

CICS Transaction Server for z/OS  
Version 6 Release 1

*What's New*



**Note**

Before using this information and the product it supports, read the information in [Product Legal Notices](#).

This edition applies to the IBM® CICS® Transaction Server for z/OS®, Version 5 Release 6 (product number 5655-Y305655-BTA ) and to all subsequent releases and modifications until otherwise indicated in new editions.

© **Copyright International Business Machines Corporation 1974, 2020.**

US Government Users Restricted Rights – Use, duplication or disclosure restricted by GSA ADP Schedule Contract with IBM Corp.

---

# Contents

**About this PDF.....v**

**Chapter 1. What's new?..... 1**

**Chapter 2. Changes to externals in this release..... 13**

**Notices.....27**



## About this PDF

---

"What's New" 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. It also summarizes any changes to CICS externals, such as the application programming interface, for this version of CICS TS. "What's New" is primarily aimed at application programmers and system programmers who need to understand the scope of the new release.

For details of the terms and notation used in this book, see [Conventions and terminology used in the CICS documentation](#) in IBM Knowledge Center.

### **Date of this PDF**

This PDF was created on May 28th 2020.



# Chapter 1. What's new?

CICS Transaction Server for z/OS, Version 5 Release 6 enables development teams to create powerful, mixed-language, applications while allowing the operational teams to manage these applications from a single point of control.

New features in CICS Explorer® are described in the [CICS Explorer product documentation](#).

The following features and enhancements are delivered as part of CICS Transaction Server for z/OS, Version 5 Release 6 , and cover the following areas:

- [Java support features](#)
- [System management](#)
- [Security](#)
- [Performance](#)
- [Resilience](#)
- [Continuous delivery APARs](#)
- [“Changes to documentation” on page 12](#)

The features in the following tables are not exclusive to each of the job roles shown; several are of interest across roles.

## Java support features:

Table 1. Language support features provided with CICS TS for z/OS, Version 5.6	
For application developers	For system programmers
<a href="#">“New API makes CICS bundle deployment faster” on page 6</a>	<a href="#">“Users product extension capability” on page 8</a>
<a href="#">Java™ build toolchain support</a>	<a href="#">“Enhanced administration commands for JVM server” on page 6</a>
<a href="#">Support for Java EE 8 Full Platform</a>	<a href="#">“Performance and storage improvements” on page 8</a>
<a href="#">“Support for Jakarta EE 8 Platform” on page 7</a>	<a href="#">“GATHER SPI function” on page 8</a>
<a href="#">“Enhanced CICS Java API (JCICSX) allows easy mocking and remote development” on page 7</a>	
<a href="#">“Support for Spring Boot” on page 7</a>	
<a href="#">“Support for EXEC CICS LINK to a Spring Boot application running in a Liberty JVM server” on page 8</a>	

## System management features:

Table 2. System management features provided with CICS TS for z/OS, Version 5.6	
For system programmers	
<a href="#">“Enhancements to CICS policies: New system rule types” on page 3</a>	
<a href="#">“Enhancements to CICS policies: New z/OS WLM health policy action” on page 3</a>	
<a href="#">“New replication log record” on page 4</a>	

Table 2. System management features provided with CICS TS for z/OS, Version 5.6 (continued)

**For system programmers**

[“Capability to format recent trace entries for tasks” on page 5](#)

[“New feature toggle to help you with RLS migration” on page 5](#)

[“Resource definition online enhanced to support definition of DUMPCODEs” on page 5](#)

[“Changes to feature toggle configuration and processing” on page 8](#)

[“Changes to CICSplex SM resource tables” on page 9](#)

[“Improvement to CICS exception handling when a JVM server encounters a TCB failure” on page 10](#)

[“Improved usage of BAS data space storage for large CICSplex environments” on page 11](#)

**Security features:**

Table 3. Security features provided with CICS TS for z/OS, Version 5.6

For application developers	For system programmers
<a href="#">New Java security API (JSR 375) provided with Java EE 8 support in Liberty.</a>	<a href="#">“GMTRAN option DISCONNECT extended to CESF” on page 4</a>
	<a href="#">“Monitoring capability introduced for the security domain” on page 4</a>
	<a href="#">“VERIFY TOKEN support for JWT” on page 5</a>
	<a href="#">“SNI now supported in CICS TS communications with an HTTP server over TLS connections” on page 9</a>
	<a href="#">“Changes to default user ID security definitions” on page 11</a>

**Performance features:**

Table 4. Performance features provided with CICS TS for z/OS, Version 5.6

**For system programmers**

[“Monitoring capability introduced for the security domain” on page 4](#)

[“VERIFY TOKEN support for JWT” on page 5](#)

[“Ability of CICS-MQ bridge to write SMF type 110 records” on page 5](#)

[“CICS capability of exploiting IBM z/OS Workload Interaction Correlator” on page 12](#)

**Resilience features:**

Table 5. Resilience features provided with CICS TS for z/OS, Version 5.6

For application developers	For system programmers
<a href="#">“COMMAREAs greater than 24KB now supported for DPLs over MRO connections” on page 9</a>	<a href="#">“Enforced protection for CICSplex SM API program data space usage” on page 9</a>
	<a href="#">“CICSplex SM high data space utilization warnings” on page 10</a>
	<a href="#">“CICS-MQ trigger monitor and CICS-MQ bridge improvements” on page 10</a>



Table 5. Resilience features provided with CICS TS for z/OS, Version 5.6 (continued)	
For application developers	For system programmers
	<a href="#">“More 64-bit storage exploitation” on page 10</a>
	<a href="#">“Enhanced SOS protection and monitoring of 24-bit and 31-bit MVS storage” on page 11</a>

### Continuous delivery APAR updates:

Table 6. Features that are available as continuous delivery updates to other releases through APARs, and also provided with CICS TS for z/OS, Version 5.6

For application developers	For system programmers
<a href="#">Support for Java EE 8 Full Platform</a>	<a href="#">“New replication log record” on page 4</a>
	<a href="#">“Enhancements to CICS policies: New system rule types” on page 3</a>
	<a href="#">“SNI now supported in CICS TS communications with an HTTP server over TLS connections” on page 9</a>
	<a href="#">“CICS capability of exploiting IBM z/OS Workload Interaction Correlator” on page 12</a>
	<a href="#">“CICS-MQ trigger monitor and CICS-MQ bridge improvements” on page 10</a>

### Enhancements to CICS policies: New system rule types

Support for the following new Policy system rule types has been introduced:

#### DBCTL connection status

Use this rule to monitor and react to the change in status of a connection between CICS and DBCTL.

#### IBM MQ connection status

Use this rule to monitor and react to the change in status of a connection between CICS and IBM MQ.

#### Pipeline enable status

Use this rule to monitor and react to the change in the enable status of a CICS PIPELINE resource.

These system rules are also available on CICS TS 5.5 with APAR PH07632.

[🔗 Learn more ...](#)

[Back to table](#)

### Enhancements to CICS policies: New z/OS WLM health policy action

Support for a new policy action for system rules to increase or decrease the z/OS WLM health value of a CICS region when all the rules conditions are met. The new action is not supported for task rules.

[🔗 Learn more ...](#)

[Back to table](#)

### New replication log record

Replication logging in support of GDPS® Continuous Availability is enhanced to log a REDO record when an application issues an UNLOCK command following a read-update command, or a series of write-massinsert commands. It allows replication products to cater more efficiently for non-RLS applications, which, in the absence of browse for update support, issue read-update requests against all records in a file, but update very few and unlock most records.

