CICS Transaction Gateway Update
SHARE session 13165

Leigh Compton
IBM Advanced Technical Skills
lcompton@us.ibm.com

@ Copyright IBM Corporation, 2013
Disclaimer

IBM’s statements regarding its plans, directions, and intent are subject to change or withdrawal without notice at IBM’s sole discretion. Information regarding potential future products is intended to outline our general product direction and it should not be relied on in making a purchasing decision. The information mentioned regarding potential future products is not a commitment, promise, or legal obligation to deliver any material, code or functionality. Information about potential future products may not be incorporated into any contract. The development, release, and timing of any future features or functionality described for our products remains at our sole discretion.
Agenda

- Introducing CICS TG
- What’s new in CICS TG?
- Reference resources
Why CICS Transaction Gateway?

- CICS connectivity to suit your needs
- Proven CICS connectivity for many types of application
- Flexible options to match
  - the scale of your project from single Desktops to System Z
  - your application programmer skills
  - your choice of hardware and operating systems
  - your choice of application platform and technology
- Longevity of investment
  - CICS TG has a long history of forward compatibility
  - Solutions can be virtualized, scaled and moved across platforms
  - A IBM Web Application pattern with IBM PureApplication System
- Non-invasive to existing CICS resources
  - Low risk with a quick return on investment
What is the CICS Transaction Gateway?

- **Unix/Linux/Windows**
  - Native applications (C/C++/COBOL)
- **Java applications**
- **PureApplication System Workload Deployer**
- **WebSphere Application Server**
- **Web browsers**
  - WebSphere MB
- **OEM JEE app servers**
- **Java servlets & applets**
- **Microsoft Visual Studio**
- **.NET Framework-based applications (VB, C#)**
- **Web Services**
- **EJB**
  - CICS Explorer
  - CICS PA
  - CICS DA
  - Tivoli Omegamon XE for CICS
  - ITCAM for Transactions
  - Rational Application Developer
Product positioning
CICS Transaction Gateway – The smart choice

‘CICS Transaction Gateway delivers smart connectivity for your enterprise’

INTERCONNECTED

Optimized for WebSphere Application Server but open to all. CICS TG delivers connectivity for other JEE applications servers, in addition to Unix/Linux and Microsoft® .NET environments

INSTRUMENTED

Systems monitoring delivers improved visibility of workload for greater management of resources, including tooling support from CICS Explorer, CICS Performance Analyzer, CICS Deployment Assistant and Tivoli Omegamon XE

INTELLIGENT

High availability provides scalability and fail-over support across the IBM System Z Parallel Sysplex. Support for virtualized platforms includes integration with IBM PureApplication System and IBM Workload Deployer
CICS Transaction Server V4.1

CICS Transaction Gateway V9.0

Extended scalability, application interoperability, and flexible secure topologies

Announce October 3rd 2012, GA December 14th 2012

Increased capacity
- 64-bit z/OS Gateway
- IPIC connection level timeout

Reduced complexity
- Richer dynamic routing & filtering
- IPIC capacity for 2-tier

More security options
- 3-tier secure connectivity
- Improved identity assertion
- Security standards compliance
- Secure IPIC with DSS

Flexible deployment
- Asynchronous ECI V2
- PureApplication System
- RHEL (Intel) compatible
- 64-bit C/C++ applications
- Java 7
- JEE 6
- WAS V8.5
- .NET 4
- CICS TS V5.1
- CICS PA V5.1
- CICS DA V5.1
- CICS Explorer

Deeper insight
- Enhanced request monitoring
- WAS-CICS Transaction tracking
- Historical statistics on all platforms
Scalability
Limitations of 31-bit Gateway daemon

- IPIC allows payloads larger than 32KB, and uses more Java heap
- Higher payloads must be traded for fewer concurrent requests
Scalability
64-bit Gateway daemon for z/OS

Increased capacity
– No longer constrained by 31-bit address space limits
– More threads
– Larger payloads
– More threads **AND** larger payloads!
– With CICS TS V5.1 MAXTASK is increased to 2000
  • Vertically grow Gateway daemon capacity

Consolidation opportunity
– Migration to 64-bit can reduce number of address spaces
– Fully exploit IPIC and Dynamic Server Selection after migrating from the constraint of 250 EXCI pipes
– Reduce management and monitoring overheads
Scalability
Limitations of 31-bit Gateway daemon

