CICS Transaction Gateway for z/OS V7.0 delivers enhancements including systems monitoring capabilities

Overview

CICS® Transaction Gateway (CICS TG) for z/OS® V7.0 can perform real-time monitoring of CICS TG systems. This important capability delivers a window into the CICS TG “black-box,” enabling its activity to be monitored proactively. This allows detection and resolution of abnormal occurrences before these cause a problem to production operations. Systems administrators and capacity planners can analyze system utilization metrics, and perform online problem determination of these CICS TG system functions. Critical information about the connection management and the transaction throughput are accessible.

CICS TG for z/OS V7.0 also delivers the following enhancements related to extended networking support:

- The ability to process Internet Protocol V6 (IPv6) connections from remote Java™ clients, providing for better routing, enhanced security, and global scalability delivered in this latest version of the IP standard
- Integration with the z/OS Workload Manager (WLM) to enable intelligent distribution of workload across a sysplex, providing increased systems availability

Additional enhancements related to advanced security enablement include:

- Support for the Transport Layer Security (TLS) 1.0 protocol enables more stringent encryption capabilities and better interoperability with a variety of secure clients.
- The ability to offload additional encryption to the cryptographic services of the IBM System z™ hardware allows for increased throughput of Secure Sockets Layer (SSL)/TLS requests.
- The ability to verify a mixed-case password with RACF® is introduced.

Key prerequisites

- z/OS V1.6, or later
- IBM 32-bit Runtime Environment for z/OS, Java 2 Technology Edition, V5
- CICS Transaction Server (CICS TS) for z/OS V2.2 or V2.3, or CICS TS for z/OS V3.1

Program number: For details, refer to the Program number section in this announcement.

Planned availability date

December 15, 2006

At a glance

CICS Transaction Gateway (CICS TG) for z/OS V7.0 introduces a range of new capabilities:

- Real-time systems monitoring capability of the Gateway daemon, allowing detection of out-of-line conditions before function is impacted
- Extensions to networking support, including support for IPv6 connections, and integration with the z/OS Workload Manager (WLM)
- Improvements to security capabilities, including Transport Layer Security (TLS) 1.0 support, improved offload of encryption to the System z hardware cryptographic services, and support for mixed-case passwords with RACF
CICS TG, a market-leading Java 2 Enterprise Edition (J2EE) connector, is production-proven for over a thousand customers as a high-performing, security-rich, and scalable method of service-oriented architecture (SOA) access to CICS. CICS TG:

- Delivers J2EE standards-based access to CICS applications, while requiring minimal changes to CICS and usually no changes to existing CICS applications
- Enables the rapid deployment of CICS applications as services in an enterprise-wide SOA
- Allows the reuse of existing CICS applications as services in comprehensive and sophisticated J2EE and Web services solutions hosted on powerful application servers such as WebSphere® Application Server
- Allows CICS applications rapidly to be service-enabled by connecting them to new environments — such as the Enterprise Service Bus (ESB), the heart of an SOA

The strategic interface within CICS TG that enables this connectivity is the J2EE Connector Architecture (JCA) Common Client Interface (CCI), a core component of J2EE that defines a programming standard to all enterprise information systems (EISs). JCA has become a popular and scalable method of connectivity because of its ease of implementation and high qualities of service. Using Java Servlets or Enterprise JavaBeans (EJB) components, the External Call Interface (ECI) allows access to CICS COMMAREA-based applications. A choice of TCP/IP or SSL connectivity options is supported.

Enhancements in CICS TG for z/OS V7.0

CICS TG for z/OS V7.0 provides significant enhancements over previous releases in three principle areas:

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

Systems monitoring capability

Online statistics: Online analysis of Gateway daemon system resources is supported, aiding faster problem analysis and better capacity planning. This function allows system administrators and capacity planners to analyze system utilization metrics and to perform online problem determination. Statistics are provided concerning a number of important metrics, including External Communication Interface (EXCI) pipe usage, configurable system limits, internal thread usage, and processed transaction requests. The proximity of the workload to the levels set in the configurable limits can be obtained. If necessary, action can be taken to reduce the need for planned outages or prevent the occurrence of unplanned downtime.