This capability is also available on CICS TS 5.2, 5.3, 5.4 and 5.5 with APARs PH09381 and PH13200.

[🔗 Learn more ...](#)

[Back to table](#)

### GMTRAN option DISCONNECT extended to CESF

The DISCONNECT option of the **GMTRAN** system initialization parameter is extended to the CICS-supplied sign-off transaction CESF, forcing the terminal session to be disconnected upon sign-off.

This enhancement increases your control over terminal session security by preventing access to CICS at the terminal when it is running only with the default user ID.

[🔗 Learn more ...](#)

[Back to table](#)

### Monitoring capability introduced for the security domain

CICS supports many different types of authentication. Some of these involve other components in addition to the external security manager (ESM). To make it easier to diagnose authentication problems, monitoring is now introduced for the security domain. This enhancement includes the following functional updates:

- The performance data in group DFHTASK provides two new fields that indicate the total elapsed time that a user task spent verifying authentication credentials.
- The user domain statistics provide new global statistics, giving a more comprehensive view of user instances.
- CICS now collects global statistics on the security domain, providing a comprehensive view of authentication requests. For a full listing, see Security domain statistics.

New options USER and SECURITY are introduced in **EXEC CICS EXTRACT STATISTICS**, **EXEC CICS PERFORM STATISTICS RECORD**, and **CEMT PERFORM STATISTICS** for retrieving and requesting user domain statistics and security domain statistics.

[Back to table](#)

### Capability to format recent trace entries for tasks

In addition to auxiliary trace and internal trace, CICS stores data about the most recent trace entries for each task in a separate table. To format the trace for a particular task, use the TRS parameter and specify the KE\_NUM of the task of interest.

The most recent trace entries contain basic information and are primarily intended for use in diagnosing problems with stalled tasks, where the data concerning the tasks may have been overwritten in the internal trace table.

[Back to table](#)

---

### VERIFY TOKEN support for JWT

The **VERIFY TOKEN** command has been enhanced to support JSON Web Tokens (JWTs) provided by RACF®. With this capability, basic authentication credentials of a user can be converted to a time-limited secure token. This is particularly useful where applications currently using passwords are being converted to use MFA tokens.

This support requires RACF APAR OA55926 and SAF APAR OA55927.

[🔗 Learn more ...](#)

[Back to table](#)

---

### New feature toggle to help you with RLS migration

A new feature toggle `com.ibm.cics.rls.delete.ridfld` has been introduced to help you with RLS migration. When this feature is enabled, you can issue a **DELETE** command with the RIDFLD option for a single record without causing AFCG abends.

This capability is also available on CICS TS V5.4 and V5.5 with APAR PH07596.

[🔗 Learn more ...](#)

[Back to table](#)

---

### Ability of CICS-MQ bridge to write SMF type 110 records

A new parameter **SMFMQGET** has been introduced to the CICS-MQ bridge, CKBR, which instructs the bridge to write SMF type 110 records for the number of MQGET requests it issued. These records are useful for performance analysis.

[🔗 Learn more ...](#)

---

### Resource definition online enhanced to support definition of DUMPCODES

The standard Resource definition online (RDO) interface, CEDA, DFHCSDUP, **EXEC CICS CREATE** and **EXEC CICS CSD**, has been enhanced to support the definition of transaction dump codes and system dump codes through the new DUMPCODE resources. This allows DUMPCODEs for a CICS region to be installed at startup, removing the need to write a PLT program that uses the **SET TRANDUMPCODE ADD** and **SET SYSDUMPCODE ADD** system programming commands to add dump codes. These commands are

still supported. DUMPCODEs now have a resource signature returned on the SPI commands to denote how they were created and installed.

In addition, the **DUMP** system initialization parameter has been extended to support a third option **TABLEONLY**. The new option allows for all system dumps to be suppressed except for those dump codes that have an entry in the dump table added by CEDA or the SPI. This allows, for example, for an sdump to be taken for a specific dump code that happens in production while suppressing all other sumps.

[!\[\]\(2bdfe261b986065ee0ac76460d6528c9\_img.jpg\) Learn more ...](#)

## Java build toolchain support

Java build toolchains such as Apache Maven and Gradle are extremely popular for developing, building, and testing applications. To provide a natural experience for Java developers who are using such tools, CICS now offers JCICS and related artifacts that can be used as dependencies of Java applications on Maven Central, and Maven and Gradle plug-ins for bundle packaging and deployment that are built on the CICS bundle deployment API.

With the Maven Central artifacts, you can manage Java dependencies in a simplified way, develop the applications in an integrated development environment (IDE) of your choice, and deploy CICS bundles at development in a faster and confident way.

[!\[\]\(c694a3ff3b077d76910920a6a1593ab4\_img.jpg\) Learn more ...](#)

## New API makes CICS bundle deployment faster

CICS now supports deploying CICS bundles through the CICS bundle deployment API. It is a REST API that receives a CICS bundle as a zip file over HTTP. The bundle will be unzipped, installed into, and enabled in the appropriate CICS region automatically.

The CICS bundle deployment API can increase Java developers' productivity by enabling them to see their application changes reflected in a running CICS region within seconds. Developers can also use the CICS-provided Maven or Gradle plug-in (`cics-bundle-maven-plugin` or `com.ibm.cics.bundle`) that leverages the API, to integrate CICS bundle build and deployment into a toolchain.

The API also enables Java developers to deploy bundles whilst the system programmer retains control. A functional ID or another user ID with sufficient access deals with the bundle lifecycle and interacts with zFS on behalf of developers.

[!\[\]\(758ebdf4629c903da74c2e079717ae32\_img.jpg\) Learn more ...](#)

## Enhanced administration commands for JVM server

JVM server administration is enhanced with the addition of three new commands:

- [PERFORM JVMSERVER](#) offers facilities to take JVM server dumps, refresh JVM resources and gather JVM diagnostics.
- [INQUIRE JVMENDPOINT](#) enables you to monitor JVM server endpoints.
- [SET JVMENDPOINT](#) enables you to enable or disable JVM server endpoints.

[!\[\]\(248b91fcdac4810ffd15cf33fb6aec6f\_img.jpg\) Learn more ...](#)

## Support for Java EE 8 Full Platform

By using the embedded version of IBM WebSphere® Liberty (Liberty), CICS supports applications that are written to the Java Enterprise Edition (EE) 8 Full Platform specification. Java EE 8 includes many new and enhanced APIs, such as: JSON processing, RESTful web services, and JavaMail™.


A new Java security API (JSR 375) introduces a portable, flexible, and standardized security model for Web applications.

Java EE 8 also provides new versions of features for: JavaBean validation, servlet, JavaServer Faces and Contexts and Dependency Injection (CDI).

Java applications that are hosted in CICS TS are integrated with a CICS task by default and can use the JCICS API to call other CICS programs and services. This provides a powerful mechanism to modernize CICS applications by using the latest Java EE 8 features and capabilities.

This capability is also available on CICS TS V5.5 with APAR PH15017.


[🔗 Learn more ...](#)



## Support for Jakarta EE 8 Platform

The CICS Liberty JVM server supports now supports the Jakarta Enterprise Edition (EE) 8. The Jakarta EE 8 full platform technologies and specifications are an evolution of Java EE 8, allowing developers and applications to easily transition from Java EE to Jakarta EE. The promise of Jakarta EE is a community-driven open source model, enjoying more frequent releases than Java EE, and evolving more quickly to address the needs of modern applications.

