRE RRMS	**THREADSAFE**
INQUIRE STORAGE	**THREADSAFE**
INQUIRE STREAMNAME	**THREADSAFE**
INQUIRE SUBPOOL	**THREADSAFE**
INQUIRE SYSTEM	**CHANGED:** New value on CICSTSLEVEL to reflect latest version, release, or modification number. New value on RELEASE to reflect latest level of CICS code.
INQUIRE TASK LIST	**THREADSAFE**
INQUIRE TCLASS	**THREADSAFE**
INQUIRE TCPIP	**THREADSAFE**
INQUIRE TCPIPSERVICE	**THREADSAFE**
INQUIRE TDQUEUE	**THREADSAFE**
INQUIRE TRANCLASS	**THREADSAFE**

Table 15. Changes to the system programming interface commands in this release (continued)

Command	This release
INQUIRE TRANSACTION	**CHANGED**: new attributes to allow transaction resources to be used as application entry points.
INQUIRE TSMODEL	**THREADSAFE**
INQUIRE TSPOOL	**THREADSAFE**
INQUIRE TSQUEUE/TSQNAME	**THREADSAFE**
INQUIRE UOW	**THREADSAFE**
INQUIRE UOWENQ	**THREADSAFE**
INQUIRE WEB	**THREADSAFE**
DISCARD ENQMODEL	**THREADSAFE**
DISCARD JOURNALMODEL	**THREADSAFE**
DISCARD JOURNALNAME	**THREADSAFE**
DISCARD TCPIPSERVICE	**THREADSAFE**
DISCARD TDQUEUE	**THREADSAFE**
DISCARD TRANSCLASS	**THREADSAFE**
DISCARD TSMODEL	**THREADSAFE**
PERFORM SECURITY REBUILD	**THREADSAFE**
PERFORM SSL REBUILD	**THREADSAFE**
PERFORM STATISTICS RECORD	**OBSOLETE**: the options BEAN, CORBASERVER, JVMPOOL, JVMPROFILE, and REQUESTMODEL are obsolete.
SET BUNDLE	**NEW**: new COPY option to register a new version of an OSGi bundle with the OSGi framework to replace any version currently registered.
SET BUNDLE PHASEIN	**CHANGED:** New option: COPY
SET DISPATCHER	**OBSOLETE**: the options ACTJVMTCBS and MAXJVMTCBS are obsolete.
SET ENQMODEL	**THREADSAFE**
SET JOURNALNAME	**THREADSAFE**
SET CLASS	**THREADSAFE**
SET TCPIP	**THREADSAFE**
SET TCPIPSERVICE	**THREADSAFE**
SET TDQUEUE	**THREADSAFE**
SET TRANCLASS	**THREADSAFE**
SET TSQUEUE	**THREADSAFE**
SET UOW	**THREADSAFE**
SET WEB	**THREADSAFE**

Back to top

Changes to CICS-supplied transactions

Table 16. Changes to CICS-supplied transactions in this release

Transaction	This release
INQUIRE TRANSACTION	**CHANGED**: mew attributes added: APPLICATION, APPLMAJORVER, APPLMINORVER, APPLMICROVER, OPERATION, PLATFORM, AVAILSTATUS