31-bit Gateway daemon, 375MB heap, REGION 0M (1632MB)
  1350 Connection Managers
  999 Worker threads
  1 IPIC connection with 999 sessions
  32KB payload

Achievable using 31-bit Gateway daemon, 375MB heap, REGION 0M (1632MB)

This configuration is finely balanced in terms of storage
  - Larger payloads will lead to excessive Garbage Collection (GC)
  - To avoid excessive GC, increase the Java heap size
  - Increasing the Java heap requires
    • More REGION storage if it is available
    • Fewer threads if REGION is already at the maximum
Scalability
Examples of 64-bit Gateway daemon storage

<table>
<thead>
<tr>
<th>Connection managers</th>
<th>Workers</th>
<th>IPIC sessions</th>
<th>Heap max</th>
<th>Heap occupied</th>
<th>64-bit HWM</th>
<th>MEMLIMIT</th>
<th>REGION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>100</td>
<td>128M</td>
<td>23M</td>
<td>253M</td>
<td>n/a</td>
<td>250M</td>
</tr>
<tr>
<td>100</td>
<td>100</td>
<td>100</td>
<td>128M</td>
<td>23M</td>
<td>838M</td>
<td>1G</td>
<td>250M</td>
</tr>
<tr>
<td>500</td>
<td>500</td>
<td>500</td>
<td>256M</td>
<td>134M</td>
<td>3650M</td>
<td>4G</td>
<td>275M</td>
</tr>
<tr>
<td>2000</td>
<td>999</td>
<td>999</td>
<td>512M</td>
<td>286M</td>
<td>9706M</td>
<td>10G</td>
<td>350M</td>
</tr>
</tbody>
</table>

- “Heap occupied” and “64-bit HWM” are taken after IPIC connection is acquired (i.e. session resources allocated), but without workload
  - For best performance, use compressed references
    - `(-j-Xcompressedrefs)`
- Rule of thumb for Gateway MEMLIMIT
  - MEMLIMIT should be at least
    - 128MB (core) + Heap size + (#CM+WT threads) * 3MB
High Availability
CICS Request Exit enhancements

Routing or filtering by client IP address
- CICS Request Exit now provides the TCPIP address of the application originating the request
  - InetAddress map object “ClientLocation”
- Allows routing decisions based upon client location (e.g. subnet)
- Allows rejection of requests from unauthorised locations

Full request details for XA transactions
- CICS Request Exit allows custom Dynamic Server Selection
- CICS TG V8 has limited request meta-data for XA transactions
- CICS TG V9.0 provides all available request meta-data for both XA and non-XA ECI requests
- Allows customized routing logic for High Availability solutions with full distributed two-phase commit
Monitoring
Transaction tracking.. Why?

Distributed platform applications
- Middleware integrates business logic for enterprise applications
- Middleware component often provide diagnostics in isolation
- Difficult to gain a high level perspective
  - Product-specific formats, output types and tools
  - Different diagnostic indicators, different tooling

Problem: Users report degraded response time
- Where to start?
- Often requires broad sweep of diagnostics
- Difficult to follow the flow of control through components
- Labour intensive, time consuming and error prone
Monitoring
Introducing Cross Component Trace

Cross component trace (XCT) contexts

– Available on requests originating from WebSphere Application Server V8.5, with XCT support enabled
– Enabled/disabled
  • Dynamically through the WAS admin console run time options
  • Statically through the WAS admin console configuration
– Uses High Performance Extensible Logging (HPEL)

XCT contexts

– XCT context **Begin** and **End** demarcate component boundaries
  • Contexts are hierarchical
– A thread of execution can have upto 3 XCT contexts at any one time:
  • Root – initial context (**Request ID**) of the component at the point of entry
  • Parent – context of the calling component
  • Current – context of the current component
Monitoring
Cross Component Trace (XCT) Overview

