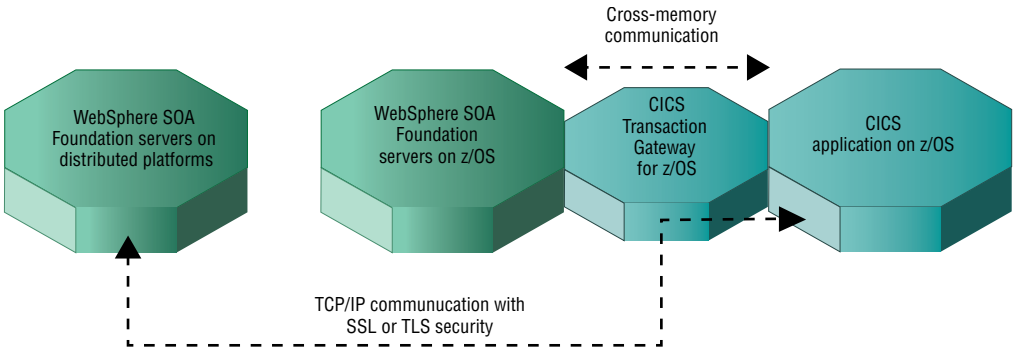
Delivers high-performing, security-rich and scalable SOA access to CICS applications

IBM CICS Transaction Gateway for z/OS, Version 7.0

Highlights

- ***Connects WebSphere SOA Foundation server products across multiple platforms to CICS Transaction Server on z/OS***
- ***Provides J2EE standards-based connectivity that can use the JCA, Version 1.5 specification to manage connections, transactions and security***
- ***Enables rapid deployment of existing CICS applications into an SOA — while keeping your business logic intact***
- ***Maximizes performance, availability and scalability on flagship z/OS platforms that can deliver many thousands of transactions per second***
- ***Integrates with RRS on the z/OS platform to provide two-phase-commit transactional integrity with distributed WebSphere SOA Foundation server products***
- ***Introduces real-time monitoring of CICS Transaction Gateway systems, providing the ability to analyze system-utilization metrics and perform online problem determination***
- ***Extends networking capabilities including support for IPv6 connections, and integration with the z/OS WLM***
- ***Advances security capabilities to include TLS, Version 1.0 support, improved offload of encryption to the System z hardware cryptographic services, and stronger RACF password support***



CICS Transaction Gateway for z/OS, Version 7.0 provides standards-based connectivity from WebSphere SOA Foundation server products on z/OS and distributed platforms to CICS Transaction Server for z/OS.

Service oriented architecture (SOA) is a business-centric IT architectural approach that supports integrating your business as linked, repeatable business tasks, or services. Because much of the world's data is processed on mainframes using the qualities of service of proven transaction servers such as IBM CICS® Transaction Server for z/OS, delivering access to these CICS applications using standards-based interfaces is a vital and core step in the journey to SOA.

IBM CICS Transaction Gateway has been proven over many years to provide high-performing, security-rich and scalable access to CICS Transaction Server, requiring minimal changes to CICS systems and usually no changes to existing CICS applications. With IBM CICS Transaction Gateway for z/OS, Version 7.0, you can use your CICS communications area (COMMAREA)-based applications in comprehensive and sophisticated Java™ and Web services solutions hosted on IBM WebSphere® SOA Foundation server products, such as IBM WebSphere Application Server, IBM WebSphere Enterprise Service Bus (WebSphere ESB) and IBM WebSphere Process Server. Reusing these applications in mixed CICS and WebSphere workloads delivers real business value by supporting reuse, which gives your organization flexibility and helps reduce cost.

High-performing, security-rich and scalable connectivity

Running CICS Transaction Gateway on the IBM z/OS® operating system provides the highest quality of service of all the environments in which CICS Transaction Gateway is supported. In the z/OS environment, CICS Transaction Gateway can support thousands of transactions per second by using multiple gateway regions, and by reusing memory-based External CICS Interface (EXCI) pipes. CICS Transaction Gateway uses a multithreaded daemon to handle communication with front-end application servers and back-end CICS systems. Deployment code is optimized, enabling support for large numbers of concurrent requests and subsecond response times to users.

