

CICS Transaction Server V5.3 open beta

- Service Agility
- Operational Efficiency
- Cloud with DevOps

IBM CICS Transaction Server V5.3 open beta

enterprise grade mixed language application serving



Service Agility

Enhanced support for Java and the WebSphere Liberty profile

- Additional Liberty features
- Enhanced interoperability
- Simplified management
- Enhanced Java SE support



Operational Efficiency

Performance optimizations, enhanced metrics and additional security

- Web service optimizations
- Performance improvements
- Enhanced metrics
- Additional security options



Cloud with DevOps

New cloud and DevOps support to automate CICS deployments

- Automated builds
- Scripted deployments
- UrbanCode Deploy support
- Enhanced cloud enablement

Planned open beta availability : 23rd Mar 2015

CICS TS V5.3 open beta : Service Agility

Enhanced support for Java and the WebSphere Liberty profile

Additional Liberty profile features

A set of new Liberty profile features provides support for a wider range of Java web APIs and application frameworks. The following Liberty profile features are included in the CICS TS V5.3 open beta offering:

Enhanced interoperability

- Contexts and Dependency Injection (CDI)*
- Enterprise JavaBeans (EJB) Lite subset
- Managed Beans*
- MongoDB*
- OSGi Console*
- Session Persistence (JDBC type 4 driver only)*

Simplified management

Enhanced Java SE support

Existing Liberty profile features are enhanced, specifically by adding EAR support for bundles, adding SQLJ support for use with the DB2 type 2 driver data sources, and adding transaction support to the Blueprint feature.

These newly supported and enhanced features make Java-based web applications hosted in the Liberty profile JVM server even more capable and portable.

* Also available in CICS TS V5.2 via APAR PI25503.

CICS TS V5.3 open beta : Service Agility

Enhanced support for Java and the WebSphere Liberty profile

Additional Liberty profile features

Enhanced interoperability

Simplified management

Enhanced Java SE support

The CICS TS V5.3 open beta offering also includes a technology preview of the ability for Java programs in a Liberty profile JVM server and non-Java programs to call each other using standard CICS API calls. This technology preview enables:

- Java applications to use the standard JEE Connector Architecture (JCA) to invoke CICS programs in any supported language.
- Non-Java CICS programs to issue an EXEC CICS LINK to call a Java application running in a Liberty profile JVM server.

Additionally, the Liberty z/OS Connect feature is now supported by the CICS TS V5.3 open beta offering*. This provides RESTful APIs and accepts JavaScript Object Notation (JSON) payloads between CICS, mobile devices, and cloud environments.

* Also available in CICS TS V5.2 via APAR PI25503.

CICS TS V5.3 open beta : Service Agility

Enhanced support for Java and the WebSphere Liberty profile

Additional Liberty profile features

Java Management Extensions (JMX) can be used to monitor Java applications and JVM system objects. The following JMX-related Liberty profile features are now supported:

Enhanced interoperability

- Local JMX Connector*
- Monitoring*
- REST connector (for JMX)*

Simplified management

Users of the Liberty profile JVM server can now manage and monitor applications and system objects locally by using the JMX client API, or remotely by using the JConsole monitoring tool included in Java SE.

Enhanced Java SE support

Additionally, administration of the JVM servers is enhanced by simplifying the process of managing log files that include controls for the maximum number of zFS logs, the ability to redirect log files to the MVS JES log, and the standardization of timestamps.

* Also available in CICS TS V5.2 via APAR PI25503.

CICS TS V5.3 open beta : Service Agility

Enhanced support for Java and the WebSphere Liberty profile

Additional Liberty profile features

Enhanced support is provided for Java SE developers who need access to WebSphere MQ. Java SE programs that run in a CICS OSGi JVM server can now use the WebSphere MQ classes for the Java Message Service (JMS), as an alternative to the proprietary WebSphere MQ classes for Java.

Enhanced interoperability

Developers familiar with the JMS API can easily access WebSphere MQ resources. The CICS MQ attachment facility is enhanced to support the necessary new commands.

Simplified management

Support is limited to Java programs that run in an OSGi JVM server. There is no support in a Liberty profile JVM server.