These statistics are made available through the extended z/OS system command-based administration interface.

External statistical API: Exploitation of the new CICS TG online statistics function is also available through the provision of an external C language API. Use of this interface allows custom-built solutions or third-party monitoring applications to exploit this new functionality and incorporate it in integrated monitoring applications.

Enhanced automation: The ability to direct critical CICS TG messages to the z/OS console provides better and easier automated operations when using IBM Tivoli® System Automation for z/OS. This increases the availability by allowing the systems to take predefined courses of action when certain conditions occur, without operator intervention.

Extended networking support

IPv6 support: TCP/IP or SSL connections into the Gateway daemon from remote Java clients can utilize IPv6 connections in addition to IPv4 connections. Exploitation of IPv6 delivers improved interoperability with CICS applications deployed on System z systems, and allows the enhanced routing and auto configuration capabilities of IPv6 networks to be seamlessly exploited within the enterprise.

Dynamic feedback to IP load balancers: CICS TG for z/OS V7.0 can provide dynamic feedback on CICS region availability to the TCP/IP load balancing mechanisms on z/OS via the Workload Manager (WLM) component of z/OS. WLM recommendations can be exploited by either Sysplex Distributor, TCP/IP Port Sharing or the Load Balancing Advisor, to determine which individual Gateway daemon will have priority when any new TCP/IP or SSL connections are established. This reduces the likelihood of any storm-drain style failure scenarios.

Advanced security enablement

TLS support: In addition to the existing support for SSL 3.0, support is provided for the TLS 1.0 protocol for secure connections into the Gateway daemon. Exploitation of TLS enables more stringent encryption capabilities and better interoperation with a variety of secure clients.

Extended support for cryptographic hardware: Support for the IBMJSSE2 security provider in the Software Development Kit (SDK) for z/OS, Java 2 Technology Edition, V5 extends the exploitation of IBM System z hardware cryptographic services for SSL and TLS processing. Usage of IBMJSSE2 can lead to reduced CP usage and increased system throughput through the hardware cryptographic support for the Data Encryption Standard (DES), Triple DES (TDES), RSA and SHA algorithms, and also provides the option for enhanced protection of encryption key values through the secure key cryptographic coprocessor functional support.

Mixed-case password support: CICS TG for z/OS V7.0 can exploit an underlying capability for case-sensitive passwords, when enabled in RACF. When this function is activated, the Gateway daemon is able to authenticate case-sensitive passwords with RACF, and flow the
Other capabilities

Support for Java V5

CICS TG V7.0 also provides exploitation for the IBM SDK, Java 2 Technology Edition, V5. This includes support for the following configurations:

- Optimized support of the IBM Java Runtime Environment by the Gateway daemon
- Deployment of the JCA resource adapters into the WebSphere Application Server V6.1 run-time environment
- An expanded list of supported J2EE application servers to include the 64-bit Java Runtime Environment for WebSphere Application Server, including usage of CICS TG local mode support on z/OS, providing optimized qualities of service when the WebSphere Application Server and the CICS TS are co-located on the same z/OS image

Accessibility by people with disabilities

The following features support use by people with disabilities:

- Operation by keyboard alone
- Optional font enlargement and high-contrast display settings
- Screen readers and screen magnifiers tested for use by people with visual impairment
- Suitable for people with hearing impairment
- Suitable for people with hearing impairment

CICS TG for z/OS V7.0 has been tested for use by people with visual impairment using the Jaws screen reader. The Hummingbird® HostExplorer terminal emulator was used for testing screen readers. Contact the vendor of the screen reader for the appropriate Jaws script file, which is required for the Hummingbird emulator. The product has not been tested with other emulators or screen readers.

The Eclipse-based information center shipped with the product is accessible. Softcopy PDF documentation is also shipped, as an alternative. PDF documentation supports optional font enlargement, high-contrast display settings, and can be operated by the keyboard alone, but does not have alternative text for screen readers.

