IBM CICS Transaction Server for z/OS, V5.4 delivers functional enhancements using the Continuous Delivery model, and the CICS Transaction Server for z/OS, V5.5 open beta offering is updated

Table of contents

Overview

IBM(R) CICS(R) Transaction Server for z/OS(R) (CICS TS) is a powerful, mixed-language application server that can process hundreds of thousands of business transactions every second. This latest release of CICS TS V5.4 by using a Continuous Delivery (CD) support model further extends the capabilities with innovative new functions and additional enhancements, such as:

- Add new policy system rules to:

  - Monitor the enable status of a PROGRAM resource.

  - Monitor the enable and availability status of a BUNDLE resource.

  - Monitor the status of a Multiregion operation (MRO) and IP interconnectivity (IPIC) CONNECTION resource.

  - Take an automated action when the state of a monitored resource changes.

In addition, the CICS TS V5.5 open beta offering is available for clients who want to explore potential new CICS capability and assess the value to their business. This latest release of the CICS TS V5.5 open beta offering is updated with new functionality, which includes:

- Support for Node.js applications

- Support for including common configuration into JVM server profiles

- New Map view to show workload management relationships in CICS Explorer(R)

- Enhanced inter-resource relationships in the new GraphQL API

- Threadsafe access to coupling facility data tables

- New policy system rules for monitoring PROGRAM, BUNDLE, and MRO and IPIC CONNECTION resources

- Real-time monitoring of outbound web requests

- Enhanced management of automatic initiator descriptors in the automatic initiate descriptor (AID) chain for local CICS systems

- Improved security for JCL job submissions to the job entry subsystem (JES) internal reader

The CICS TS V5.5 open beta offering can be downloaded, at no charge, from the IBM CICS open beta offering website.

Key prerequisites

CICS TS for z/OS V5.4, CICS TS Value Unit Edition V5.4, CICS TS Developer Trial V5.4

- The minimum required hardware prerequisite is IBM System z10[R] or subsequent 64-bit z/Architecture[R] processors.
- The minimum required level of operating system is IBM z/OS, V2.1 (5650-ZOS).
- The minimum required level of Java[TM] is:
  - IBM 64-bit SDK for z/OS, Java Technology Edition, V7.0, at Service Refresh 10 Fix Pack 1, or later
  - IBM 64-bit SDK for z/OS, Java Technology Edition, V7.1, at Service Refresh 4 Fix Pack 1, or later
  - IBM 64-bit SDK for z/OS, Java Technology Edition, V8.0.

  For more details, see the CICS Transaction Server for z/OS 5.4 detailed system requirements website.

CICS TS for z/OS, V5.5 open beta offering

- The minimum required hardware prerequisite is the System z[R] 196 or subsequent 64-bit z/Architecture processors.
- The minimum required level of operating system is z/OS, V2.2 (5650-ZOS).
- The minimum required level of Java is IBM 64-bit SDK for z/OS, Java Technology Edition, V8.0.

Planned availability date

- July 3, 2018: The majority of CICS TS V5.4 CD enhancements
- July 31, 2018: Updates to the CICS TS V5.5 open beta offering
- September 30, 2018: The remainder of the CICS TS V5.4 CD enhancements

Description

Enhancements to CICS TS V5.4 that are included in the CD model

CICS TS for z/OS, V5.4 was generally available on June 16, 2017, and was updated in January 2018 and April 2018. With this latest update, CICS TS V5.4 delivers a number of new and enhanced capabilities by using the standard CICS TS service channel to implement a CD model. For details of related Software Announcements for CD models and general availability of products, see the Reference information section.

New policy system rules

CICS TS V5.4, and earlier versions of CICS TS V5 with APAR PI83667 applied, provided support for policy system rules to allow users who want to monitor the state of system resources or the overall health of a CICS system to define system rules in CICS policies. System rules define an automated action to be performed, such as issue a message or emit a CICS event when a particular event happens in a CICS system. These events could be where a resource state changes, or a threshold is crossed, or an unusual system state or action occurs. This first set of system rules provided equivalent function to that provided by the system events function available in earlier CICS TS releases, since CICS TS V4.2.