Remote communication is Internet Protocol (IP)-based, and CICS Transaction Gateway provides comprehensive IP-based security features, including support for Java Secure Socket Extension (JSSE) Secure Sockets Layer (SSL) and now Transport Layer Security(TLS) encryption between the WebSphere SOA Foundation server and CICS Transaction Gateway. An external configuration option that allows you to specify the SSL cipher suite enables you to define the level of security at the application level, and provides the capability to take advantage of new levels of encryption as they emerge. You can even map SSL certificate identities to IBM RACF® user IDs, providing integration with existing CICS security mechanisms.

J2EE platform, standards-based composite applications

CICS Transaction Gateway for z/OS supports the standard Java 2 Platform, Enterprise Edition (J2EE) Connector Architecture (JCA), Version 1.5 specification as its strategic interface. As a component of the J2EE specification, alongside other standard services, the JCA provides a standard programming interface to all enterprise information systems (EISs). Using JCA offers two significant development advantages. First, it enables J2EE developers to program to a standard interface that is widely supported in education materials and software tools from IBM and non-IBM vendors. Second, JCA provides delegated management of connection pooling, transactional scope and security control, so that J2EE developers don't have to develop these capabilities within the application. Together, these benefits mean that better applications can be developed faster and more easily.

A number of tools that are complementary to the IBM software-development platform support CICS Transaction Gateway and JCA. Together these products can deliver a complete end-to-end IBM solution that can help minimize cost, risk and time to market of new applications.

Rapidly and easily add SOA capabilities to existing CICS applications

CICS Transaction Gateway for z/OS is designed to enable rapid and easy deployment, using the System Modification Program Extended (SMP/E) standard tool for installation and maintenance. A user-friendly configuration infrastructure expedites the initial setup of CICS Transaction Gateway, and enables multiple Gateway daemons on the z/OS platform to be configured and run independently to maximize scalability and availability. A set of extended z/OS system commands provides a simple and security-rich way to manage, control and monitor your CICS Transaction Gateway for z/OS environment.

An External Call Interface (ECI) JCA resource adapter enables COMMAREA-based CICS applications to interoperate effectively with WebSphere applications. Using Java servlet or Enterprise JavaBeans (EJB) components, CICS Transaction Gateway allows high-performing access to existing CICS COMMAREA-based transactions, while requiring minimal changes to CICS and usually no changes to existing CICS applications.

Maximum transactional integrity

One advantage of deploying CICS Transaction Gateway on the z/OS platform is the provision of XA two-phase-commit transactional integration between physically distributed WebSphere SOA Foundation servers and CICS Transaction Server applications running on the z/OS platform. This capability enables CICS Transaction Gateway to fully participate in a global transaction, where units of work can be coordinated across different resource managers (such as IBM DB2®, IBM IMS™ and SAP software). Two-phase commit helps ensure that the entire transaction can commit successfully, or if some error condition occurs, be entirely returned to the state before the transaction. With global two-phase commit, you can physically distribute a composite transaction across heterogeneous servers and operating environments — helping to maximize flexibility without compromising data integrity.

Two-phase-commit transactions work by requiring a PREPARE command to be confirmed by each resource manager, before a COMMIT command makes all transaction changes permanent. This capability is provided through the provision of an XA-capable JCA resource adapter and the use of the z/OS Resource Recovery Services (RRS) subsystem. After a resource manager makes a positive response to a prepare request, the resource manager enters a contract to commit the work as part of the global transaction. This decision is persisted in RRS, so that even if the connection is lost or CICS Transaction Gateway is restarted, the controlling transaction manager can recover and commit the work, helping to provide the highest levels of integrity for the entire global transaction.