Value Unit-based pricing

Value Unit pricing for eligible System z IPLA programs enables a lower cost of incremental growth and enterprise aggregation. Each System z IPLA product with Value Unit pricing has a single price per Value Unit and a conversion matrix, called Value Unit Exhibit, for converting from some designated measurement to Value Units. Most commonly Millions of Service Units (MSUs) is the measurement designated by IBM to be converted to Value Units. Some other measurements are engines or messages. Since MSUs are the most common measurement, that measurement will be used for the remainder of this description.

Value Unit pricing offers price benefits for customers. For each System z IPLA program with Value Unit pricing, the quantity of that program needed to satisfy applicable IBM terms and conditions is referred to as the “required license capacity.” Each of the various Value Unit Exhibits stipulate that the larger your required license capacity, the fewer Value Units per MSU you will need. Value Unit Exhibits are uniquely identified by a three-digit code and referred to using the nomenclature VUExxx, where xxx is the three-digit code.

Subsequent acquisitions of Value Unit priced programs offers additional price benefits for customers. The quantity of each System z IPLA program that you have acquired is referred to as “entitled license capacity.” If you wish to grow your entitled license capacity for a System z IPLA program, the calculation to determine additional needed Value Units is based upon the number of Value Units already acquired.

For each System z IPLA program with Value Unit Pricing, you should:

- Determine the required license capacity, in MSUs
- Aggregate the MSUs across the enterprise
- Convert the total MSUs to Value Units, using the applicable Value Unit Exhibit, and
- Multiply the price per Value Unit by the total number of Value Units to determine the total cost.

To simplify conversion from the designated measurement to VUs or vice-versa, use the Value Unit Converter Tool. For additional information or to obtain a copy of the Value Unit Converter Tool, visit the Value Unit Converter Tool Web site

http://ibm.com/zseries/swprice/vuctool

Note that Value Units of a given product cannot be exchanged, interchanged, or aggregated with Value Units of another product.

To determine the required license capacity for the System z IPLA program you selected, refer to the Terms and conditions section.

Product positioning

One of the key attributes of an SOA is its ability to reuse existing program assets. For many organizations, their key existing program assets are CICS-based applications. CICS TG allows CICS applications rapidly to be service-enabled by connecting them to new environments, such as the ESB, the heart of an SOA.

To enable comprehensive composite-application-serving infrastructures, CICS TG provides connectivity from WebSphere SOA foundation servers to CICS TS for z/OS. The strategic interface within CICS TG that enables this is the JCA adapter, a core component of J2EE that defines a programming standard to all EISs. JCA has become a popular method of J2EE connectivity because of its ease of implementation and high qualities of service.

JCA provides delegated management of connections, transactions, and security that are transparent to application developers. In a managed environment, like that of WebSphere Application Server, system contracts enable these management capabilities. They help to make the JCA a robust solution for integrating COMMAREA-based CICS applications with J2EE applications running in WebSphere Application Server.

Tightly coupled connectivity solutions such as JCA, along with other J2EE standard services such as Java Message Service (JMS) and Java Database Connectivity (JDBC), can coexist with loosely coupled Web services to take advantage of the agility of On Demand Business.
CICS TG currently runs in eight different operating environments, each providing a high-performing, security-rich and scalable solution. z/OS is the flagship platform, delivering the highest qualities of service, as well as higher performance and improved management of connections, security, and transactions. CICS TG for z/OS supports a full two-phase-commit transaction with WebSphere Application Server for Multiplatforms.

### Program number

<table>
<thead>
<tr>
<th>Program name</th>
<th>Program number</th>
<th>VRM</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS Transaction Gateway for z/OS</td>
<td>5655-R25</td>
<td>7.0.0</td>
</tr>
</tbody>
</table>

### Reference information

For the announcement of CICS TG for Multiplatforms V7.0 and CICS Universal Client V7.0, refer to Software Announcement AP06-0303, dated November 21, 2006.