CICS TS V5.4 APAR PI92806 adds support for new system rules to enable clients to:

- Monitor the enable status of a PROGRAM resource.
- Monitor the enable and available status of a BUNDLE resource.
- Monitor the status of a MRO and IPIC CONNECTION resource.

• Take an automated action when the state of the resource changes.

The following table provides details on the new capabilities that are available:

Capability	Availability method
New policy system rules for PROGRAM, BUNDLE, MRO and IPIC CONNECTION status	Use CICS TS V5.4 APAR PI92806

The CICS TS V5.5 open beta offering

The CICS TS V5.5 open beta offering is updated to allow clients to assess and provide feedback on potential future CICS TS capabilities. In this latest release of the open beta offering, the following enhanced features are provided:

• Support for Node.js applications in CICS TS

CICS TS extends its multi-language application server capabilities by adding support for running Node.js applications.

Node.js is a server-side runtime for applications written in JavaScript™. It is designed to be lightweight, efficient, and best suited for data-intensive applications. Node.js applications are typically event-driven, single-threaded. They process requests in a non-blocking manner to achieve high throughput.

The Node.js runtime encourages a module-driven, highly scalable approach to application design and development. There are many Node.js modules available on a public package registry, for most tasks, saving considerable time for application developers.

Node.js applications can now be packaged in a CICS TS bundle by using CICS Explorer, and deployed and managed by using existing CICS system interfaces. When the bundle is enabled, CICS TS will configure and start IBM SDK for Node.js -z/OS to run the application within the CICS TS address space.

Node.js applications in CICS TS can be used to provide RESTful APIs and web interfaces. For example, they can provide APIs that aggregate several CICS web services or IBM z/OS Connect Enterprise Edition APIs.

A Node.js application can be provisioned in CICS TS using the updated scenario *Getting started with CICS by using z/OSMF workflows*, available in the latest release of IBM z/OS Provisioning Toolkit.

IBM SDK for Node.js -z/OS is available as a separate product, and is required to run Node.js applications in CICS TS.

• Support for including common configuration into JVM server profiles

The JVM profile is a text file that contains Java launcher options, system properties, environment variables, and JVM server options. Together, these determine the characteristics of a JVM server in CICS. The new JVM profile *includes* directive loads additional configuration from another file. This enables configuration that is common to several JVM profiles to be shared, which gives more control and provides for easier maintenance of JVM profiles. Examples of common options are:

• Path to the Java installation, storage sizes, and garbage collection options

• Inclusion of common libraries and JARs

• Native library support for IBM Db2(R) and IBM MQ

• New Map view to show workload management relationships in CICS Explorer

CICS Explorer is enhanced with a new Map view that allows relationships between definitional workload management resources, such as workload specifications and transaction groups, to be visualized and understood. The Map view can be triggered from many views and editors related to CICS Explorer, where workload management resources are used, and includes the Workload Specification Editor and the CICSplex Explorer.

- Enhanced inter-resource relationships in the new GraphQL API

  The GraphQL system management API, which was introduced in earlier releases of the CICS TS V5.5 open beta offering, is enhanced with greater support for relationships between resources. This includes between:

- Workload specification
- Workload definitions
- Target systems and system groups

- Access to coupling facility data tables is now threadsafe

  Access to Coupling Facility data tables (CFDTs) is now threadsafe. Therefore, CFDTs can be accessed by applications that run on open task control blocks (TCBs) without incurring a TCB switch. Syncpoint processing of CFDTs can also run on an open TCB. However, the open and loading of a CFDT still occurs on a quasi-reentrant (QR) TCB.

- New policy system rules for monitoring PROGRAM, BUNDLE, MRO and IPIC CONNECTION resources

  Details of new policy system rules and related resources for the CICS TS V5.5 open beta offering are described earlier in this section, in relation to new policy system rules enhancements also provided for CICS TS V5.4. The same enhancements are delivered for both offerings described in this announcement.