[🔗 Learn more ...](#)




## Enhanced CICS Java API (JCICSX) allows easy mocking and remote development

The JCICSX API classes support a subset of CICS functionality with a more natural, modern, Java style that is easier to understand for Java developers new to CICS. JCICSX is also remoteable, and easier to mock and stub than the existing Java classes of JCICS. Code written using the JCICSX API classes will execute without change, both in remote development mode and when deployed to run in CICS.

The JCICSX API classes can be used together with the JCICS API, but only the commands using JCICSX will benefit from the enhanced features.

[🔗 Learn more ...](#)



## Support for Spring Boot

The CICS Liberty JVM server supports Spring Boot applications using the Spring application programming model. Spring was originally designed to simplify Java Enterprise Edition (EE), using plain old Java objects (POJOs) and dependency injection. It has since grown to extend and encompass many aspects of Java EE development.

Spring Boot builds on Spring by adding components to avoid complex configuration, reduce development time, and offer a simpler startup experience. Support is added for the Liberty features springBoot-1.5 and springBoot-2.0, allowing Spring Boot JARs to be deployed directly to a Liberty JVM server. Spring Boot applications can run on CICS without modification. It also is possible to configure Spring Boot applications for integration with CICS transactions and security, and to call the CICS API using JCICS.

When built as a web application archive (WAR), a Spring Boot application can be deployed and managed using CICS bundles in the same way as can other CICS Liberty applications.

A Spring Boot application can use the annotation `@CICSProgram` to define a method as the target of a CICS program. This can be linked from COBOL or other non-Java CICS programs using the channel and container interface.

This capability is also available for CICS TS V5.5 for Spring Boot applications packaged as WAR and JAR files, and for Spring Boot applications packaged as WAR files in CICS TS V5.4 and 5.3.

[🔗 Learn more ...](#)

### Support for EXEC CICS LINK to a Spring Boot application running in a Liberty JVM server

You can add the `@CICSProgram` annotation to a method on a Spring bean. When the application is started in Liberty, a CICS program definition is dynamically created. Then, the Spring Boot application can be invoked by any CICS program through an **EXEC CICS LINK** call.

[🔗 Learn more ...](#)

### Performance and storage improvements

Default storage settings in CICS and through example JVM profiles have been updated for performance and storage optimization.

### Users product extension capability

Allows installation of a users own product extension into a Liberty server.

[🔗 Learn more ...](#)

### GATHER SPI function

The `PERFORM JVMSERVER JVM GATHER DIAGNOSTICS` command (the GATHER SPI) collects useful JVM server diagnostic information, aggregating multiple existing trace, dump, log and configuration files into a single tar file. On request, you can send this file to IBM®'s service teams when they are helping you with JVM server problems.

[🔗 Learn more ...](#)

### Changes to feature toggle configuration and processing

You can now implement region ID-specific feature toggle configuration by using a region-level feature toggle configuration in a subdirectory of the `USSCONFIG`, with a directory name equal to the region's applid. This allows region-specific feature toggles to override the common set of feature toggles in the `USSCONFIG`.

The group-level feature toggle configuration files described in previous releases have been deprecated. Their use will be removed in a future release of CICS TS. No messages will refer to the group-level feature toggles unless they are specified.

[🔗 Learn more ...](#)

### **COMMAREAs greater than 24KB now supported for DPLs over MRO connections**

The restriction on the COMMAREA that its length cannot be greater than 24KB for DPLs over MRO connections between CICS TS regions has been removed. If both regions are at the level of CICS TS V5.6 or above, then a COMMAREA that is greater than 24KB is shipped by using the DFHTRANSACTION channel. If the transaction issuing the LINK doesn't have a DFHTRANSACTION channel, one is created.

[🔗 Learn more ...](#)

### **Changes to CICSplex SM resource tables**

To aid application developers, the key fields now appear in key order at the top of the attributes table. The non key attributes follow, in ascending alphabetical order.

The CICSplex® SM security class information for each resource table listed after the Copybook identifier. Where applicable the CICS commands that require security access will also be listed.

The DSECT offset for resource table attributes has also been added.

[🔗 Learn more ...](#)

### **SNI now supported in CICS TS communications with an HTTP server over TLS connections**

CICS TS now supports the use of the Server Name Indication (SNI) extension as defined in Internet Engineering Task Force RFC 6066. With this enhancement, CICS TS, when acting as an HTTP client, can use a TLS connection to a virtual host where the server supports multiple virtual hosts using a single IP address.

No configuration change is required in CICS TS. CICS TS supports SNI if it is supported by the HTTP server.

This capability is also available on CICS TS V5.3, V5.4, and V5.5 with APAR PH20063.

### **Enforced protection for CICSplex SM API program data space usage**

CICSplex SM API commands will now return an appropriate response rather than resulting in the termination of a CMAS if a request is causing CICSplex SM to exceed available data space storage.

## **CICSplex SM high data space utilization warnings**

EYUXC0028 warning messages are now issued when the data space usage for a CICSplex SM component such as WLM, BAS and so on exceeds any of the allocation tiers of 70%, 80%, 90%, and 95%, alerting you to potential CICSplex SM auxiliary storage issues before they become problematic.

## **CICS-MQ trigger monitor and CICS-MQ bridge improvements**

The CICS-MQ trigger monitor transaction CKTI now handles abends produced when starting user transactions. If an abend occurs when the CKTI transaction attempts to start the user transaction, rather than terminating, CKTI will now send the trigger message to the dead-letter queue, and trigger monitor processing continues.

Additionally, both the CICS-MQ trigger monitor transaction CKTI and the CICS-MQ bridge monitor transaction CKBR now handle temporary errors that occur when issuing MQOPEN and MQGET requests. Rather than terminating, CKTI and CKBR will retry every minute for up to an hour. If the error is not resolved after an hour, the monitor transactions will then terminate. This caters for errors caused by the loss of a coupling facility when the monitor transactions are processing shared queues. The IBM MQ queue manager can recover from a coupling facility failure, and when the connection is restored, bridge and trigger monitor processing will resume.

This enhancement is also available on CICS TS V5.4 and V5.5 with APAR PH22136.

## **More 64-bit storage exploitation**

The TSICDATA subpool has been moved above the bar which provides greater resilience when large number of tasks are started with data and queue on TCLASS limits. It avoids short on storage conditions in the 31bit ECDSA in this situation.

## **Improvement to CICS exception handling when a JVM server encounters a TCB failure**

CICS exception handling when a JVM server encounters a TCB failure has been changed to the following process to ensure that the JVM server is recycled.

1. CICS disables the JVMSERVER resource with the PHASEOUT option to allow existing work in the JVM to complete where possible and prevent new work from using the JVM.
2. If the PHASEOUT operation fails to disable the JVMSERVER within the interval specified by the PURGE\_ESCALATION\_TIMEOUT JVM server option, CICS escalates to the next disable action PURGE until the JVMSERVER is disabled.
3. If the PURGE operation fails to disable the JVMSERVER within the interval, CICS escalates to the next disable action FORCEPURGE.
4. If the FORCEPURGE operation fails to disable the JVMSERVER within the interval, CICS escalates to KILL.
5. After the JVMSERVER is successfully disabled, message DFHSJ1008 is issued.
6. CICS attempts to re-enable the resource to create a new JVM.

You can control the interval between the disable actions that CICS performs by setting the PURGE\_ESCALATION\_TIMEOUT JVM server option.

This capability is also available on CICS TS V5.3, V5.4, and V5.5 with APAR PH12280.

[🔗 Learn more about JVM server option PURGE\\_ESCALATION\\_TIMEOUT](#)



[Back to table](#)

---

### Changes to default user ID security definitions

It is no longer necessary for users of any category 3 transactions including CESN, CESL and CESF, to be given command authority. So now the default user ID should not need command authority for any CICS transactions.