WebSphere Application Server

HPEL

3rd party monitor
STDOUT
File System

CICS Explorer
CEMT
3rd party monitor
SMF 110
CICS PA

CICS Transaction Gateway

Gateway Daemon

CICS Transaction Server

Channel Framework

JCA
CICS

HTTP Channel

ECI request

Association Data

MIRROR TASK

Token Service

RMExit
XCT token visibility
WebSphere Application Server HPEL Export

[9/3/12 12:45:10:016 GMT] 00000046 I UOW=
source=com.ibm.websphere.XCT
class= method= org=null prod=null component=null
thread=[WebSphere WLM Dispatch Thread t=007c40b8]
requestID=[BkwWqX+HPuK-AAAAAAAAAAAAAG]
BEGIN BkwWqz2kOGV-AAAAAAAAAAAE
BkwWqz2kOGV-AAAAAAAAAAD
ECIRA(Server(24TGNSIP) Program(EC01))
requestID=[BkwWqX+HPuK-AAAAAAAAAAAAAG]
END BkwWqz2kOGV-AAAAAAAAAAAE BkwWqz2kOGV-AAAAAAAAAAD
ECIRA(Server(24TGNSIP) Program(EC01) RC(ECI_NO_ERROR))
XCT token visibility
CICS TG Request Monitoring Exit

com.ibm.ctg.samples.requestexit.BasicMonitor:eventFired called with event = RequestDetails
FlowType = EciSynconreturn

XctRoot = BKwWqX+HPuK-AAAAAAAAAAAAAG
XctParent = BKwWqz2kOGV-AAAAAAAAAAAAAD
XctCurrent = BKwWqz2kOGV-AAAAAAAAAAAAAE

Server = 24TGNSIP
Location = (80, 90, 100, 70
ClientLocal = 
Payload =
  First 10
  Last 20
WireSize =
CicsReturn =
CicsServer =
RetryCount =
CicsCorrelator =
XctRoot = BKwWqX+HPuK-AAAAAAAAAAAAAG
XctParent = BKwWqz2kOGV-AAAAAAAAAAAAAD
XctCurrent = BKwWqz2kOGV-AAAAAAAAAAAAAE

User Correlator = ‘XCT…..
BKwWqX+HPuK-AAAAAAAAAAAAAG
BKwWqz2kOGV-AAAAAAAAAAAAAE’
XCT token visibility
CICS TS CEMT INQUIRE ASSOCIATION(<task ID>)

CICS Explorer Task Associations view

CICS SMF monitoring data

- SMF type 110, sub-type 01 Monitoring records, performance class
- Enabled via SIT MN=ON, MNPER=ON
End to end transaction tracking

WAS

XCT via HPEL

requestID=[BKwWqX+HPuK-AAAAAAAAAAAAAG]
BEGIN BKwWqz2kOGV-AAAAAAAAAAE
BKwWqz2kOGV-AAAAAAAAAAD
ECIRA(Server(24TGNSIP) Program(EC01))

CICS TG

Request Monitoring

XctRoot = BKwWqX+HPuK-AAAAAAAAAAAAAG
XctParent = BKwWqz2kOGV-AAAAAAAAAAD
XctCurrent = BKwWqz2kOGV-AAAAAAAAAAE

User Correlator = “XCT.....BKwWqX+HPuK-AAAAAAAAAAAAAG BKwWqz2kOGV-AAAAAAAAAAE”

CICS TS: CEMT and CICS Explorer

| USERCorrData( 'XCT BKwWqX+HPuK-AAAAAAAAAAAAAG BKwWqz2kOGV-AAAAA' ... ) |
|---|---|---|---|---|
| Region | Task ID | Start Time | Trans ID | User Correlation Data |
| IY24TGNS | 0000364 | 12:45:10.2667 | CSMI | XCT BKwWqX+HPuK-AAAAAAAAAAAAAG BKwWqz2kOGV-AAAAAAAAAAE |
| IY24TGNS | 0000370 | 12:45:14.4023 | CWWU |  |
Monitoring
Request Monitoring enhancements

New Request Monitoring exit point “RequestDetails”

– Invoked just before calling CICS, **after** Dynamic Server Selection
– Allows clear visibility of target CICS server for HA solutions
– Very useful for time outs, or hung request scenarios
Monitoring
Request Monitoring enhancements

Channel payload details

- The RequestData map passed to the Request Monitoring Exit now includes detail on Channel payloads
- A “ChannelInfo” object is provided for ECI requests which contain a Channel payload
- Details include Channel name, container names, container types, and container payload size
- The exit does not provide access to the channel data itself

Sample Request Monitoring output

Channel = SAMPLECHANNEL

CICSDATETIME(CHAR) = 19 characters
INPUTDATA(CHAR) = 3 characters
OUTPUTMESSAGE(CHAR) = 200 characters
INPUTDATALength(BIT) = 4 bytes
Monitoring
Statistics recording on Multiplatforms