- Real-time monitoring of outbound web requests

  Clients may now monitor, in real-time, the URIMAPs and WEBSERVICEs that are opened or invoked by CICS TS as a web client. CICS TS monitoring is enhanced with new monitoring records URIMAP and WEBSERVICE in the resource monitoring class. Multiple URIMAP or WEBSERVICE records can be monitored for one task.

  A URIMAP record monitors the completion of WEB OPEN URIMAP, WEB RECEIVE, WEB SEND, and WEB CONVERSE requests that are issued by the user task for a URIMAP.

  A WEBSERVICE record monitors the completion of INVOKE SERVICE requests that are issued by the user task for a WEBSERVICE, and tracks the name of the PIPELINE resource definition that was used.

  This enhancement makes it easier to identify the URIMAPs or WEBSERVICEs associated with prolonged socket wait time and diagnose troublesome destinations.

- Enhanced management of automatic initiator descriptors in the AID chain for the local CICS system

  CICS TS provides enhanced management capabilities for monitoring and controlling automatic initiator descriptors (AIDs) in the AID chain for the local system. Clients can now use these capabilities to prevent the occurrence of an inordinately high number of AIDs that are chained from the local system's terminal control table system entry (TCTSE), and minimize chances of high CPU usage that might arise under such circumstances and subsequent degradation in task response times.

  The INQUIRE SYSTEM and INQUIRE CONNECTION SPI commands are enhanced to return the current number of AIDs for the CICS system and per connection. The ISC/IRC system entry statistics now report the current and peak number of AIDs.

  To control the number of AIDs, the SET CONNECTION SPI command is enhanced such that the name of the local system can be specified in order to purge AIDs in the local system.

  A new policy system rule is provided to allow users to monitor the total number of AIDs in the local CICS system. This new policy system rule supports three automated actions to be performed when the number of AIDs reaches the limit.

These actions are: issue a message, emit an event, or reject the request. If the last action is selected and an EXEC CICS START command issued from an application causes the system to attempt to create an AID, then the EXEC CICS START request will fail with an INVREQ response and a new RESP2 value of 400.

- Improved security for JCL job submissions to the JES internal reader

  For JCL jobs that are submitted to the JES internal reader by using spool commands, CICS TS now performs surrogate user checking to verify if the user is authorized to submit a job with the user ID specified on the job card.

  To support this verification, the following new toggle-enabled features are introduced:

- Surrogate user checking for spool commands
- User ID used for JCL job submission when no job user ID is specified on the job card

  This enhancement makes job submissions from CICS TS to the JES internal reader more secure.

Availability of the CICS TS V5.5 open beta offering

The CICS TS V5.5 open beta offering is available for clients who want to explore potential new CICS capability and assess the value to their business. It can be downloaded, at no charge, from the IBM CICS open beta offering website.

Clients are invited to contact the CICS Early Programs coordinator, at cicsep@uk.ibm.com, to register an interest in future, managed CICS TS beta programs.

IBM software beta programs overview

IBM software beta programs allow clients to sign up for and acquire early releases of a product for the purposes of testing, before it is made commercially available. Open beta programs do not usually require clients to register before taking part in the program. Typically, product offerings that are provided by a beta program:

- Are free of charge.
- Are not warranted.
- Have no support of any kind.
- May not be used for productive purposes.
- Contain a disabling device that will prevent it from being used after the test period ends.

Details of the terms and conditions of the software beta program are found in the supplied license files for the offering.

Participants in the beta program gain insight into IBM strategy and direction. They may also afford earlier benefit and payback from new function, and may gain competitive edge and the opportunity for public recognition as a technology leader. Participants are encouraged to provide feedback and articulate their own requirements to IBM, with the potential to help influence and shape future IBM products.

Stabilization of support and discontinued functions

Removal of utility DFHMSCAN in a future release of CICS TS

The CICS TS utility DFHMSCAN, which scans a load module library to identify programs that use CICS macros, will be removed in a future release of CICS TS.