In previous releases, if you use **CMDSEC=ALWAYS**, it was necessary to define all users of CESN, CESL and CESF to have authority to issue **INQUIRE TERMINAL**, **SET TERMINAL**, and **INQUIRE SYSTEM** commands. This included giving this authority to the default user ID.

[Back to table](#)

---

### Improved usage of BAS data space storage for large CICSplex environments

The CICSplex SM BAS component is now able to use all available BAS data space storage by spreading large resource deployment lists for BAS across multiple data spaces instead of being constrained to a single data space. This feature is enabled by default in CICS TS V5.6, and can be disabled, if required, by setting the feature toggle `com.ibm.cics.cpsm.bas.largecicsplex=false`.

This capability is also available on CICS TS V5.4 and V5.5 with APAR PH19761, disabled by default.

[Back to table](#)

---

### Enhanced SOS protection and monitoring of 24-bit and 31-bit MVS storage

CICS has long provided monitoring and short on storage (SOS) support for CICS-managed storage in dynamic storage areas (DSAs). The use of address space storage not managed by CICS (MVS™ storage) is not covered by this mechanism. Out of storage conditions can cause the region to terminate.

This release of CICS introduces the capability to monitor user region (24-bit) MVS storage and extended user region (31-bit) MVS storage. By default, CICS periodically monitors the state of unallocated user region and extended user region storage, and issues console messages to notify you of SOS conditions or significant changes in unallocated MVS storage.

In addition, CICS provides a new SOS wait feature, which will by default suspend tasks to stop the allocation of new TCBs, which are a major user of 24-bit storage, when the user region or extended user region is short on storage, thereby minimizing the likelihood of an out of storage region abend.

You can use SOS messages that are issued when MVS storage is under stress in system policy rules with an action to set the z/OS WLM health value to 0, thus limiting new work coming to the affected region.

New statistics are available in [Storage manager: Global statistics](#) to provide information about the use of 24-bit and 31-bit MVS storage and to help you track fluctuations in the storage usage over time and take actions to prevent SOS conditions.

[🔗 Learn more ...](#)

---

## CICS capability of exploiting IBM z/OS Workload Interaction Correlator


IBM z/OS Workload Interaction Correlator (Correlator) is a priced feature that provides infrastructure for z/OS software to generate synchronized, standardized, concise, content-rich data with common context for automated analysis by an analytics engine such as the IBM z/OS Workload Interaction Navigator. You can use Correlator to generate standardized SMF records for CICS, making it easier to identify and correlate workload across your mainframe environment.

CICS uses the WIC IFAWIC service to register CICS regions for collecting data about transaction activities, and provides a WIC exit routine that SMF calls for WIC processing. The WIC exit routine aggregates and summarizes transaction activities from all registered CICS regions and records exceptional CICS regions into SMF type 98 subtype 1024 records.

**Hardware and system requirements:** IBM z/OS Workload Interaction Correlator requires IBM z14® or z15 hardware and is provided in PTFs for APAR OA57165 for z/OS in V2R3 and V2R4.

This capability is provided to CICS TS Version 5.4 and Version 5.5 through APAR PH16392.

[🔗 Learn more ...](#)



## Changes to documentation

[CICSplex SM system parameters](#) is moved to the **Reference > System management** section in the online CICS TS Knowledge Center.

A summary of changes to security, including changes to RACF classes, through CICS releases is added to the Upgrading information: [Changes to security](#) and [Changes to RACF classes](#).

## Chapter 2. Changes to externals in this release

CICS Transaction Server for z/OS, Version 5 Release 6 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](#) in the Upgrading information.

Table 7. *Changes between releases.* . These changes are not exclusive to each of the roles shown; some will be of interest across roles

For application programmers	For system programmers

### Changes to installing

- SDFHDLL1 has been removed.

### Changes to the CICS API

Table 8. *Changes to EXEC CICS commands in this release*

API	This release
<a href="#">VERIFY TOKEN</a>	<b>CHANGED:</b> Enhanced to support JSON Web Tokens (JWTs) provided by RACF.
<a href="#">WEB CONVERSE</a>	<b>CHANGED:</b> Enhanced to support the PATCH method.
<a href="#">WEB SEND (Client)</a>	<b>CHANGED:</b> Enhanced to support the PATCH method.

Table 9. *Changes to JCICS API in this release*

Class	Method	This release
		<b>NEW:</b>

### Changes to resource definitions

Table 10. *Changes to resource definitions in this release*

Resource	This release
<a href="#">DUMPCODE</a>	<b>NEW:</b> To define attributes for transaction dump codes and system dump codes
<a href="#">MQMONITOR</a>	<b>CHANGED:</b> You can use one or more symbolic parameters, <i>&amp;applid.</i> or <i>&amp;APPLID.</i> , anywhere in the <b>QNAME</b> value to identify the APPLID of a CICS region. Any user-defined character strings <i>&amp;applid.</i> or <i>&amp;APPLID.</i> will be replaced by the APPLID of the local region when the MQMONITOR is installed. This will facilitate generic use of this resource.
<a href="#">TCPIPSERVICE</a>	<b>CHANGED:</b> The OPTIONSPGM parameter has been added. Use this parameter to specify the name of a program that is invoked to handle an HTTP OPTIONS request.

## Changes to the CICS utilities

Table 11. Changes to CICS-supplied utilities in this release	
Utility	This release
<a href="#">DFHOSTAT</a>	<p><b>CHANGED:</b></p> <ul style="list-style-type: none"><li>• New reports provided:<ul style="list-style-type: none"><li>User report</li><li>Security report</li><li>MVS user region and extended user region storage report</li></ul></li><li>• The System Status report includes new fields <b>Frequency</b> and <b>MCT program name</b> in the Monitoring section.</li><li>• The following fields are now removed from the Storage above 16 MB report:<ul style="list-style-type: none"><li>MVS storage request waits (SMSMVSSTGREQWAITS)</li><li>Total time waiting for MVS storage (SMSTIMEWAITMVS)</li></ul></li><li>• The TCP/IP services report includes a new field TCPIP SERVICE OPTIONSPGM, showing the name of the HTTP OPTIONS handler program used for this service.</li></ul>

Table 11. Changes to CICS-supplied utilities in this release (continued)

Utility	This release
DFHSTUP	<p><b>CHANGED:</b></p> <ul style="list-style-type: none"> <li>• New fields added to user domain statistics: <ul style="list-style-type: none"> <li>Delete count due to sign off (USGDESOFF)</li> <li>Delete count due to ENF (USGDEENF)</li> <li>Current instances in directory (USGDRCUR)</li> <li>Peak instances in directory (USGDRPK)</li> <li>Current instances in timeout (USGTOCUR)</li> <li>Peak instances in timeout (USGTOPK)</li> <li>ENF events matched (USGENFK)</li> <li>ENF events not matched (USGENFUN)</li> </ul> </li> <li>• Now provides <u>security domain statistics</u>.</li> <li>• New option SECURITY added to <b>SELECT TYPE</b> and <b>IGNORE TYPE</b> control parameters.</li> <li>• New fields added to <u>monitoring domain statistics</u>: <ul style="list-style-type: none"> <li>RMI Option (MNGRMI)</li> <li>Application naming (MNGAPPNS)</li> <li>MCT program name (MNGMCTNM)</li> <li>Frequency (MNGFREQ)</li> </ul> </li> <li>• The Dispatcher Statistics - CICS TCB Mode Statistics report has been enhanced to print the QR <b>TCB CPU Dispatch Ratio</b>.</li> <li>• New field added to <u>TCP/IP resource statistics</u>: <ul style="list-style-type: none"> <li>Name of the HTTP OPTIONS handler program (OPTIONSPGM)</li> </ul> </li> <li>• New fields reflecting MVS user region and extended user region storage added to <u>Storage manager: Global statistics</u>, indicating: <ul style="list-style-type: none"> <li>The time the MVS monitor system task last sampled MVS storage</li> <li>State of the user region or extended user region</li> <li>The current total amount of unallocated user region or extended user region storage</li> <li>Low water mark of the total amount of unallocated user region or extended user region storage</li> <li>The size of the current largest contiguous storage area available in unallocated user region or extended user region storage</li> <li>Low water mark of the size of the largest contiguous storage area available in unallocated user region or extended user region storage</li> <li>The time the last SOS condition was detected</li> <li>The time tasks waited because of the SOS or constrained state</li> <li>The current, peak, and total number of tasks that are waiting because of the SOS or constrained state</li> </ul> </li> </ul>