**Historical statistics recording**
- Available in CICS TG for Multiplatforms and CICS TG Desktop Edition
- Provides historical snap shots of CICS TG statistics
- Equivalent to CICS TG for z/OS SMF type 111 records
- Activated by Gateway daemon configuration
- Controlled by statistics interval and logical end-of-day

**XML format**
- Designed to be extensible and flexible
- XML file are written to the local file system

**Automatic file management**
- Optional automatic file names (per Gateway daemon instance)
  - Allows easy archiving or pruning
Sample output

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<ctgStatistics xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:noNamespaceSchemaLocation="ctgstatslog.xsd">
  <statRecord type="interval" length="60" time="2012-09-10T12:39:00">
    <resourceGroup name="CS">
      <statistic type="Lifetime">
        <name>LCOUNT</name>
        <value type="Integer">0</value>
      </statistic>
      <statistic type="Lifetime">
        <name>LLIST</name>
        <value type="String"/>
      </statistic>
      <statistic type="Startup">
        <name>SCOUNT</name>
        <value type="Integer">2</value>
      </statistic>
    </resourceGroup>
  </statRecord>
</ctgStatistics>
```
Enhancements to IPIC connectivity
Connection level time out

<table>
<thead>
<tr>
<th>Application</th>
<th>Connection</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECI request A&lt;br&gt;Timeout = 0s</td>
<td>CICS TG&lt;br&gt;EXCI T/O 10s</td>
<td>CICS A&lt;br&gt;Task T/O 10s</td>
</tr>
<tr>
<td>ECI request B&lt;br&gt;Timeout = 15s</td>
<td></td>
<td>CICS B&lt;br&gt;Task T/O 10s</td>
</tr>
</tbody>
</table>

EXCI time out
- Specified at the Gateway daemon level
- Overrides application request ECI time out
- Widely adopted
  - *Protects against “rogue” applications specifying indefinite time out*
### Enhancements to IPIC connectivity

Connection level time out

<table>
<thead>
<tr>
<th>Application</th>
<th>Connection</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECI request A T/O = 0s</td>
<td>IPIC T/O=10s</td>
<td>CICS A 10s</td>
</tr>
<tr>
<td>ECI request B T/O = 15s</td>
<td>CICS TG</td>
<td>CICS B 15s</td>
</tr>
<tr>
<td>ECI request C T/O = 15s</td>
<td>IPIC T/O=10s</td>
<td>CICS C 10s</td>
</tr>
</tbody>
</table>

**IPIC time out**

- Specified at the CICS connection level
- Optionally overrides application request ECI time out
- Aids migration from EXCI to IPIC
- Provides equivalence to EXCI where required
Enhancements to IPIC connectivity

Local mode IPIC session limit
- Pre V9.0, local mode connections were restricted to 100 sessions
- Number of IPIC sessions is negotiated with CICS (like APPC CNOS)
- Local mode applications must consider increased heap requirements

JCA connection factory
- New Custom property “**ipicSendSessions**” (default 100 sessions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th>For local mode, the number of simultaneous transactions or CICS tasks that are allowed over the connection when using an IPIC connection</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ipicSendSessions</strong></td>
<td>100</td>
<td></td>
</tr>
</tbody>
</table>

Local mode Java applications
- Override the default of 100 sessions via new **JavaGateway** property: `CTG_IPIC_SENDSESSIONS`
Application runtime support
64-bit support

64-bit application support
- Modern C/C++ applications are using 64-bit compilers
- Solutions increasingly require exclusively 64-bit libraries rather than a mixed-mode approach

64-bit ECI Version 2 / ESI Version2
- CICS TG V9.0 adds 64-bit compiler and run time support to APIs
  - ECI Version 2
  - ESI Version 2
- Supported on Windows, Linux, AIX, HP-UX and Solaris
- Well written 32-bit applications can simply be re-compiled

Java, JEE and .NET APIs already have 64-bit interoperability
ECI Version 2 asynchronous call support