Enhanced Java SE support

Support from WebSphere MQ that use the WebSphere MQ classes for JMS is provided in WebSphere MQ for z/OS V7.1 and V8:

- V7.1 requires MQ APAR PI29770 (built on fix pack 7.1.0.6) or later
- V8.0 requires base APAR PI28482 and fix pack 8.0.0.2 or later
- CICS TS V5.2 is also supported and requires APAR PI32151

IBM CICS Transaction Server z13 exploitation

Statement of Direction

IBM intends that a future release of IBM CICS Transaction Server for z/OS will support 64-bit SDK for z/OS, Java Technology Edition, Version 8 (Java 8). This support will enable the use of new facilities delivered by IBM z13 which are exploited by Java 8, including 'Single Instruction Multiple Data' (SIMD) instructions for vector operations and simultaneous multithreading (SMT).

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CICS TS V5.3 open beta : Operational Efficiency

Performance optimizations, enhanced metrics and additional security

Web service optimizations

Web services are one of the most popular methods of interacting with CICS applications. The CICS TS V5.3 open beta offering delivers a number of significant optimizations in this area.

Performance improvements

The pipeline processing of HTTP requests has been improved, removing the need for an intermediate web attach task (CWXXN transaction) in the majority of use cases. This will reduce the CPU and memory overhead for most types of SOAP and JSON-based HTTP CICS web services.

Enhanced metrics

Additional security options

This optimization can also be used for inbound HTTPS requests, where SSL support is provided by the Application Transparent Transport Layer Security (AT-TLS) feature of IBM Communications Server. CICS TCPIP SERVICE resources can be configured as AT-TLS aware to obtain security information from AT-TLS.

HTTPS implementations that use CICS-provided SSL support still use the CWXXN transaction. However, multiple TCB switches have been eliminated for these scenarios. Therefore, these implementations should also see performance improvements.

CICS TS V5.3 open beta : Operational Efficiency

Performance optimizations, enhanced metrics and additional security

Web service
optimizations

Performance
improvements

Enhanced Metrics

Additional security
options

Internal performance improvements are made in many areas of the CICS TS V5.3 open beta offering to help reduce CPU overhead. These include the exploitation of a number of the new hardware instructions introduced with the IBM z9, cache alignment of some key CICS control blocks, the use of prefetch, reduced lock contention within monitoring algorithms, improvements to the MRO session management algorithms, and further tuning of internal procedures.

Improvements in efficiency have noticeable improvements in the CICS trace facility, the CICS monitoring facility, and for MRO connections with high session counts.

CICS TS V5.3 open beta : Operational Efficiency

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CICS transaction tracking identifies relationships between tasks in an application as they flow across CICS systems, and can be visualized in CICS Explorer. Transaction tracking in the CICS TS V5.3 open beta offering has been extended to transactions started by the CICS-WebSphere MQ bridge. This expands the scope of transactions that can use transaction tracking to help with problem determination, reporting, and auditing.

Additionally, a number of metrics are added into the global CICS statistics for transaction CPU time measurements and are captured without the need for CICS monitoring to be active. This allows greater insight into the CPU resource usage of the CICS TS V5.3 open beta offering's regions, without the overhead of collecting and processing SMF 110 monitoring records.

CICS TS V5.3 open beta : Operational Efficiency

Performance optimizations, enhanced metrics and additional security

Web service
optimizations

The CICS TS V5.3 open beta offering also includes the following new and enhanced security options:

Performance
improvements

- New support for the Enhanced Password Algorithm, which was implemented in RACF APAR OA43999, to allow stronger encryption of passwords.
- Enhanced support for Kerberos to provide an EXEC CICS SIGNON TOKEN command, avoiding the need to flow a password. This enables applications to validate a Kerberos security token (as determined by an external security manager) and associate a new user ID with the current terminal.
- A new EXEC CICS REQUEST PASSTICKET API that can be used for outbound requests from the current task, where basic authentication is required, thereby avoiding the need to flow passwords. The command requests an external security manager (ESM), such as RACF, to build a PassTicket.

Enhanced metrics

Additional security
options

Additionally, enhancements are made to further off-load authentication requests to open TCBs. This reduces contention on the resource owning (RO) TCB.

CICS TS V5.3 open beta : Cloud with DevOps

New cloud and DevOps support to automate CICS deployments

Automated builds

Cloud applications and bundles are a convenient way to package and manage components, resources, and dependencies in CICS.

Scripted deployments

The CICS TS V5.3 open beta offering introduces the CICS build toolkit, which provides a command-line interface for automating the building of CICS projects created using the CICS Explorer. CICS cloud applications and bundles, as well as OSGi Java components, can now be automatically built from source code.