Back to top

Changes to CICS monitoring

Table 17. Changes to monitoring data in this release

Data	This release
Performance data in group DFHCICS	**NEW**: new field, NCGETCT, to count the number of EXEC CICS GET COUNTER and GET DCOUNTER requests issued by a task.
Performance data in group DFHTASK	**NEW**: new field 429, DSAPTHWT, for the dispatcher to allocate pthread wait time. **NEW**: new fields to count the number of TS GET and TSS PUT requests issued by a user task **CHANGED**: field 044 (TSGETCT) counts the number of TS GET requests to either auxiliary or main temporary storage. Field 092 (TSTOTCT) includes the number of requests to shared TS queues, as counted in fields TSGETSCT (READQ shared) and TSPUTSCT (WRITEQ shared).
Transaction resource class data	**NEW**: new fields to count the number of TS GET and TS PUT requests issued by a user task, and to count the total length of all items got from, or written to, this shared TS queue. **CHANGED**: • The length of the transaction resource record is extended by 120 bytes for each TS queue. • MNR_TSQUEUE_GET and MNR_TSQUEUE_PUT_AUXQ no longer count the number of GET and PUT requests to a shared TS queue. This is now done in the new fields MNR_TSQUEUE_GET_SHR and MNR_TSQUEUE_PUT_SHR. • MNR_TSQUEUE_GET_ITEML and MNR_TSQUEUE_PUT_ITEML no longer include the length of items written to a shared TS queue. This is now done in the new fields MNR_TSQUEUE_GET_SHR_ITEML and MNR_TSQUEUE_PUT_SHR_ITEML.

Back to top

Changes to statistics

Table 18. Changes to statistics in this release

Statistics	This release
Monitoring domain: global statistics	**NEW**: three new fields, MNGCPUT, MNGTONCP, and MNGOFLCP, to show the accumulated transaction CPU time for each completed transaction
TCP/IP: global statistics	**NEW**: a number of new fields that show the effects of performance tuning for HTTP connections

Table 18. Changes to statistics in this release (continued)

Statistics	This release
Transactions: resource statistics	**NEW**: new field, XMR_TRAN_ENTRYPOINT, identifies a transaction as an application entry point
Transient data: resource statistics - intrapartition transient data queues	**NEW**: new field, TQRPNITM, reports the peak depth of the transient data queue
URIMAP definitions: global statistics	**NEW**: new field, WBG_URIMAP_DIRECT_ATTACH, reports the number of HTTP requests that are processed by direct alias attach instead of through the CWXN transaction.

Back to top

Changes to GLUEs and TRUEs

Table 19. Changes to global user exits and task-related user exits in this release

Exit	This release
Message domain exit XMEOUT	**CHANGED**: change to application version format affecting UEPINSA
Exit XSNON	**NEW**: new parameter, UEPSGTYP, identifies if the SIGNON was by USERID or TOKEN.

Back to top

Changes to XPI

Table 20. Changes to the exit programming interface in this release

Call	This release
The BIND_CHANNEL call on DFHPGCHX	**NEW** to bind a channel to a task.
The SET_TRACKING_DATA call on DFHMNTDX	**NEW** to sets the transaction tracking origin data tag for the issuing task.

Back to top

Changes to user-replaceable programs

Table 21. Changes to the user-replaceable programs in this release

Program	This release
Distributed routing program	**CHANGED**: DYRABNLC is now set when connections are unavailable to DB2®, IMS™, IBM® MQ, or VSAM RLS

Back to top

Changes to dump

Table 22. Changes to CICS dump in this release

	This release
Formatted system dump	**NEW**: the TK keyword allows you to include a summary table for all tasks, or a specified task, in a formatted system dump. A new module, DFHTKDUF, is added to the CICS-supplied sample system dump formatting program.

Back to top

Changes to samples

Table 23. Changes to the samples provided with CICS in this release

	This release
DFH$DPLY	**NEW:** annotated DFHDPLOY JCL to deploy, undeploy, and optionally set a sample bundle and application in a CICSplex. The sample is supplied in CICSTS53.CICS.SDFHSAMP.

Back to top

Changes to CICSPlex SM resource tables

Table 24. Changes to the resource tables provided by CICSPlex SM in this release. There are also some changes to the help text to reflect changes to fields and options, or in response to feedback.