- Multithreaded C applications often isolate request and response logic
- Creating a threading model around a synchronous API is problematic
- ECI V2 API has been extended to provide asynchronous calls
- Supports both COMMAREA and Channel program ECI calls
Security
Secure connectivity for 3-tier solutions

- Allows secure connectivity with all of the features offered by the Gateway daemon e.g. Dynamic Server Selection
  - Allows identity assertion (+ID Propagation) with 3-tier Multiplatforms
Security
Trusted connections allow ECI identity assertion

- **WAS z/OS local mode**
  - Local mode app
  - TG
  - CICS TS
  - EXCI or IPIC USERAUTH=IDENTIFY

- **CICS TG any local mode**
  - Remote mode app
  - CICS TG
  - CICS TS
  - EXCI or IPIC USERAUTH=IDENTIFY

- **CICS TG z/OS remote mode**
  - Remote mode app
  - CICS TG
  - CICS TS
  - IPIC SSL USERAUTH=IDENTIFY

- **CICS TG any remote mode**
  - Remote mode app
  - CICS TG
  - CICS TS
  - IPIC SSL USERAUTH=IDENTIFY

New!
Security
Remote mode IPIC SSL: Greater flexibility

Identity assertion
- Allows a CICS transaction to run against pre-authenticated user ID using IPIC connections. Pre-V9.0, this was only possible with:
  - CICS TG for z/OS: *local mode from WAS z/OS or, remote mode with the Gateway daemon and CICS server within the same z/OS Sysplex*
  - CICS TG for Multiplatforms/Desktop Edition: *local mode SSL IPIC*

Identity Propagation
- Identity Propagation from WebSphere Application Server to CICS TS for z/OS requires IPIC connections with USERAUTH(IDENTIFY)
- V9.0 allows **CICS TG for Multiplatforms** (with WAS) to exploit Identity Propagation in **remote mode**, as well as local mode configurations
Password phrases supported extended on z/OS

- CICS TG Version 8.1 introduced password phrase support for IPIC connections with CICS TS V4.2
  - When the target CICS server is connected using IPIC, authentication is delegated to CICS

- CICS TG for z/OS Version 9.0 supports password phrase support for EXCI connections
  - When the target CICS server is connected using EXCI, authentication is completed by the Gateway daemon
CICS Tools Enhancements

CICS Performance Analyzer V5.1
- Adds pre-canned reports for CICS Transaction Gateway for z/OS
  - Configuration summary
  - Activity summary

CICS Deployment Assistant V5.1
- Gateway daemons included in CICSPlex discovery and visualization
Submit a request for enhancement (RFE)

Use this form to submit an idea for a new product feature, also called a request for enhancement (RFE). The product development team will review your input and provide status updates as decisions are made regarding the RFE. Before you submit a new RFE, please view RFEs that have already been submitted. If your idea has already been submitted, you can add comments to the existing RFE, thereby indicating your agreement with the idea. We may use this information to help prioritize development of new features.

Note: The company and business justification will not be visible on the Jazz.net site for RFEs submitted for Jazz products.

The fields indicated with an asterisk (*) are required to complete the transaction. If you do not want to provide us with the required information, please use the Back button on your browser to return to the previous page.

A key icon indicates that the field is displayed only to the original submitter. The key icon next to an RFE indicates that the RFE is a private RFE.

Submitter:

Company:* The Company field is visible to you and IBM only, as shown by the key icon (40 characters or less):

(You have 40 characters left)
Summary of RFEs completed for V9.0

<table>
<thead>
<tr>
<th>RFE</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>17173</td>
<td>Asynchronous call support for ECI Version 2 applications</td>
</tr>
<tr>
<td>21081</td>
<td>Transaction tracking from WAS into CICS through CICS TG</td>
</tr>
<tr>
<td>21082</td>