CICS Transaction Gateway for z/OS, Version 7.0 also supports local-mode global transactions. This capability provides optimized two-phase-commit support when the WebSphere SOA Foundation server and CICS Transaction Server for z/OS are located on the same z/OS logical partition (LPAR). This configuration also provides the highest qualities of service because communication between the CICS and WebSphere server is provided through shared memory rather than over a network connection.

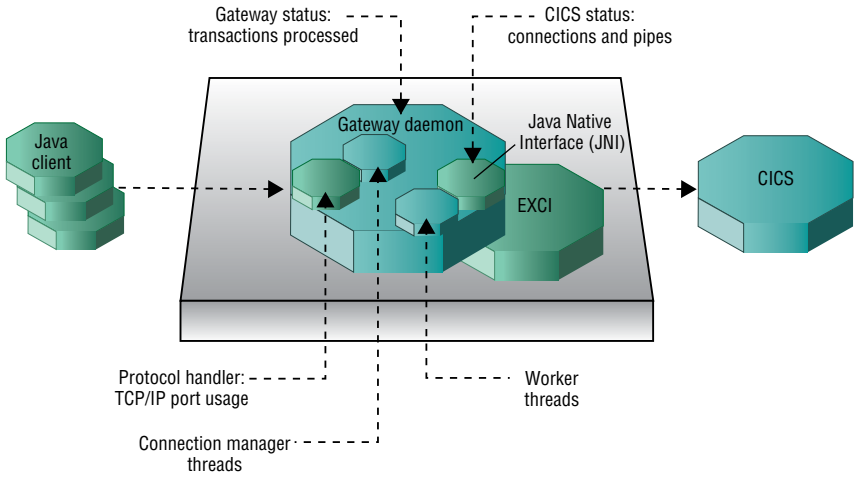
Significant enhancements in CICS Transaction Gateway for z/OS, Version 7.0

CICS Transaction Gateway, Version 7.0 delivers significant enhancements over previous releases, in three key value areas:

- *Systems-monitoring capability*
- *Extended-networking support*
- *Advanced security enablement*

Systems-monitoring capability

CICS Transaction Gateway for z/OS, Version 7.0 can perform real-time monitoring of gateway systems. This important capability delivers a window into CICS Transaction Gateway, enabling its activity to be monitored proactively. This capability enables CICS Transaction Gateway to detect and resolve abnormal occurrences before they cause a problem to production operations. Systems administrators and capacity planners can analyze system-utilization metrics, and perform online problem determination of these CICS Transaction Gateway system functions.



With this release, CICS Transaction Gateway for z/OS now enables you to monitor gateway systems proactively.

CICS Transaction Gateway provides statistics about a number of important metrics, including EXCI pipe usage, configurable system limits, internal thread usage and processed transaction requests. You can also access critical information about connection management and transaction throughput, and obtain information about the proximity of the workload to the levels set in the configurable limits. If necessary, you can take action to reduce the need for planned outages or prevent the occurrence of unplanned downtime.

These statistics are made available through two methods. First, you can access monitoring statistics through the extended z/OS system command-based administration interface. You can also choose to use the new external C language application programming interface (API). Using this API enables custom-built solutions or monitoring applications to use system-monitoring statistics and take advantage of the API's value within integrated monitoring applications.

Also, monitoring automation is enhanced through the new ability to direct critical CICS Transaction Gateway messages to the z/OS console. This capability provides better and easier automated operations when using IBM Tivoli® System Automation for z/OS by increasing the availability of the CICS Transaction Gateway so that the systems can take predefined courses of action when certain conditions occur, without operator intervention.

Extended networking support

With this release, CICS Transaction Gateway includes the ability to process Internet Protocol, Version 6 (IPv6) connections from remote Java clients, providing for the better routing, enhanced security and global scalability delivered in this latest version of the IP standard. TCP/IP, SSL and TLS connections into the Gateway daemon from remote Java clients can use IPv6 connections along with IPv4 connections. Using IPv6 delivers improved interoperability with CICS applications deployed on the IBM System z™ platform, and enables the enhanced routing and autoconfiguration capabilities of IPv6 networks to be used within the enterprise.