Resource table	**This release**
ATTR	**CHANGED**: update to validity and not modifiable bit mappings for E700
BUNDLE	**CHANGED**: new PHASEIN action
FILEDEF	**CHANGED**: PASSWORD field is obsolete
HTASK	**CHANGED**: new fields: TSGETSCNT, TSPUTSCNT, NCGETCNT, WBJSNRQL, WBJSNRPL and DSAPTHWT
HTASK Resource Table	**CHANGED**: includes counts for requests to a named counter server
JVMSERV	**CHANGED**: SRVTHRWTIME field data type changed to a store clock
LOCTRAN	**CHANGED**: new fields: APPLICATION, PLATFORM, OPERATION, APPLMAJORVER, APPLMINORVER, APPLMICROVER and AVAILSTATUS fields
METAPARM	**CHANGED**: updated the validity bit mappings for E700
MONITOR	**CHANGED**: update MNGAUTRT and MNGPUTRT field data types to an interval timestamp delta. New fields: MNGCPUT, MNGTONCP and MNGOFLCP
OBJACT	**CHANGED**: updated the validity bit mappings for E700
OBJECT	**CHANGED**: updated the validity bit mappings for E700
PROGDEF	**CHANGED**: updated the JVMCLASS field for OSGi and Liberty
REMTRAN	**CHANGED**: new fields: APPLICATION, PLATFORM, OPERATION, APPLMAJORVER, APPLMINORVER, APPLMICROVER and AVAILSTATUS
TASK	**CHANGED**: new fields: WBSRSPBL field. Added TSGETSCNT, TSPUTSCNT, NCGETCNT, WBJSNRQL, WBJSNRPL and DSAPTHWT
Task Resource Table	**CHANGED**: includes counts for requests to a named counter server
TASKASSC	**CHANGED**: new fields: ODSERVERPORT and ODTCPIPS
TASKTSQ	**CHANGED**: new fields: TSQGETSHR, TSQPUTSHR, TSQPUTSHR and PUTSHRITEML
TCPIPGBL	**CHANGED**: new fields: SOTUNING, TIMATACCLIM, LTIMPAUSLIST, STOPPINGPERS, TIMSTOPPERS, LTIMSTOPPERS, TIMMNONPERS, TIMDISCATMAX and PAUSINGLIST
TCPIPS	**CHANGED**: new value ATTLAWARE on SSLTYPE

Table 24. Changes to the resource tables provided by CICSPlex SM in this release (continued). There are also some changes to the help text to reflect changes to fields and options, or in response to feedback.

Resource table	This release
URIMAP	**CHANGED**: summary option for fields APPLICATION, PLATFORM and OPERATION changed to DIFF
URIMAPGBL	**CHANGED**: DRCTATTCOUNT field

Back to top

Notices

This information was developed for products and services offered in the U.S.A. IBM may not offer the products, services, or features discussed in this document in other countries. Consult your local IBM representative for information on the products and services currently available in your area. Any reference to an IBM product, program, or service is not intended to state or imply that only that IBM product, program, or service may be used. Any functionally equivalent product, program, or service that does not infringe any IBM intellectual property right may be used instead. However, it is the user's responsibility to evaluate and verify the operation of any non-IBM product, program, or service.

IBM may have patents or pending patent applications covering subject matter described in this document. The furnishing of this document does not give you any license to these patents. You can send license inquiries, in writing, to:

IBM Director of Licensing
IBM Corporation
North Castle Drive
Armonk, NY 10504-1785
U.S.A.

For license inquiries regarding double-byte (DBCS) information, contact the IBM Intellectual Property Department in your country or send inquiries, in writing, to:

Intellectual Property Licensing
Legal and Intellectual Property Law
IBM Japan, Ltd.
19-21, Nihonbashi-Hakozakicho, Chuo-ku
Tokyo 103-8510, Japan

The following paragraph does not apply in the United Kingdom or any other country where such provisions are inconsistent with local law:

INTERNATIONAL BUSINESS MACHINES CORPORATION PROVIDES THIS PUBLICATION "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE. Some states do not allow disclaimer of express or implied warranties in certain transactions, therefore this statement may not apply to you.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. IBM may make improvements and/or changes in the product(s) and/or the program(s) described in this publication at any time without notice.

Licensees of this program who want to have information about it for the purpose of enabling: (i) the exchange of information between independently created programs and other programs (including this one) and (ii) the mutual use of the information which has been exchanged, should contact IBM United Kingdom Laboratories, MP151, Hursley Park, Winchester, Hampshire, England, SO21 2JN.