Section 508 of the US Rehabilitation Act

CICS TS V5.4 and the CICS TS V5.5 open beta offering are capable, when used
in accordance with associated IBM documentation, of satisfying the applicable
requirements of Section 508 of the Rehabilitation Act, provided that any assistive
technology used with the product properly interoperates with it. A US Section 508
Voluntary Product Accessibility Template (VPAT) can be requested.

Hardware and software support services

SmoothStart/installation services

IBM Services has the breadth, depth, and reach to manage your services needs.
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and the business consulting, project management, and infrastructure expertise
of our IBM Global Services team. Also, IBM Services extends our reach through
IBM Business Partners to provide an unmatched portfolio of capabilities. Together,
IBM provides the global reach, intellectual capital, industry insight, and technology
leadership to support any critical-business need. Further information about CICS
services is also available.

Reference information

IBM Software Announcements

For information on the April 2018 update of CICS TS V5.4, and the update of the
CICS TS V5.5 open beta offering, see Software Announcement 218-121, dated April
3, 2018.

For information on the January 2018 update of CICS TS V5.4, and the introduction
of the CICS TS V5.5 open beta offering, see Software Announcement 218-003,
dated January 9, 2018.

For information on the June 2017 general availability of CICS TS V5.4, CICS TS
Developer Trial V5.4, and CICS TS Value Unit Edition (VUE) V5.4, see Software
Announcement 217-113, dated May 16, 2017.

For information on IBM z/OS Provisioning Toolkit, V1.1, see Software Announcement
218-025, dated January 9, 2018.

For information on IBM z/OS Connect Enterprise Edition, V3.0, see Software
Announcement 217-060, dated June 13, 2017.

CICS web pages

For up-to-date information on CICS family products, see the CICS home page.

The CICS support web page can be used to search for terms, phrases, error codes,
and APAR numbers.

CICS SupportPacs

CICS SupportPacs are available, at no charge, and are designed to complement and
extend the capabilities of CICS TS.

Program number

Program number	V.R.M	Program name
5655-Y04	5.4.0	CICS Transaction Server for z/OS
5722-DFJ	5.4.0	CICS Transaction Server for z/OS Value Unit Edition

Program number	V.R.M	Program name
5722-DFK	1.1.0	CICS Transaction Server for z/OS Value Unit Edition S&S
5655-Y30	5.4.0	CICS Transaction Server for z/OS Developer Trial
5655-Y15	1.1.0	CICS Transaction Server for z/OS Developer Trial S&S
5655-BTA	5.5.0	CICS Transaction Server for z/OS open beta

Business Partner information

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to BP Attachment for Announcement Letter 218-220 for this announcement. A PartnerWorld ID and password are required (use IBMid).

Technical information

Specified operating environment

Hardware requirements

CICS TS V5.4 runs on any machine that supports the required z/OS operating system. For example, the minimum required hardware prerequisite for CICS TS V5.4 is IBM System z10 or subsequent 64-bit z/Architecture processors.

Similarly, the CICS TS V5.5 open beta offering runs on any machine that supports the required z/OS operating system. For example, the minimum required hardware prerequisite for the CICS TS V5.5 open beta is IBM System z 196 or subsequent 64-bit z/Architecture processors.

Further details of supported hardware are available in the CICS TS V5.4 (general availability) Software Announcement 217-113, dated May 16, 2017.

Software requirements

- CICS TS for z/OS, V5.4, CICS TS Value Unit Edition V5.4, CICS TS Developer Trial V5.4

  – Operating environment. The minimum required level of operating system is z/OS V2.1 (5650-ZOS).
  – Java Runtime Environment. The minimum required level of Java is:

    -- IBM 64-bit SDK for z/OS, Java Technology Edition, V7.0, at Service Refresh 10 Fix Pack 1, or later, or
    -- IBM 64-bit SDK for z/OS, Java Technology Edition, V7.1, at Service Refresh 4 Fix Pack 1, or later, or
    -- IBM 64-bit SDK for z/OS, Java Technology Edition, V8.0.