### Trademarks

System z is a trademark of International Business Machines Corporation in the United States or other countries or both.
CICS, z/OS, RACF, WebSphere, Tivoli, and Hummingbird are registered trademarks of International Business Machines Corporation in the United States or other countries or both.
Java is a trademark of Sun Microsystems, Inc.
Other company, product, and service names may be trademarks or service marks of others.
Offering Information

Product information is available via the Offering Information Web site

http://www.ibm.com/common/ssi

Publications

Information for CICS® TG for z/OS® V7.0 is provided in the form of an Information Center based on the Eclipse platform. Delivery in this form exploits a common framework that is now employed by many other IBM products.

Powered by Eclipse technology, the Information Center consists of an Eclipse Help System, together with the information for CICS TG as a plug-in. This brings a range of benefits to the user. One of these is the use of a common framework which is now the infrastructure of choice adopted by many IBM products. This framework gives a common look and feel, and consistency of behavior. The infrastructure also allows users to customize their own Information Centers using plug-ins from multiple products, or to write their own plug-ins.

The Information Center for CICS TG V7.0 is shipped on CD-ROM with the product. This Information Center applies to both CICS TG for z/OS V7.0 and CICS TG for Multiplatforms V7.0.

From November 10, 2006, the Information Center can also be accessed at this Web site

http://publib.boulder.ibm.com/infocenter/cicstg/v7r0m0/index.jsp

Information for CICS TG for z/OS V7.0 is provided in the following books:

<table>
<thead>
<tr>
<th>Title</th>
<th>Order number</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TG for z/OS V7.0: z/OS Administration</td>
<td>SC34-6754</td>
</tr>
<tr>
<td>CICS TG for z/OS V7.0: Messages</td>
<td>SC34-6757</td>
</tr>
<tr>
<td>CICS TG for z/OS V7.0: Programming Reference</td>
<td>SC34-6759</td>
</tr>
<tr>
<td>CICS TG for z/OS V7.0: Programming Guide</td>
<td>SC34-6758</td>
</tr>
</tbody>
</table>

These books are offered only in displayable softcopy form, in both PDF and HTML formats, as part of the Information Center.

In addition, the Program Directory (GI13-0512) is shipped in hard-copy with the product.

Transaction Processing and Data Collection Kit: The Transaction Processing & Data Collection Kit is now available on DVD (SK3T-6996) as well as CD-ROM (SK2T-0730).

The Online Library Transaction Processing and Data Collection Kit contains multiple product libraries related to CICS, IMS™, DB2®, and other IBM transaction processing and database products. The information is viewable using the IBM Softcopy Reader, or any of the BookManager® READ products. Some of the information is also provided in PDF format. For viewing information, this kit provides the IBM Softcopy Reader, which runs under Windows™ 2000 or Windows XP.

Technical information

Hardware requirements: CICS TG for z/OS V7.0 runs on any IBM System z™ machine that supports the required operating system.

Software requirements

- z/OS V1.6, or later
- IBM 31-bit Runtime Environment for z/OS, Java™ 2 Technology Edition, V5
- CICS TS for z/OS V2.2 or V2.3
- CICS TS for z/OS V3.1
- WebSphere® Application Server for z/OS V6.1
- WebSphere Application Server for z/OS V5.1 or V6.0 (when used in remote mode only).

Note: This requires the correct resource adapter for the level of WebSphere being used. For details, refer to Supported Software for CICS Transaction Gateway Products.

- WebSphere Application Server for Multiplatforms V5.1, V6.0, or V6.1 (when used in remote mode only)

Note: This requires the correct resource adapter for the level of WebSphere being used. For details, refer to Supported Software for CICS Transaction Gateway Products.

For the most up-to-date information and fuller details on software requirements, refer to Supported Software for CICS Transaction Gateway Products, at


Follow the Support link.

Compatibility

Common Connector Framework (CCF): CCF was an early IBM proprietary method of connecting to Enterprise Information Systems such as CICS. CCF has evolved into the standards-based Java2 Enterprise Edition Connector Architecture (JCA; also known as J2C).

CCF support has been removed in line with its removal from WebSphere Application Server and migration to JCA is required. An IBM Redpaper entitled Migrating...
Applications from CCF to JCA/J2C (REDP-3784) is provided to support migration to JCA.