<i>Table 11. Changes to CICS-supplied utilities in this release (continued)</i>	
Utility	This release
DFHPD730	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>The TRS KE_NUM parameter has been enhanced to format out the most recent trace entries information for the specified task. The new output is in addition to any entries for the task in the internal trace table.</li> </ul>

### Changes to the CICS assistants

<i>Table 12. Changes to the CICS web services assistants, XML assistants, and JSON assistants in this release</i>	
Assistant	This release
ALL	<b>NEW:</b> A new symbolic parameter, PATHMAIN, has been added to all of the assistants. This parameter specifies the main part of the name of the CICS TS directory in the UNIX system services file system. The default is /usr/lpp/cicsts

### Changes to context containers

<i>Table 13. Changes to the context containers used in a PIPELINE</i>	
Container	This release
DFHWS-DPLTRANID	<b>NEW:</b> A new container, DFHWS-DPLTRANID, can be created in a PIPELINE by a handler program. The container can contain the name of a transaction identifier under which remote web services are to be executed. If the container does not exist, the default transaction identifier, CSMI, will be used.

## Changes to messages and codes

Table 14. Changes to messages and codes in this release

New messages	Changed messages	Removed messages
<ul style="list-style-type: none"> <li>DFHAP0605 indicates that a Db2® cancel thread request has been issued as part of CICS purge or forcepurge processing.</li> <li>DFHDS0102 indicates the current CPU / dispatch ratio for the QR TCB.</li> <li>DFHDS0103 indicates an invalid <b>INITPARM</b> setting that specifies how often the DFHDS0102 message is to be issued.</li> <li>DFHDU0311 indicates automatic switching of dump data sets specified by DUMPSW=ALL has been overridden because the dump data sets are too small.</li> <li>DFHMP3015 indicates that a system rule defined in a policy that is installed in a stand-alone region is triggered and the z/OS WLM health open status is set.</li> <li>DFHMP3016 indicates that a system rule defined in a policy that is installed on a platform is triggered and the z/OS WLM health open status is set.</li> <li>DFHMP3017 indicates that a system rule defined in a policy that is installed in a stand-alone region is triggered but the z/OS WLM health open status could not be set because WLMHEALTH=OFF is specified as a system initialization parameter.</li> <li>DFHMP3018 indicates that a system rule defined in a policy that is installed on a platform is triggered but the z/OS WLM health open status could not be set because WLMHEALTH=OFF is specified as a system initialization parameter.</li> <li>DFHMQ0126 indicates that a temporary error occurred when a CKTI trigger monitor attempted to issue an MQOPEN of an initiation queue. The trigger monitor will retry in one minute.</li> <li>DFHMQ0127 indicates that a temporary error occurred when a CKTI trigger monitor attempted to issue an MQGET from an initiation queue. The trigger monitor will retry in one minute.</li> </ul>	<ul style="list-style-type: none"> <li>DFHDB8111 now shows an <i>rs</i> reason code to more accurately identify the reason for the IMS connection failure.</li> <li>DFHDB8222 now shows an <i>rs</i> reason code to more accurately identify the reason for the IMS connection failure.</li> <li>DFHSJ1007 is updated to reflect changed system action when CICS detects that an abend has left a JVM in an inconsistent state.</li> <li>DFHTF0200 now shows the row number and column number to indicate the position of a field on the screen, replacing the <i>field</i> insert used in earlier releases.</li> </ul>	

Table 14. Changes to messages and codes in this release (continued)		
New messages	Changed messages	Removed messages
<ul style="list-style-type: none"> <li>EYUCP0208E indicates that the delete and re-add of a CMAS failed.</li> <li>EYUXC0028 indicates that the data space usage for a CICSplex SM component exceeds 70%, 80%, 90% or 95%.</li> </ul>		

Table 15. Changes to abend codes in this release		
New abend codes	Changed abend codes	Removed abend codes
<ul style="list-style-type: none"> <li>AXG1</li> <li>AXG2</li> <li>AXG3</li> <li>AXG4</li> </ul>		

### Changes to compiler and translator support

Table 16. Changes to compiler and translator support in this release	
Compiler	This release
	<b>WITHDRAWN:</b>

### Changes to event processing adapters and formats

Table 17. Changes to event processing adapters and formats in this release	
EP adapter or format	This release
	<b>NEW:</b>

### Changes to SIT parameters

Table 18. Changes to system initialization parameters in this release	
SIT	This release
<a href="#">CMDSEC</a>	<b>CHANGED:</b> The ALWAYS option no longer affects category 3 transactions.
<a href="#">CONFDATA</a>	<p><b>CHANGED:</b> The default is changed to HIDE. The HIDE option replaces HIDE TC, which means that all transport data, not just terminal control data, is subject to <b>CONFDATA</b>. If the deprecated CONFDATA=HIDE TC is specified in the SIT or in an override, CONFDATA=HIDE is assumed, and no message will be issued.</p> <p>If you use CONFDATA=SHOW, you should review if this is necessary. See <a href="#">Removing sensitive data from CICS trace using CONFDATA</a> for details.</p>
<a href="#">DUMP</a>	<b>CHANGED:</b> The TABLEONLY option has been added to allow all sdumps to be suppressed except those that have an entry in the dump table that allows sdumps.



Table 18. Changes to system initialization parameters in this release (continued)	
SIT	This release
<a href="#">DUMPSW</a>	<b>CHANGED:</b> The ALL option has been added to allow continuous switching between the two transaction dump data sets DFHDMPA and DFHDMPB.
<a href="#">GMTRAN</a>	<b>CHANGED:</b> The DISCONNECT option is extended to the CICS-supplied sign-off transaction CESF, forcing the terminal session to be disconnected upon sign-off.
<a href="#">TRTABSZ</a>	<b>CHANGED:</b> The minimum value which can be specified has been increased from 16 KB to 1024 KB.
<a href="#">TRTRANSZ</a>	<b>CHANGED:</b> The minimum value which can be specified has been increased from 16 KB to 1024 KB.