    The IBM 64-bit SDK for z/OS, Java Technology Edition is required, if using

- Java application programs
- SAML support
- JSON web services
- The CICS Web Services Assistant
- The CICS XML Assistant

    Detailed system requirements are available at the CICS Transaction Server for z/OS 5.4 detailed system requirements website.

Detailed system requirements are available at the CICS Transaction Server for z/OS 5.4 detailed system requirements website.

- CICS TS for z/OS, V5.5 open beta offering
  - Operating environment. The minimum required level of operating system is z/OS V2.2 (5650-ZOS).
  - Java Runtime Environment. The minimum required level of Java is IBM 64-bit SDK for z/OS, Java Technology Edition, V8.0.

- CICS Explorer
  - CICS Explorer V5.4 requires CICS TS V5.4 to make use of the latest functionality provided. Details of other system requirements for both the CICS Explorer and CICS Explorer SDK are available online.
  - Details relating to service and support for CICS Explorer are also available online.

For additional information on software requirements, see the relevant *Program Directory.* For online information, click on the *Detailed system requirements for CICS TS for z/OS, V5.4* topic from document, *Detailed System Requirements for CICS Transaction Server.*

Compatibility

Application programming summary

The high-level programming languages and compilers that are in service on z/OS and have CICS translator support are detailed in the "High-level language support" topic in the CICS TS V5.4 product documentation.

Performance considerations

Performance information is available in the online product documentation for CICS TS V5.4 in the IBM Knowledge Center.

User group requirements

User requirements for CICS TS can be created, viewed, and voted for in the IBM Request For Enhancement (RFE) community.

Planning information

Packaging

For details of packaging, physical delivery, and electronic delivery, see the CICS TS V5.4 (general availability) Software Announcement 217-113, dated May 16, 2017.

Security, auditability, and control

CICS TS V5.4 and the CICS TS V5.5 open beta offering use the security and auditability features of the operating system under which they are running.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Ordering information

Publications

CICS TS V5.4 product documentation

Product documentation for CICS TS V5.4 is refreshed regularly to reflect feedback from users and includes changes that result from IBM Service and continuous delivery releases. Detailed information is provided in IBM Knowledge Center, in section What documentation is available?

For CICS TS V5.4, online documentation is available in IBM Knowledge Center.

PDF format documentation is also provided for download in IBM Knowledge Center.

Further information on product documentation is available in the CICS TS V5.4 general availability Software Announcement 217-113, dated May 16, 2017.

CICS TS V5.5 open beta offering product documentation

Effective July 31, 2018, online documentation will be available for the CICS TS V5.5 open beta offering from IBM Knowledge Center.

Effective July 31, 2018, PDF format documentation is also provided for download and will be available from IBM Knowledge Center.

Subsequent updates (technical newsletters or revisions between releases) to the publications shipped with the product will be distributed to the user of record for as long as a license for this software remains in effect. A separate publication order or subscription is not needed.

Customized Offerings

Product deliverables are shipped only through CBPDO and ServerPac. These customized offerings are offered for internet delivery from Shopz. Internet delivery reduces software delivery time and allows you to install software without the need to handle tapes. For more details on internet delivery, go to the Help section on the Shopz website.

You choose the delivery method when you order the software. IBM recommends internet delivery.

Most products can be ordered in ServerPac the month following their availability in CBPDO. z/OS can be ordered through CBPDO and ServerPac at general availability. Many products will also be orderable in a Product ServerPac without also having to order the z/OS operating system or subsystem.

Shopz and CFSW will determine the eligibility based on product requisite checking. For more details on the product ServerPac, go to the Help section on the Shopz website.

For additional information on the Product ServerPac option, see Software Announcement 212-272, dated July 31, 2012.

Production of software product orders will begin on the planned general availability date.

- CBPDO shipments will begin one week after general availability.
- ServerPac shipments will begin two weeks after general availability.

Terms and conditions

The terms are unaffected by this announcement.

Statement of good security practices

IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

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Note: Shipments will begin after the planned availability date.

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