For more information, refer to the announcement of WebSphere Application Server V5.1, in Software Announcement AP03-1310, dated November 25, 2003.

CICS TG base classes: CICS TG for z/OS V7 will continue to support the following features of the CICS TG base classes (JavaGateway, ECIRequest, ESIRequest):

- Generic replies for asynchronous ECI requests
- Non-validated message qualifiers for asynchronous ECI requests
- Non-validated units-of-work for ECI requests
- The AutoJavaGateway class

The recommended solution is to disable generic replies for asynchronous ECI requests, to validate all units-of-work and message qualifiers, and to use the JavaGateway class as these features may be enforced in a future release of the CICS TG.

For compatibility reasons, the CICS TG base classes are only supported within the Web container in WebSphere Application Server V6.1, and users should note the following limitations:

- All ECI requests must be non-transactional. This means that only the field ECI_NO_EXTEND is supported on the ECIRequest constructor as the Extend_Mode.
- All ECI requests must be synchronous, that is only the fields ECI_SYNC or ECI_SYNC_TPN are supported as the call types.
- The EPIRequest class is not supported with WebSphere Application Server. Use the EPI support classes (Terminal, Screen, and Field) instead.

Users are encouraged to move J2EE applications to a JCA connector-based solution in order to take advantage of ease of application development and higher qualities of service.

Applets: In the announcement of CICS TG for z/OS V6.0, it was stated that users are encouraged to move any applet based solution to a servlet or J2EE solution, and that applet support may be fully removed in a future release. Applet support remains in CICS TG for z/OS V7.0, but it is still expected to be removed in a future release.

User group requirements

The following requirements from the worldwide user group communities are satisfied by enhancements in this release:

<table>
<thead>
<tr>
<th>Description</th>
<th>Requirement number</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUI/admin software to view basic information on gateway</td>
<td>MR0302046123</td>
</tr>
<tr>
<td>Resolve tstorm drain problem with CICS Transaction Gateway</td>
<td>MR1123002226</td>
</tr>
<tr>
<td>Want Tools for CTG Problem Determination</td>
<td>MR101801552</td>
</tr>
<tr>
<td>Provide real time monitoring capability for CTG CICS Transaction Gateway EXCI pipe tracking facility</td>
<td>MR0602052145</td>
</tr>
<tr>
<td>MR0707052036</td>
<td></td>
</tr>
<tr>
<td>CTG Thread Usage Information</td>
<td>MR102400293</td>
</tr>
<tr>
<td>CTG on z/OS Startup Message</td>
<td>MR0414053531</td>
</tr>
<tr>
<td>Want tools for CTG monitoring</td>
<td>MR1219016423</td>
</tr>
</tbody>
</table>

Also shipped are:
- IBM Program License Agreement ( IPLA) in multilanguage booklet (Z125-3301)
- License Information in multilanguage booklet (GC34-6801)
- Proof of Entitlement (PoE)
- Program Directory in hardcopy (GI13-0512)
- Information Center CD-ROM (LCD4-7938)

Security, auditability, and control

CICS TG for z/OS V7.0 uses the security and auditability features of the operating system under which it is running. Customers can use any Security Authorization Facility (SAF)-compliant security product, such as RACF®.

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

<table>
<thead>
<tr>
<th>Charge metric</th>
<th>Part number or Program name</th>
<th>PID number</th>
<th>Charge metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS Transaction Gateway for z/OS V7.0</td>
<td>5655-R25</td>
<td>Value Units</td>
<td></td>
</tr>
<tr>
<td>CICS Transaction Gateway for z/OS Subscription and Support</td>
<td>5655-M70</td>
<td>Value Units</td>
<td></td>
</tr>
</tbody>
</table>

The program in this announcement has Value Unit-Based pricing.