### Changes to JVM profiles

Table 19. Changes to JVM profiles in this release	
Option	This release
<a href="#">com.ibm.cics.jvmserver.cmci.bundles.dir</a>	<b>NEW:</b> Only for the CICS bundle deployment API. Specifies the bundles directory on zFS that stores the CICS bundles pushed to the API.
<a href="#">com.ibm.cics.jvmserver.cmci.deploy.timeout</a>	<b>NEW:</b> Only for the CICS bundle deployment API. Specifies the timeout limit for deploying a CICS bundle, in milliseconds. This includes the time for all bundle lifecycle actions, including disable, discard, install and enable.
<a href="#">com.ibm.cics.jvmserver.cmci.max.file.size</a>	<b>NEW:</b> Only for the CICS bundle deployment API. Specifies the maximum size allowed for the uploaded CICS bundle, in bytes.
<a href="#">com.ibm.cics.jvmserver.cmci.max.request.size</a>	<b>NEW:</b> Only for the CICS bundle deployment API. Specifies the maximum size allowed for a multipart or form-data request, in bytes.
<a href="#">com.ibm.cics.jvmserver.wlp.saf.profilePrefix</a>	<b>NEW:</b> Only for the CMCI JVM server. Specifies the SAF profile prefix for the WUI regions that need to share security configurations.

Table 19. Changes to JVM profiles in this release (continued)	
Option	This release
<u>PURGE_ESCALATION_TIMEOUT</u>	<p><b>NEW compatible with:</b> All JVM Environments</p> <p>New JVM server option to specify the interval between the disable actions that CICS performs when a JVM server encounters a TCB failure.</p>

### Changes to control tables

Table 20. Changes to resource definitions in this release	
Resource	This release
DFHXCOPT	<p><b>CHANGED:</b> The SURROGCHK parameter has been removed. Surrogate checking is always done. If you want the option of <b>SURROGCHK=NO</b>, you need to request a usermod from IBM support.</p> <p><b>CHANGED:</b> The default for the <b>CONFDATA</b> parameter has changed to HIDE. The HIDE option replaces HIDE TC, which means that all transport data is subject to <b>CONFDATA</b>. If the deprecated <b>CONFDATA=HIDE TC</b> is specified in DFHXCOPT, <b>CONFDATA=HIDE</b> is assumed, and no message will be issued.</p>

### Changes to CICS SPI

Table 21. Changes to the system programming interface commands in this release	
Command	This release
<u>CREATE DUMPCODE</u>	<b>NEW:</b> To create a DUMPCODE resource definition in the CICS region.
<u>DISCARD TRANSACTION</u>	<p><b>CHANGED:</b></p> <ul style="list-style-type: none"> <li>Transactions beginning with C can now be discarded as long as the name of the initial program does not begin with DFH, EYU, or CJx (where x is A through J).</li> </ul>
<u>EXTRACT STATISTICS</u>	<p><b>CHANGED:</b></p> <ul style="list-style-type: none"> <li>New option SECURITY for requesting security domain statistics</li> <li>New option USER for requesting user domain statistics</li> </ul>
<u>INQUIRE DUMPDS</u>	<b>CHANGED:</b> New cvda SWITCHALL returned for SWITCHSTATUS keyword.
<u>INQUIRE JVMENDPOINT</u>	<b>NEW:</b> Retrieves information about a JVM server endpoint.
<u>INQUIRE SYS DUMPCODE</u>	<b>CHANGED:</b> Resource signature keywords CHANGEAGENT, CHANGEAGREL, CHANGETIME, CHANGEUSRID, DEFINESOURCE, DEFINETIME, INSTALLAGENT, INSTALLTIME, and INSTALLUSRID added.
<u>INQUIRE SYSTEM</u>	<b>CHANGED:</b> New cvda TABLEONLY returned for DUMPING keyword.
<u>INQUIRE TCPIP SERVICE</u>	<b>CHANGED:</b> New optional output parameter, OPTIONSPGM, returning the name of the HTTP OPTIONS handler program used for this TCPIP SERVICE.

<i>Table 21. Changes to the system programming interface commands in this release (continued)</i>	
Command	This release
<u>INQUIRE TRANDUMPCODE</u>	<b>CHANGED:</b> Resource signature keywords CHANGEAGENT, CHANGEAGREL, CHANGETIME, CHANGEUSRID, DEFINESOURCE, DEFINETIME, INSTALLAGENT, INSTALLTIME, and INSTALLUSRID added.
<u>INQUIRE TSQUEUE / TSQNAME</u>	<b>CHANGED:</b> New option TSMODEL, returning the name of the temporary storage model that was used when the temporary storage queue was created.
<u>PERFORM JVMSERVER</u>	<b>NEW:</b> Improved JVM server administration.
<u>PERFORM STATISTICS</u>	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>• New option SECURITY to record global statistics on the security domain</li> <li>• New option USER to record global statistics on the user domain</li> </ul>
<u>SET DUMPDS</u>	<b>CHANGED:</b> New cvda value SWITCHALL supported for SWITCHSTATUS keyword to allow switching of transaction dump data sets every time one fills.
<u>SET JVMENDPOINT</u>	<b>NEW:</b> Enable or disable a Liberty JVM server endpoint.
<u>SET SYSTEM</u>	<b>CHANGED:</b> New cvda value TABLEONLY supported for DUMPING keyword to allow suppression of all sdumps except those that have an entry in the dump table that allows sdumps.
<u>SET TRANSACTION</u>	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>• Transactions beginning with C can now be set disabled as long as the name of the initial program does not begin with DFH, EYU, or CJx (where x is A through J).</li> </ul>

### Changes to CICS EXCI

<i>Table 22. Changes to the external CICS interface (EXCI) commands in this release</i>	
Command	This release
	<b>NEW:</b>

### Changes to XPI functions

<i>Table 23. Changes to XPI functions in this release</i>	
Command	This release
	<b>NEW:</b>

## Changes to CICS-supplied transactions

Table 24. Changes to CICS-supplied transactions in this release	
Transaction	This release
CEDA CEDB CEDC	<b>CHANGED:</b> The dataset associated with the CSD for the local region is now displayed on the panel in format DSN=<dataset name>.
CEMT	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>• <u>CEMT INQUIRE DUMPDS</u>: New value ALL returned for SWITCHSTATUS keyword.</li> <li>• <u>CEMT INQUIRE SYDUMPCODE</u>: Resource signature keywords CHANGEAGENT, CHANGEAGREL, CHANGETIME, CHANGEUSRID, DEFINESOURCE, DEFINETIME, INSTALLAGENT, INSTALLTIME, and INSTALLUSRID added.</li> <li>• <u>CEMT INQUIRE SYSTEM</u>: New value TABLEONLY returned for DUMPING keyword.</li> <li>• <u>CEMT INQUIRE TCPIPSERVICE</u>: New option OPTIONSPGM, returning the name of the HTTP OPTIONS handler program used for this TCPIPSERVICE.</li> <li>• <u>CEMT INQUIRE TRDUMPCODE</u>: Resource signature keywords CHANGEAGENT, CHANGEAGREL, CHANGETIME, CHANGEUSRID, DEFINESOURCE, DEFINETIME, INSTALLAGENT, INSTALLTIME, and INSTALLUSRID added.</li> <li>• <u>CEMT INQUIRE TSQUEUE / TSQNAME</u>: New option TSMODEL, returning the name of the temporary storage model that was used when the temporary storage queue was created.</li> <li>• <u>CEMT PERFORM STATISTICS</u>: New option SECURITY to write security domain statistics and new option USER to write user domain statistics.</li> <li>• <u>CEMT SET DUMPDS</u>: New value ALL supported for SWITCHSTATUS keyword to allow switching of transaction dump data sets every time one fills.</li> <li>• <u>CEMT SET SYSTEM</u>: New cvda value TABLEONLY supported for DUMPING keyword to allow suppression of all sdumps except those that have an entry in the dump table that allows sdumps.</li> </ul>
CESF	<b>CHANGED:</b> Now subject to the control of <b>GMTRAN=( , DISCONNECT)</b> . When this system initialization parameter is in effect, the terminal session is disconnected upon sign-off.
CKBR	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>• New parameter SMFMQGET, instructing CICS to write SMF type 110 records for MQGET requests issued by the CICS-MQ bridge.</li> <li>• CKBR now handles temporary errors that occur when issuing MQOPEN and MQGET requests. Rather than terminating, CKBR will retry every minute for up to an hour. If the error is not resolved after an hour, the monitor transaction will then terminate.</li> </ul>