<td>Support for Gateway daemon running in a 64-bit JVM</td>
</tr>
<tr>
<td>21085</td>
<td>Additional exit point for Request Monitoring</td>
</tr>
<tr>
<td>21642</td>
<td>Remote Mode SSL for IPIC Connections</td>
</tr>
<tr>
<td>21828</td>
<td>Bi-directional language support</td>
</tr>
<tr>
<td>21871</td>
<td>Make program and transaction available to the CICS Request Exit for XA transactions</td>
</tr>
<tr>
<td>21872</td>
<td>ECI_TIMEOUT default value for IPIC connections</td>
</tr>
<tr>
<td>21875</td>
<td>64-bit C module compilation support for ECIV2 on AIX (IBM POWER) and Red Hat (x86)</td>
</tr>
<tr>
<td>22036</td>
<td>CICS Request Exit to provide client IP address</td>
</tr>
<tr>
<td>22049</td>
<td>Assembler DSECTs for mapping the SMF 111 records</td>
</tr>
<tr>
<td>22081</td>
<td>Sample SMF formatter CTGSMFRD support for mixed-release installations</td>
</tr>
<tr>
<td>22088</td>
<td>Information about channels in request monitoring exits</td>
</tr>
<tr>
<td>22108</td>
<td>Asserted identity support for Multiplatforms C applications making ECI requests</td>
</tr>
</tbody>
</table>
Statement of direction

From CICS TG V9.0 Announcement Letter ENUS212-323


IBM intends in the future to deliver a SupportPac to provide Secure Sockets Layer (SSL) connectivity for Microsoft .NET Framework-based applications in a three-tier (remote mode) topology, for use with IBM CICS Transaction Gateway V9.0.

IBM intends for future maintenance roll-ups of IBM 31-bit and 64-bit SDK7 for z/OS Java Technology Edition, Version 7, to provide exploitation of new IBM zEnterprise EC12 features. This includes IBM z/OS V1.13, Flash Express for paging and pageable large pages, Transactional-Execution facility, miscellaneous-instruction-extension facility, and support for up to 2 GB-sized pages, leading to potential improvements in performance for solutions utilizing the Gateway daemon component of IBM CICS Transaction Gateway.
Resources & Support

CICS TG V9.0

CICS TG Version 9.0 Announcement letter ENUS212-323

http://tinyurl.com/cicstg90announce

CICS TG Version 9.0 Datasheet GI13-0598

http://tinyurl.com/cicstg90datasheet

CICS TG on-line information centres *(live December 14nd, 2012)*

- **z/OS**: http://publib.boulder.ibm.com/infocenter/cicstgzo/v9r0/index.jsp
- **MP**: http://publib.boulder.ibm.com/infocenter/cicstgmp/v9r0/index.jsp

*Scenario sections provide useful example topologies with config details*
Resources & Support
ITSO Redbooks / Red Papers

CICS TG
- Using CICS Transaction Gateway with High Availability and the CICS Explorer, REDP4782
- Developer Connector Applications for CICS, SG24-7714
- CICS TG V7.1 Systems Monitoring, SG24-7562
- CICS TG for z/OS V6.1 (XA, WAS z/OS, security), SG24-7161

CICS TS and z/OS
- CICS on System z for Architects, SG24-8067 (New for October 2012)
- The Value of IBM System z and z/OS in an SOA, REDP4152
- z/OS Identity Propagation, SG24-7850
- Architecting Access to CICS within an SOA, SG24-5466
- J2C Security on z/OS, REDP4202
Resources & Support
CICS TG articles

DeveloperWorks

“CICS Transaction Gateway and AIX workload partitions”

“Accessing CICS from Microsoft .NET applications using CICS Transaction Gateway”

“Exploiting the J2EE Connector Architecture: Integrating CICS and WebSphere Application Server using XA global transactions”

“Connecting from Groovy to CICS using the CICS Transaction Gateway”
Resources & Support
CICS TG articles

Whitepapers

“IBM CICS IP interconnectivity: New features in Version 4.2”

“Delivering quick access to CICS systems using strategic integration options”

“Integrating WebSphere Application Server and CICS using the JCA”

“Transactional integration of WebSphere Application Server and CICS with the JCA”
Resources & Support
CICS TG articles

Enterprise Tech Journal (formerly zJournal)
“High Availability Using CICS Transaction Gateway and CICS Transaction Server”