<table>
<thead>
<tr>
<th>Program number</th>
<th>Program name</th>
<th>Value Unit Exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5655-R25</td>
<td>CICS Transaction Gateway z/OS V7.0</td>
<td>VUE007</td>
</tr>
</tbody>
</table>

For each zSeries® IPLA program with Value Unit pricing, the quantity of that program needed to satisfy applicable IBM terms and conditions is referred to as the “required license capacity.” Your required license capacity is based upon the following factors:

- zSeries IPLA program you select
- Applicable Value Unit Exhibit
- Applicable terms
- Whether your current mainframes are full-capacity or sub-capacity

Value Unit exhibit VUE007

<table>
<thead>
<tr>
<th>Value Units/MSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSUs</td>
</tr>
<tr>
<td>Base</td>
</tr>
<tr>
<td>Tier A</td>
</tr>
<tr>
<td>Tier B</td>
</tr>
<tr>
<td>Tier C</td>
</tr>
<tr>
<td>Tier D</td>
</tr>
</tbody>
</table>

Planning information

Packaging: CICS TG for z/OS V7.0 is shipped via Customized Offerings, on 3480 1/2-inch tape cartridge.
Value Units for mainframes without MSU ratings

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Value Units/machine</th>
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</thead>
<tbody>
<tr>
<td>MP3000 H30</td>
<td>6</td>
</tr>
<tr>
<td>MP3000 H50</td>
<td>8</td>
</tr>
<tr>
<td>MP3000 H70</td>
<td>12</td>
</tr>
<tr>
<td>ESL Models</td>
<td>2</td>
</tr>
</tbody>
</table>

Ordering example: The total number of Value Units is calculated according to the following example.

If your required license capacity is 1,500 MSUs for your selected zSeries IPLA product, the applicable Value Units would be:

<table>
<thead>
<tr>
<th>Translation from MSUs to Value Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSUs * Value Units/MSU = Value Units</td>
</tr>
<tr>
<td>Base 3 * 1.00 = 3.00</td>
</tr>
<tr>
<td>Tier A 42 * .45 = 18.90</td>
</tr>
<tr>
<td>Tier B 130 * .36 = 46.80</td>
</tr>
<tr>
<td>Tier C 140 * .27 = 37.80</td>
</tr>
<tr>
<td>Tier D 1,185 * .20 = 237.00</td>
</tr>
<tr>
<td>Total 1,500</td>
</tr>
</tbody>
</table>

When calculating the total number of Value Units, the sum is to be rounded up to the next integer.

**Basic license**

**On/Off Capacity on Demand**

CICS TG for z/OS V7.0 is eligible for On/Off Capacity on Demand (On/Off CoD) with a Temporary Use Charge calculated based on MSUs-per day usage.

**Note:** This AP section is for Japan only.

**Subscription and Support PID 5655-M70**

The following information is a summary of all license options/pricing metrics offered for the above PID number.

<table>
<thead>
<tr>
<th>Entitlement Identifier</th>
<th>Description</th>
<th>License option/pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0138ZT</td>
<td>CICS TG for z/OS V7.0</td>
<td>Basic OTC, Value units</td>
</tr>
</tbody>
</table>

**Value Unit pricing**

To order, specify the program product number and the appropriate license or charge option. Also, specify the desired distribution medium. To suppress shipment of media, select the license-only option in CFSW.

**Note:** In AP, this applies to Japan only.

Program Name CICS Transaction Gateway for z/OS V7.0
Program PID 5655-R25

<table>
<thead>
<tr>
<th>Feature description</th>
<th>One-time charge feature number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per MSU-DAY On/Off CoD</td>
<td>J5BL</td>
</tr>
<tr>
<td>Temporary Use Charge</td>
<td>J5BM</td>
</tr>
</tbody>
</table>

**Note:** In AP, the following does NOT apply to Japan.
Subscriptions and Support

To receive voice technical support via telephone during normal business hours and future releases and versions at no additional charge, Subscription and Support must be ordered. The capacity of Subscription and Support (Value Units) must be the same as the capacity ordered for the product licenses.

To order, specify the Subscription and Support program number (PID) referenced above and the appropriate license or charge option.