Table 24. Changes to CICS-supplied transactions in this release (continued)	
Transaction	This release
CKTI	<p><b>CHANGED:</b> CKTI now handles abends produced when starting user transactions. If an abend occurs when the CKTI transaction attempts to start the user transaction, rather than terminating, CKTI will now send the trigger message to the dead-letter queue, and trigger monitor processing continues.</p> <p>CKTI now handles temporary errors that occur when issuing MQOPEN and MQGET requests. Rather than terminating, CKTI will retry every minute for up to an hour. If the error is not resolved after an hour, the monitor transaction will then terminate.</p>
CSFE	<p><b>CHANGED:</b> CSFE has been enhanced to allow authorized users to change the CONFDATA settings. For more information, see <a href="#">Using CSFE to change the CONFDATA setting</a>.</p>
CWDP	<p><b>NEW:</b> Web support alias transaction for the CMCI CICS bundle deployment API (Category 2).</p>

### Changes to CICS monitoring

Table 25. Changes to monitoring data in this release	
Data	This release
<a href="#">DFHTASK group</a>	<p><b>NEW FIELDS:</b></p> <ul style="list-style-type: none"> <li>• New field SMMVSSWT, containing the time that the user task waited because MVS user region or extended user region was short on storage and the number of times the task waited.</li> <li>• New field XSVFYPWD, displaying the total elapsed time that the user task spent verifying passwords, password phrases, PassTickets and MFA tokens.</li> <li>• New field XSVFYBAS, displaying the total elapsed time that the user task spent verifying basic authentication tokens.</li> <li>• New field XSVFYJWT, displaying the total elapsed time that the user task spent verifying JSON web tokens.</li> <li>• New field XSVFYKER, displaying the total elapsed time that the user task spent verifying Kerberos tokens.</li> </ul>

### Changes to statistics

Table 26. Changes to statistics in this release	
Statistics	This release
Monitoring domain	<p><b>CHANGED:</b> New fields:</p> <ul style="list-style-type: none"> <li>RMI Option (MNGRMI)</li> <li>Application naming (MNGAPPNS)</li> <li>MCT program name (MNGMCTNM)</li> <li>Frequency (MNGFREQ)</li> </ul>
Security domain	<b>NEW</b>

Table 26. Changes to statistics in this release (continued)	
Statistics	This release
Sockets domain	<b>CHANGED:</b> New field: Name of the HTTP OPTIONS handler program (OPTIONSPGM)
Storage manager	<b>CHANGED:</b> Statistics are provided respectively for MVS user region and extended user region storage, indicating: The time the MVS monitor system task last sampled MVS storage State of the user region or extended user region The current total amount of unallocated user region or extended user region storage Low water mark of the total amount of unallocated user region or extended user region storage The size of the current largest contiguous storage area available in unallocated user region or extended user region storage Low water mark of the size of the largest contiguous storage area available in unallocated user region or extended user region storage The time the last SOS condition was detected The time tasks waited because of the SOS or constrained state The current, peak, and total number of tasks that are waiting because of the SOS or constrained state
User domain	<b>CHANGED:</b> New fields: Delete count due to sign off (USGDESOF) Delete count due to ENF (USGDEENF) Current instances in directory (USGDRCUR) Peak instances in directory (USGDRPK) Current instances in timeout (USGTOCUR) Peak instances in timeout (USGTOPK) ENF events matched (USGENFK) ENF events not matched (USGENFUN)

### Changes to GLUEs and TRUEs

Table 27. Changes to global user exits and task-related user exits in this release	
Exit	This release
XDUCLSE	<b>CHANGED:</b> UERCSWCH return code has no effect if DUMPSW=ALL is already set. DUMPSW=ALL means that dump data sets will always switch.
XRSINDI	<b>CHANGED:</b> New value UEIDDMPC returned for parameter UEPIDTYP when a DUMPCODE is installed or discarded.

## Changes to user-replaceable programs

Table 28. Changes to the user-replaceable programs in this release	
Program	This release
DFHWBOPT	<b>NEW:</b> Handler program that can be invoked to process HTTP OPTIONS requests.

## Changes to samples

Table 29. Changes to the samples provided with CICS in this release	
Sample	This release
DFH\$DB2T	<b>CHANGED:</b> The TYPE within JOURNALMODEL is now specified as a CHAR(5) attribute.
DFH\$FORA	<b>CHANGED:</b> Resources are now alphabetically ordered.
DFH\$FORC	<b>CHANGED:</b> Resources are now alphabetically ordered and resource attributes that are COBOL reserved words are prefixed with RDO-.
DFH\$FORP	<b>CHANGED:</b> Resources are now alphabetically ordered. Compiled version now supplied.
DFH0QRCP	<b>NEW:</b> Associated with transaction QRCP. This sample program demonstrates how to obtain and calculate the QR TCB CPU / Dispatch ratio and display a message when the ratio is less than a specified percentage.

## Changes to CICSplex SM resource tables

Table 30. Changes to the resource tables provided by CICSplex SM in this release	
Resource table	This release
CICSRGN	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>New cvda value SWITCHALL for DDSSSTAT field.</li> <li>New cvda value TABLEONLY for SYSDUMP field.</li> </ul>
HTASK	<b>CHANGED:</b> New field SMMVSSWT.
RULE	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>New field OPENSTATUS.</li> <li>New value WLMHEALTH added to ACTION field.</li> <li>New values dbctlConnection, mqConnection and pipelineEnable added to RULETYPE field.</li> </ul>
SYSDUMP	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>New resource signature fields CHANGEAGENT, CHANGEAGREL, CHANGETIME, CHANGEUSRID, DEFINESOURCE, DEFINETIME, INSTALLAGENT, INSTALLTIME, and INSTALLUSRID added.</li> </ul>
TASK	<b>CHANGED:</b> New field SMMVSSWT.
TCPDEF	<b>CHANGED:</b> New field OPTIONSPGM.

Table 30. Changes to the resource tables provided by CICSplex SM in this release (continued)	
Resource table	This release
TRANDUMP	<b>CHANGED:</b> <ul style="list-style-type: none"> <li>New resource signature fields CHANGEAGENT, CHANGEAGREL, CHANGETIME, CHANGEUSRID, DEFINESOURCE, DEFINETIME, INSTALLAGENT, INSTALLTIME, and INSTALLUSRID added.</li> </ul>

### Changes to CICSplex SM system parameters

Table 31. Changes to the system parameters used by CICSplex SM in this release	
System parameter	This release
	<b>NEW:</b>

### Changes to behavior of CICSplex SM

#### The CMCI JVM server is now enabled by default

The CMCI interface now uses the CMCI JVM server by default. This means that if you don't specify the feature toggle `com.ibm.cics.cmci.jvmserver=false` in your feature toggle configuration, the CMCI JVM server is enabled. The feature toggle `com.ibm.cics.cmci.jvmserver` will be removed in a future release of CICS TS. If you have not upgraded the CMCI interface in the CICSplex SM WUI regions to the CMCI JVM server, follow the upgrade instruction in [Upgrading CICSplex SM](#).

See [Setting up CMCI with CICSplex SM](#) for detailed CMCI setup instructions.