Such information may be available, subject to appropriate terms and conditions, including in some cases, payment of a fee.

The licensed program described in this document and all licensed material available for it are provided by IBM under terms of the IBM Customer Agreement, IBM International Programming License Agreement, or any equivalent agreement between us.

Privacy Policy Considerations

IBM Software products, including software as a service solutions, ("Software Offerings") may use cookies or other technologies to collect product usage information, to help improve the end user experience, to tailor interactions with the end user or for other purposes. In many cases no personally identifiable information is collected by the Software Offerings. Some of our Software Offerings can help enable you to collect personally identifiable information. If this Software Offering uses cookies to collect personally identifiable information, specific information about this offering's use of cookies is set forth below.

CICSPlex SM Web User Interface :

For the WUI main interface: Depending upon the configurations deployed, this Software Offering may use session and persistent cookies that collect each user's user name and other personally identifiable information for purposes of session management, authentication, enhanced user usability, or other usage tracking or functional purposes. These cookies cannot be disabled.

For the WUI Data Interface: Depending upon the configurations deployed, this Software Offering may use session cookies that collect each user's user name and other personally identifiable information for purposes of session management, authentication, or other usage tracking or functional purposes. These cookies cannot be disabled.

For the WUI Hello World page: Depending upon the configurations deployed, this Software Offering may use session cookies that collect no personally identifiable information. These cookies cannot be disabled.

For CICS Explorer: Depending upon the configurations deployed, this Software Offering may use session and persistent preferences that collect each user's user name and password, for purposes of session management, authentication, and single sign-on configuration. These preferences cannot be disabled, although storing a user's password on disk in encrypted form can only be enabled by the user's explicit action to check a check box during sign-on.

If the configurations deployed for this Software Offering provide you as customer the ability to collect personally identifiable information from end users via cookies and other technologies, you should seek your own legal advice about any laws applicable to such data collection, including any requirements for notice and consent.

For more information about the use of various technologies, including cookies, for these purposes, see IBM's Privacy Policy at http://www.ibm.com/privacy and IBM's Online Privacy Statement at http://www.ibm.com/privacy/details the section entitled "Cookies, Web Beacons and Other Technologies" and the "IBM Software Products and Software-as-a-Service Privacy Statement" at http://www-01.ibm.com/software/info/product-privacy/.

Trademarks

IBM, the IBM logo, and ibm.com® are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at Copyright and trademark information at www.ibm.com/legal/copytrade.shtml.

Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle and/or its affiliates.

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.

Readers' Comments — We'd Like to Hear from You

CICS Transaction Server for z/OS
Version 5 Release 3
What's New

Publication No. GC34-7437-00

We appreciate your comments about this publication. Please comment on specific errors or omissions, accuracy, organization, subject matter, or completeness of this book. The comments you send should pertain to only the information in this manual or product and the way in which the information is presented.

For technical questions and information about products and prices, please contact your IBM branch office, your IBM business partner, or your authorized remarketer.

When you send comments to IBM, you grant IBM a nonexclusive right to use or distribute your comments in any way it believes appropriate without incurring any obligation to you. IBM or any other organizations will only use the personal information that you supply to contact you about the issues that you state on this form.

Comments:

Thank you for your support.

Submit your comments using one of these channels:
- Send your comments to the address on the reverse side of this form.
- Send a fax to the following number: +44 1962 816151
- Send your comments via email to: idrcf@uk.ibm.com

If you would like a response from IBM, please fill in the following information:

Name	Address
Company or Organization	
Phone No.	Email address

Readers' Comments — We'd Like to Hear from You
GC34-7437-00

Cut or Fold
Along Line

Fold and Tape | **Please do not staple** | Fold and Tape

PLACE
POSTAGE
STAMP
HERE

IBM United Kingdom Limited
User Technologies Department (MP189)
Hursley Park
Winchester
Hampshire
United Kingdom
SO21 2JN

Fold and Tape | **Please do not staple** | Fold and Tape

Cut or Fold
Along Line

GC34-7437-00