Also, integration with the z/OS Workload Manager (WLM) now enables intelligent distribution of workload across a sysplex, providing increased systems availability. This capability enables CICS Transaction Gateway for z/OS, Version 7.0 to provide dynamic feedback on CICS region availability to the TCP/IP load-balancing mechanisms on the z/OS platform through the facilities of the z/OS WLM component. These server-specific WLM recommendations can be used by Sysplex Distributor, TCP/IP port sharing or the z/OS Load Balancing Advisor to determine which individual Gateway daemon will have priority when any new TCP/IP, SSL or TLS connections are established. This capability can increase the availability of applications and help reduce the likelihood of any one CICS region being overloaded.

Advanced security enablement

Support for the TLS, Version 1.0 protocol now enables more-stringent encryption capabilities and better interoperation with a variety of secure clients. Along with the existing support for SSL, Version 3.0, support is added for the TLS, Version 1.0 protocol for security-rich connections into the Gateway daemon.

The ability to offload other encryption to the cryptographic services of the System z hardware enables increased throughput of SSL and TLS requests. This capability is provided through support for the IBMJSSE2 security provider in the software development kit (SDK) for z/OS. Using IBMJSSE2 can lead to reduced processor usage and increased system throughput through the hardware cryptographic support for the Data Encryption Standard (DES), Triple DES (TDES), Rivest, Shamir and Adelman (RSA) and Secure Hash Algorithm (SHA) algorithms, and also provides the option for enhanced protection of encryption key values through highly secure, cryptographic-coprocessor functional support.

Support for stronger RACF passwords is also included through the ability to verify a mixed-case password when enabled in RACF. When this function is activated, the Gateway daemon is able to authenticate case-sensitive passwords with RACF, and flow the authenticated user ID onto connected CICS Transaction Server for z/OS regions.

For more information

CICS Transaction Gateway for z/OS is a high-performing, security-rich and scalable method of SOA access to CICS Transaction Server. It delivers J2EE standards-based access to CICS applications, while requiring minimal changes to CICS and usually no changes to existing CICS applications. To learn more about IBM CICS Transaction Gateway for z/OS, contact your IBM representative or IBM Business Partner, or visit:

ibm.com/cics/ctg

IBM CICS Transaction Gateway for z/OS, Version 7.0 at a glance

Hardware requirements

CICS Transaction Gateway for z/OS, Version 7.0 runs on any System z machine that supports the required operating system.

Software requirements

- IBM z/OS, Version 1.6 or later
- IBM 31-bit Runtime Environment for z/OS, Java 2 Technology Edition, Version 5

Other supported software:

- IBM CICS Transaction Server for z/OS, Version 2.2 , 2.3 or 3.1
- IBM WebSphere Application Server for z/OS, Version 6.1
- IBM WebSphere Application Server for z/OS, Version 5.1 or 6.0 (when used in remote mode only)*
- IBM WebSphere Application Server for Multiplatforms Version 5.1, 6.0 or 6.1 (when used in remote mode only)*
- BEA Weblogic Application Server, Version 8.1 SP5** (when used in remote mode only)

Notes:

WebSphere ESB and WebSphere Process Server are built on WebSphere Application Server. You can use CICS Transaction Gateway with WebSphere SOA Foundation servers that are built on a supported version of WebSphere Application Server. The JCA adapter programming interactions will vary between WebSphere SOA Foundation server models.

* WebSphere Application Server, Version 5.1 is supported if deployed with the downloadable JCA, Version 1.0 resource adapter. Some functionality, such as two-phase commit, is not available in this configuration.

** Supported in remote mode on the Microsoft® Windows® and Sun Solaris platforms only. The downloadable JCA, Version 1.0 resource adapter is required. Some functionality, such as two-phase commit, and Java 2 security is not available in this configuration.

For detailed and up-to-date software and hardware requirements, visit **ibm.com**/cics/ctg/reqs

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