#### Improved usage of BAS data space storage for large CICSplex environments

The CICSplex SM BAS component is now able to use all available BAS data space storage by spreading large resource deployment lists for BAS across multiple data spaces instead of being constrained to a single data space. This feature is enabled by default in CICS TS V5.6, and can be disabled, if required, by setting the feature toggle `com.ibm.cics.cpsm.bas.largecicsplex=false`.



## Notices

---

This information was developed for products and services offered in the U.S.A. This material might be available from IBM in other languages. However, you may be required to own a copy of the product or product version in that language in order to access it.

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 rights 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 grant you any license to these patents. You can send license inquiries, in writing, to:

*IBM Director of Licensing  
IBM Corporation  
North Castle Drive, MD-NC119  
Armonk, NY 10504-1785  
United States of America*

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*

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 jurisdictions do not allow disclaimer of express or implied warranties in certain transactions, therefore this statement may not apply to you.

This information 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.

Any references in this information to non-IBM websites are provided for convenience only and do not in any manner serve as an endorsement of those websites. The materials at those websites are not part of the materials for this IBM product and use of those websites is at your own risk.

IBM may use or distribute any of the information you supply in any way it believes appropriate without incurring any obligation to you.

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 Director of Licensing  
IBM Corporation  
North Castle Drive, MD-NC119 Armonk,  
NY 10504-1785  
United States of America*

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.

Information concerning non-IBM products was obtained from the suppliers of those products, their published announcements or other publicly available sources. IBM has not tested those products and cannot confirm the accuracy of performance, compatibility or any other claims related to non-IBM products. Questions on the capabilities of non-IBM products should be addressed to the suppliers of those products.

This information contains examples of data and reports used in daily business operations. To illustrate them as completely as possible, the examples include the names of individuals, companies, brands, and products. All of these names are fictitious and any similarity to actual people or business enterprises is entirely coincidental.

#### **COPYRIGHT LICENSE:**

This information contains sample application programs in source language, which illustrate programming techniques on various operating platforms. You may copy, modify, and distribute these sample programs in any form without payment to IBM, for the purposes of developing, using, marketing or distributing application programs conforming to the application programming interface for the operating platform for which the sample programs are written. These examples have not been thoroughly tested under all conditions. IBM, therefore, cannot guarantee or imply reliability, serviceability, or function of these programs. The sample programs are provided "AS IS", without warranty of any kind. IBM shall not be liable for any damages arising out of your use of the sample programs.

#### **Programming interface information**

CICS supplies some documentation that can be considered to be Programming Interfaces, and some documentation that cannot be considered to be a Programming Interface.

Programming Interfaces that allow the customer to write programs to obtain the services of CICS Transaction Server for z/OS, Version 5 Release 6 are included in the following sections of the online product documentation:

- [Developing applications](#)
- [Developing system programs](#)
- [CICS TS security](#)
- [Developing for external interfaces](#)
- [Application development reference](#)
- [Reference: system programming](#)
- [Reference: connectivity](#)

Information that is NOT intended to be used as a Programming Interface of CICS Transaction Server for z/OS, Version 5 Release 6, but that might be misconstrued as Programming Interfaces, is included in the following sections of the online product documentation:

- [Troubleshooting and support](#)
- [CICS TS diagnostics reference](#)

If you access the CICS documentation in manuals in PDF format, Programming Interfaces that allow the customer to write programs to obtain the services of CICS Transaction Server for z/OS, Version 5 Release 6 are included in the following manuals:

- Application Programming Guide and Application Programming Reference
- Business Transaction Services
- Customization Guide

- C++ OO Class Libraries
- Debugging Tools Interfaces Reference
- Distributed Transaction Programming Guide
- External Interfaces Guide
- Front End Programming Interface Guide
- IMS Database Control Guide
- Installation Guide
- Security Guide
- Supplied Transactions
- CICSplex SM Managing Workloads
- CICSplex SM Managing Resource Usage
- CICSplex SM Application Programming Guide and Application Programming Reference
- Java Applications in CICS

If you access the CICS documentation in manuals in PDF format, information that is NOT intended to be used as a Programming Interface of CICS Transaction Server for z/OS, Version 5 Release 6 , but that might be misconstrued as Programming Interfaces, is included in the following manuals:

- Data Areas
- Diagnosis Reference
- Problem Determination Guide
- CICSplex SM Problem Determination Guide

## Trademarks

IBM, the IBM logo, and [ibm.com](http://ibm.com)<sup>®</sup> 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](http://www.ibm.com/legal/copytrade.shtml).

Adobe, the Adobe logo, PostScript, and the PostScript logo are either registered trademarks or trademarks of Adobe Systems Incorporated in the United States, and/or other countries.

Apache, Apache Axis2, Apache Maven, Apache Ivy, the Apache Software Foundation (ASF) logo, and the ASF feather logo are trademarks of Apache Software Foundation.

Gradle and the Gradlephant logo are registered trademark of Gradle, Inc. and its subsidiaries in the United States and/or other countries.

Intel, Intel logo, Intel Inside, Intel Inside logo, Intel Centrino, Intel Centrino logo, Celeron, Intel Xeon, Intel SpeedStep, Itanium, and Pentium are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.

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

The registered trademark Linux<sup>®</sup> is used pursuant to a sublicense from the Linux Foundation, the exclusive licensee of Linus Torvalds, owner of the mark on a worldwide basis.

Microsoft, Windows, Windows NT, and the Windows logo are trademarks of Microsoft Corporation in the United States, other countries, or both.

Red Hat<sup>®</sup>, and Hibernate<sup>®</sup> are trademarks or registered trademarks of Red Hat, Inc. or its subsidiaries in the United States and other countries.

Spring Boot is a trademark of Pivotal Software, Inc. in the U.S. and other countries.

UNIX is a registered trademark of The Open Group in the United States and other countries.

Zowe™, the Zowe logo and the Open Mainframe Project™ are trademarks of The Linux Foundation.

## **Terms and conditions for product documentation**

Permissions for the use of these publications are granted subject to the following terms and conditions.

### **Applicability**

These terms and conditions are in addition to any terms of use for the IBM website.

### **Personal use**

You may reproduce these publications for your personal, noncommercial use provided that all proprietary notices are preserved. You may not distribute, display or make derivative work of these publications, or any portion thereof, without the express consent of IBM.

### **Commercial use**

You may reproduce, distribute and display these publications solely within your enterprise provided that all proprietary notices are preserved. You may not make derivative works of these publications, or reproduce, distribute or display these publications or any portion thereof outside your enterprise, without the express consent of IBM.

### **Rights**

Except as expressly granted in this permission, no other permissions, licenses or rights are granted, either express or implied, to the publications or any information, data, software or other intellectual property contained therein.

IBM reserves the right to withdraw the permissions granted herein whenever, in its discretion, the use of the publications is detrimental to its interest or, as determined by IBM, the above instructions are not being properly followed.

You may not download, export or re-export this information except in full compliance with all applicable laws and regulations, including all United States export laws and regulations.

IBM MAKES NO GUARANTEE ABOUT THE CONTENT OF THESE PUBLICATIONS. THE PUBLICATIONS ARE PROVIDED "AS-IS" AND WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, AND FITNESS FOR A PARTICULAR PURPOSE.

## **IBM online privacy statement**

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:

### **For the CICSplex SM Web User Interface (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 CICSplex SM Web User Interface (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 CICSplex SM Web User Interface ("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 Privacy Policy](#) and [IBM Online Privacy Statement](#), the section entitled *Cookies, Web Beacons and Other Technologies* and the [IBM Software Products and Software-as-a-Service Privacy Statement](#).