IBM is also providing Subscription and Support for these products via a separately purchased offering under the terms of the IBM International Agreement for Acquisition of Software Maintenance (IAASM). This offering:

- Includes and extends the support services provided in the base support to include technical support via telephone during normal business hours.
- Entitles customers to future releases and versions at no additional charge. Note that the customer is not entitled to new products.

When Subscription and Support is ordered, the charges will renew automatically annually unless cancelled by the customer.

Customized Offering

Product media is shipped only via Customized Offerings (for example, CBPDO, ServerPac, SystemPac®). Non-customized items (CDs, diskettes, source media, media kits) will continue to be shipped via the stand-alone product.

Terms and conditions

Agreement: IBM International Program License Agreement and License Information document. Proofs of Entitlement (PoE) are required for all authorized use.

This program is licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provides for support with ongoing access to releases and versions of the program. This program has a one-time license charge for use of the program and an annual renewable charge for the enhanced support that includes telephone assistance (voice support for defects during normal business hours) as well as access to updates, releases, and versions of the program as long as support is in effect.

S/390® and zSeries IBM Operational Support Services — SoftwareXcel is an option for those customers who desire added services.

Limited warranty: Yes

Warranty: This Program includes a warranty for one year from acquisition from IBM or an authorized IBM Business Partner. For one year from acquisition of the Program, this warranty provides the customer with access to databases containing Program information and FAQs, including any known fixes to defects, which the customer can download or otherwise obtain and install.

Program support: Enhanced Support, called Subscription and Support, includes telephone assistance (voice support for defects during normal business hours) as well as access to updates, releases, and versions of the program as long as support is in effect. The customer will be notified of discontinuance of support with 12 months’ notice.

Money-back guarantee: If for any reason you are dissatisfied with the Program and you are the original licensee, return it within 30 days from the invoice date to the party (either IBM or its reseller) from whom you acquired it for a refund. For clarification, note that for programs acquired under any of the IBM On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by the customer.

Copy and use on home/portable computer: No

Volume orders (IVO): No

Passport Advantage® applies: No

Usage restriction: Yes

The JCA resource adapters supplied with the program and packaged in the files named “cicseci.rar” and “cicseciXA.rar” and the Java client classes supplied with the program and packaged in the file named “ctgclient.jar” may be freely distributed by licensed users of the program within their enterprise. Licensed users who choose to distribute these client classes assume responsibility for the support and maintenance of the distributed classes. An IBM consent to such distribution is on the basis that licensed users of the program are responsible for ensuring that:

- No “JAR” or “RAR” file is modified from its original form.
- No “JAR” or “RAR” file is used other than within a Java environment supported by the program.
- All communication is to a CICS TG at the same or a higher release level than the version of the “ctgclient.jar” or “RAR” file.

For additional information refer to the License Information document that is available on the IBM Software License Agreement Web site

http://www.ibm.com/softwaresla/sladb.nsf

Software Maintenance applies: No

For operating system software, the revised IBM Operational Support Services — SoftwareXcel offering will provide support for those operating systems and associated products that are not available with the newly announced Software Maintenance offering.
This will ensure total support coverage for your enterprise needs, including IBM and selected non-IBM products. For complete lists of products supported under both the current and revised SoftwareXcel offering, visit

http://www.ibm.com/services/sl/products

For additional information on the revised IBM Operational Support Services, refer to Services Announcement AA01-3066, dated July 10, 2001.

iSeries™ Software Maintenance applies: No

Variable charges apply: No

Educational allowance available: 15%, to qualified educational institution customers.

Sub-capacity terms and conditions

For each zSeries IPLA program with Value Unit pricing, the quantity of that program needed to satisfy applicable IBM terms and conditions is referred to as the “required license capacity.” Your required license capacity is based upon the following factors:

- zSeries IPLA program you select
- Applicable Value Unit Exhibit
- Applicable terms
- Whether your current mainframes are full-capacity or sub-capacity

For more information on the Value Unit Exhibit for the zSeries IPLA program you selected, refer to the Ordering information section.