“CICS and Identity Propagation: Solving the End-to-End Security Challenge”


“Peering Into the IBM CICS Transaction Gateway Black Box”

http://enterprisesystemsmedia.com/article/peering-into-the-ibm-cics-transaction-gateway-black-box
## Resources & Support

**CICS Transaction Gateway**

**Overview**

CICS Transaction Gateway is IBM's market-leading connector, production-proven in over a thousand customers for enterprise modernization of CICS assets.

**What we offer**

**Connectors**

- **CICS Transaction Gateway for z/OS**
  Provides highly scalable, multi-user access to CICS TS for z/OS, and is the recommended deployment platform for the highest qualities of service.

- **CICS Transaction Gateway for Multiplatforms**
  Delivers scalable, multi-user access to CICS TS for z/OS, CICS TS for VSE, TXSeries, and CICS TS for I, and is an ideal deployment option for less-demanding environments.

**Products**

- Product comparison

- Compare CICS Transaction Gateway products
  Find out which CICS Transaction Gateway product is the correct solution for you, comparing them all.

**Website is the best place for up to date information:**

- Announcement Letters
- Datasheets/Brochures
- Redbooks
- Whitepapers
- Presentations
- Technical Library
- APAR RSS feed
- And more....

**CICS TG Strategy & Planning**

rcjones@uk.ibm.com
+44 (0)1962 818588

**View existing requirements**

http://tinyurl.com/CICSTG-RFE
Supported hardware

- IBM System z® machine supported by z/OS or Linux®
- 64-bit IBM System p® supported by IBM AIX® or Linux
- 32-bit or 64-bit Sun SPARC system supported by Oracle Solaris Operating Environment
- 64-bit HP Itanium® system supported by HP-UX
- Intel® Pentium®, AMD Opteron or Intel EM64T system supported by Windows operating system or Linux
CICS Transaction Server V4.1

CICS TG V9.0
Supported operating systems

- z/OS V1.12 or later
- AIX V6.1, AIX V7.1 (64-bit kernel)
- Linux on System z: RHEL 5, SLES 10, SLES 11 (64-bit kernel)
- Linux on Intel: RHEL 5, RHEL 6, SLES 10, SLES 11 (32-/64-bit kernel)
- Linux on POWER® RHEL 5, RHEL 6, SLES 10, or SLES 11 (64-bit kernel)
- Oracle Solaris V10 (32-/64-bit kernel)
- HP-UX11i V2 or V3 (32-/64-bit kernel)
- Windows Vista (32-/64-bit kernel) including Business, Enterprise and Ultimate editions
- Windows 7 (32-/64-bit kernel) including Business, Professional, Enterprise and Ultimate editions
- Windows 2008, and Windows 2008 R2 (32-/64-bit kernel) including Standard, Enterprise and Datacenter editions

Note: Standard edition includes Windows Small Business Server
CICS Transaction Server V4.1

CICS TG V9.0
CICS server support

- CICS Transaction Server for z/OS V3.1, or later
- CICS Transaction Server for z/OS V4.1, or later
- CICS Transaction Server for z/OS V5.1, or later
- CICS Transaction Server for VSE V1.1.1
- TXSeries for Multiplatforms V6.2
- TXSeries for Multiplatforms V7.1
- CICS Transaction Server V5.4 for i5/OS, or later
- CICS Transaction Server V6.1 for iSeries, or later
- CICS Transaction Server V7.1 for i, or later
CICS TG V9.0
JEE Application Server support

- IBM WebSphere Application Server V7.0
- IBM WebSphere Application Server V8.0
- IBM WebSphere Application Server V8.5
- IBM WebSphere Community Edition
- Other JEE application servers. Use the Installation Verification Test (IVT) provided with CICS Transaction Gateway V9.0 to check whether a specific JEE application server can be used. Examples:
  - Oracle Glassfish Server
  - Oracle WebLogic Server
  - JBOSS Application Server (Red Hat)
  - Apache Geronimo (unbadged WAS CE)

*CICS Transaction Gateway Desktop Edition does not include JEE support*
## Feature comparison

<table>
<thead>
<tr>
<th>Features</th>
<th>Desktop Edition</th>
<th>Multiplatforms</th>
<th>z/OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of users</td>
<td>Single-user</td>
<td>100’s to 1000’s</td>
<td>1000s +</td>
</tr>
<tr>
<td>Programming interfaces</td>
<td>ECI, EPI, ESI</td>