UrbanCode Deploy support

Builds are created by calling the CICS build toolkit from scripts, which can automatically run when developers make application updates. A build script would typically check out the latest application version from source control, along with its dependencies. It would then call the CICS build toolkit to build the projects that form the application. Finally, the script would copy the built projects to a suitable location, such as an artifact repository or a staging area on zFS.

Enhanced cloud enablement

The CICS build toolkit is supported on z/OS, Linux, and Microsoft Windows operating systems, and supports CICS TS V4.1 and later.

CICS TS V5.3 open beta : Cloud with DevOps

New cloud and DevOps support to automate CICS deployments

Automated builds

A built CICS project, which resides in zFS, can now be programmatically deployed across CICS systems by using a set of scripting commands in the CICS TS V5.3 open beta offering, and can simplify and automate application deployments.

Scripted deployments

UrbanCode Deploy support

DFHDPLOY is a new batch utility to support the automated provisioning of CICS bundles, OSGi bundles within CICS bundles, and CICS applications by using the following simple commands:

Enhanced cloud enablement

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

DFHDPLOY commands can be used against artifacts in an automated deployment script to deploy them across CICS systems, and set them to a desired state, such as 'enabled' or 'available'. It can also be used to undeploy and remove them when they are no longer required.

CICS TS V5.3 open beta : Cloud with DevOps

New cloud and DevOps support to automate CICS deployments

Automated builds

IBM UrbanCode Deploy orchestrates and automates the deployment of applications, middleware configurations, and database changes. An updated CICS TS beta plug-in for UrbanCode Deploy supports the deployment of CICS applications as part of these orchestrations.

Scripted deployments

UrbanCode Deploy support

Using UrbanCode Deploy, multiple deployment steps can be coordinated in a single action. Deployment processes can be reused for similar applications and environments, such as development systems or more tightly-controlled test and production environments.

Enhanced cloud enablement

The CICS TS beta plug-in for UrbanCode Deploy provides functions for installing and removing resources, NEWCOPY and PHASEIN for programs, and performing a pipeline scan. Batch utilities, like DFHDPLOY, can be reused using the z/OS utility plug-in.

An updated version of the UrbanCode Deploy plug-in for CICS TS V4.1 and later is available to download from the UrbanCode Deploy plug-in website. Visit <https://developer.ibm.com/urbancode/plugin/cics-ts/>

CICS TS V5.3 open beta : Cloud with DevOps

New cloud and DevOps support to automate CICS deployments

Automated builds

In addition to the major new DevOps capabilities delivered by this beta offering to help reliably and repeatedly deploy CICS cloud and CICS Java applications, a number of enhancements are made to the core CICS cloud capabilities.

Scripted deployments

Support for threshold policies is enhanced by providing the ability to supply a threshold policy for the number of WebSphere MQ requests, DL/I requests, named counter requests, and shared temporary storage requests issued by a CICS task. This brings the total number of thresholds against which an action can be triggered to 14.

UrbanCode Deploy support

Enhanced cloud enablement

Support for transaction entry points has been added for CICS cloud applications, in addition to program and URIMAP entry points that are already provided. This provides the ability to scope policies to be specific to a particular transaction ID.

Recovery of the application infrastructure is enhanced, so that the available or unavailable state of an application is automatically recovered across CICS restarts.

IBM CICS Transaction Server z13 exploitation

Supporting the latest IBM z Systems

All in-service releases of IBM CICS Transaction Server for z/OS (CICS TS) will support the z13 hardware. This gives CICS TS customers at an appropriate level of z/OS the potential to benefit from facilities of z13, including:

- Use of simultaneous multithreading (SMT) on zIIP processors by CICS Java applications.
- Greater data compression and reduced data transfer time provided by enhanced zEnterprise Data Compression (zEDC), which could be exploited by CICS SMF data when using SMF log streams
- CICS TS transactions using SSL or TLS could take advantage of cryptographic acceleration with the Crypto Express5s cryptographic adapter.
- Planned availability of Large Memory on z/OS, up to 4 TB per z/OS image, could be useful to customers requiring more real memory to back large amounts of virtual storage, such as large, or large numbers of, CICS Shared Data Tables, CICS main temporary storage above-the-bar, and JVM server heap storage.