<table>
<thead>
<tr>
<th>Program number</th>
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<th>Terms</th>
<th>Parents</th>
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<td>5655-R25</td>
<td>CICS Transaction Gateway for z/OS V7.0</td>
<td>Reference-based</td>
<td>5697-E93, 5655-M15</td>
</tr>
</tbody>
</table>

Full-capacity mainframes: In cases where full-capacity is applicable, the following terms apply:

Reference-based: The required license capacity of a zSeries IPLA program with these terms equals the license capacity of the applicable monthly license charge (MLC) program. This MLC program is called the “parent” program.

Sub-capacity mainframes: In cases where sub-capacity is applicable, the following terms apply:

Reference-based: The required license capacity of a System z IPLA program with these terms equals the license capacity of the applicable monthly license charge (MLC) program. This MLC program is called the “parent” program.

For more information on mainframe MSU rated capacities, refer to the System/370™, System/390®, and zSeries Machine Exhibit (Z125-3901), or visit the “Mainframes” section of the zSeries Exhibits Web site

http://ibm.com/zseries/library/swpriceinfo/

For more information on sub-capacity zSeries IPLA terms and conditions, refer to Software Announcement AA04-3059, dated August 10, 2004.

Additional information for products with reference-based terms: System z IPLA sub-capacity programs with reference-based terms add value to the parent program across the environment, regardless of where in environment the zSeries IPLA program executes.

An environment is defined as either a single/stand-alone machine or a qualified Parallel Sysplex®. Customers may have one or more different environments across their enterprise. To determine the required license capacity for each zSeries IPLA program with referenced-based terms, each environment should be assessed separately.

When a System z IPLA sub-capacity program with reference-based terms is used in a qualified Parallel Sysplex environment, the required license capacity of the System z IPLA program must equal the license capacity of the parent program across the Parallel Sysplex. Qualified Parallel Sysplex refers to one

1. That meets the criteria defined in Hardware Announcement AA98-3002, dated January 13, 1998
2. Where MLC pricing is aggregated across the Sysplex

Sub-capacity eligibility: To be eligible for sub-capacity charging on select System z IPLA programs, you must implement and comply with all terms of either sub-capacity Workload License Charges (WLC) or sub-capacity Entry Workload License Charges (EWLC). To implement sub-capacity WLC or EWLC, a machine must be zSeries (or equivalent). On that machine:

- All instances of the OS/390® operating system must be running in z/Architecture mode.
- Only licenses for the OS/390 operating system must be discontinued.
- All instances of the z/OS operating system (or z/OS.e) systems must be running in z/Architecture (64-bit) mode.

For that machine, you must create and submit a Sub-Capacity Report to IBM each month. Sub-Capacity Reports must be generated using the Sub-Capacity Reporting Tool (SCRT). For additional information or to obtain a copy of SCRT, visit the zSeries Software Pricing Web site

http://ibm.com/zseries/swprice

You must comply with all of the terms of the WLC or EWLC offering, whichever is applicable:

- The complete terms and conditions of sub-capacity WLC are defined in the IBM Customer Agreement — Attachment for zSeries Workload License Charges (Z125-6516).
- The complete terms and conditions of sub-capacity EWLC are defined in the IBM Customer Agreement — Attachment for IBM eServer zSeries 890 and 800 License Charges (Z125-6587).

Additionally, you must sign and comply with the terms and conditions specified in the amendment to the IPLA contract — Amendment for IBM System z9™ and eServer zSeries Programs Sub-Capacity Pricing (Z125-6929). Once the amendment is signed, the terms in the amendment replace any and all previous zSeries IPLA sub-capacity terms and conditions.

Sub-capacity utilization determination

Sub-capacity utilization is determined based on the utilization of a sub-capacity eligible reference product and machine.
On/Off Capacity on Demand

To be eligible for On/Off Capacity on Demand pricing, customers must be enabled for temporary capacity on the corresponding hardware, and the required contract (Z125-6611), Attachment for Customer Initiated Upgrade and IBM eServer On/Off Capacity on Demand — Software must be signed prior to use.

Prices

For all local charges, contact your IBM representative.

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