<td>ECI, EPI, ESI</td>
<td>ECI, ESI</td>
</tr>
<tr>
<td>Programming languages</td>
<td>Java, .NET, C/C++, COBOL</td>
<td>Java, .NET, C/C++, COBOL</td>
<td>Java, .NET, C/C++, COBOL</td>
</tr>
<tr>
<td>Networking options</td>
<td>TCP/IP, IPIC, SNA</td>
<td>TCP/IP, IPIC, SNA</td>
<td>EXCI, IPIC</td>
</tr>
<tr>
<td>Request monitoring and statistics functions</td>
<td>Y</td>
<td>Y</td>
<td>Y (Additional support with CICS PA and/or OMEGAMON XE)</td>
</tr>
<tr>
<td>Application Servers</td>
<td>n/a</td>
<td>.NET, JEE</td>
<td>.NET, JEE</td>
</tr>
<tr>
<td>CICS Explorer</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Application style</td>
<td>Desktop</td>
<td>Desktop Application server</td>
<td>Desktop Application server</td>
</tr>
<tr>
<td>Operating systems</td>
<td>Client: Windows, Linux, UNIX</td>
<td>Windows, Linux, UNIX</td>
<td>Windows, Linux, UNIX, z/OS</td>
</tr>
<tr>
<td></td>
<td>Gateway: Windows, Linux, UNIX</td>
<td>Windows, Linux, UNIX</td>
<td>z/OS</td>
</tr>
<tr>
<td>2-phase commit</td>
<td>N</td>
<td>JCA (XA)</td>
<td>JCA (XA)</td>
</tr>
<tr>
<td>High Availability</td>
<td>Dynamic server selection (User exit)</td>
<td>Dynamic server selection (User exit)</td>
<td>Dynamic server selection (Out of the box)</td>
</tr>
<tr>
<td></td>
<td>Windows workload manager</td>
<td>Windows workload manager</td>
<td></td>
</tr>
</tbody>
</table>

| CICS Transaction Gateway V9.0 |

<table>
<thead>
<tr>
<th>Features</th>
<th>Desktop Edition</th>
<th>Multiplatforms</th>
<th>z/OS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of users</td>
<td>Single-user</td>
<td>100’s to 1000’s</td>
<td>1000s +</td>
</tr>
<tr>
<td>Programming interfaces</td>
<td>ECI, EPI, ESI</td>
<td>ECI, EPI, ESI</td>
<td>ECI, ESI</td>
</tr>
<tr>
<td>Programming languages</td>
<td>Java, .NET, C/C++, COBOL</td>
<td>Java, .NET, C/C++, COBOL</td>
<td>Java, .NET, C/C++, COBOL</td>
</tr>
<tr>
<td>Networking options</td>
<td>TCP/IP, IPIC, SNA</td>
<td>TCP/IP, IPIC, SNA</td>
<td>EXCI, IPIC</td>
</tr>
<tr>
<td>Request monitoring and statistics functions</td>
<td>Y</td>
<td>Y</td>
<td>Y (Additional support with CICS PA and/or OMEGAMON XE)</td>
</tr>
<tr>
<td>Application Servers</td>
<td>n/a</td>
<td>.NET, JEE</td>
<td>.NET, JEE</td>
</tr>
<tr>
<td>CICS Explorer</td>
<td>Y</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Application style</td>
<td>Desktop</td>
<td>Desktop Application server</td>
<td>Desktop Application server</td>
</tr>
<tr>
<td>Operating systems</td>
<td>Client: Windows, Linux, UNIX</td>
<td>Windows, Linux, UNIX</td>
<td>Windows, Linux, UNIX, z/OS</td>
</tr>
<tr>
<td></td>
<td>Gateway: Windows, Linux, UNIX</td>
<td>Windows, Linux, UNIX</td>
<td>z/OS</td>
</tr>
<tr>
<td>2-phase commit</td>
<td>N</td>
<td>JCA (XA)</td>
<td>JCA (XA)</td>
</tr>
<tr>
<td>High Availability</td>
<td>Dynamic server selection (User exit)</td>
<td>Dynamic server selection (User exit)</td>
<td>Dynamic server selection (Out of the box)</td>
</tr>
<tr>
<td></td>
<td>Windows workload manager</td>
<td>Windows workload manager</td>
<td></td>
</tr>
</tbody>
</table>
Acknowledgements

For a list of IBM trademarks see the url at:

- Java and all Java-based trademarks and logos are trademarks or registered trademarks of Oracle in the United States and/or other countries.
- WebLogic Server and all WebLogic trademarks and logos are trademarks or registered trademarks of Oracle in the United States and/or other countries.
- GlassFish Server and all GlassFish trademarks and logos are trademarks or registered trademarks of Oracle in the United States and/or other countries.
- JBoss Application Server and all JBoss trademarks and logos are trademarks or registered trademarks of Red Hat in the United States and/or other countries.
- Microsoft, Windows, Windows Vista, Visual Studio, Visual Basic are trademarks of the Microsoft Corporation in the United States and other countries.