



IBM CICS Transaction Server for z/OS, V5.3 delivers advances in service agility, operational efficiency, and cloud enablement with DevOps

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At a glance

IBM^(R) CICS^(R) Transaction Server (CICS TS) V5.3 builds on the capabilities that are delivered in earlier CICS TS V5 releases, and adds substantial new DevOps functionality.

New and enhanced capabilities are delivered in three main areas:

- Service agility. Focuses on enhanced support for JavaTM and WebSphere^(R) Liberty profile
- Operational efficiency. Includes performance optimizations, enhanced metrics, and additional security
- Cloud with DevOps. Introduces new cloud and DevOps support to automate CICS deployments

For ordering, contact your IBM representative or an IBM Business Partner. For more information, contact the Americas Call Centers at: 800-IBM-CALL (426-2255).
Reference: LE001

Overview

CICS TS for z/OS^(R), V5.3 builds on the capabilities that were delivered in earlier CICS TS V5 releases, and adds substantial new DevOps functionality.

New and enhanced capabilities are delivered in three main focus areas and four core capabilities:

- Service agility. Focuses on enhanced support for Java and the WebSphere Liberty profile and includes:
 - Additional WebSphere Liberty profile features
 - Enhanced interoperability
 - Simplified management
 - Enhanced Java SE support
- Operational efficiency. Includes performance optimizations, enhanced metrics, and additional security:
 - Web service optimizations

- Performance improvements
- Enhanced metrics
- Additional security options
- Cloud with DevOps. Includes new cloud and DevOps support to automate CICS deployments:
 - Automated builds
 - Scripted deployments
 - UrbanCode Deploy support
 - Enhanced cloud enablement

CICS Explorer^(R)

CICS Explorer V5.3 is updated to add support for the new and enhanced capabilities of CICS TS V5.3. This release makes it easier to see the CICS data that is required by providing enhanced customization options for table views, which can then be saved for future use.

CICS TS Value Unit Edition

CICS TS Value Unit Edition (VUE) V5.3 offers a one-time-charge (OTC) price metric for eligible workloads that are deployed in qualified z Systems™ New Application License Charge (zNALC) logical partitions (LPARs).

The term Eligible Workload is defined as net new Java workload that executes within the CICS TS VUE Java Virtual Machine (JVM) server environment, on condition that the workload is qualified and approved through the zNALC qualification process.

The OTC price metric provides an alternative pricing model for new CICS Java applications and new CICS Java-based, service enablement workloads.

CICS TS VUE V5.3 is available through the normal ordering channels for IBM z/OS software. For more information, an IBM representative should be contacted.

CICS TS Developer Trial

CICS TS Developer Trial V5.3, a try-before-you-buy edition of CICS TS V5.3, has a zero-cost license charge and does not initiate any single version charging (SVC) period. The value that could be gained from a CICS TS upgrade can be assessed, before making an upgrade decision, by ordering this product. The CICS TS Developer Trial V5.3 is fully supported and can be upgraded to CICS TS V5.3 or CICS TS VUE V5.3 without the need for a full reinstallation. For more information, refer to

<http://www.ibm.com/software/htp/cics/cicsdt/>

Key prerequisites

The minimum required hardware prerequisite for CICS TS V5.3 is IBM z Systems™ z9^(R) or subsequent 64-bit z/Architecture^(R) processors.

The minimum required level of operating system for CICS TS V5.3 is IBM z/OS V1.13 (5694-A01) with APAR OA38409.

The minimum required level of Java is IBM 64-bit SDK for z/OS, Java Technology Edition, V7.0 SR1.

Planned availability date

December 11, 2015

- CICS TS V5.3
- CICS TS VUE V5.3
- CICS TS Developer Trial V5.3

Description

CICS TS V5.3 builds on the many advances in service agility and operational efficiency delivered in CICS TS V5.2. It also includes significant new DevOps capability and enhancements to cloud enablement.

Service agility

Additional WebSphere Liberty profile features

A set of new WebSphere Liberty profile features provide support for the JEE 6 Web Profile from WebSphere Liberty profile V8.5.5. The following new WebSphere Liberty profile features are now included in CICS TS V5.3:

- Contexts and Dependency Injection (CDI)¹
- Managed Beans¹
- Java EE Connector Architecture (JCA)
- Java Persistence API (JPA) - Java Database Connectivity (JDBC) type 4 driver only
- Java Message Service (JMS) 1.1 support with the WebSphere embedded messaging engine
- Enterprise JavaBeans™ (EJB) Lite subset
- MongoDB¹
- Open Service Gateway initiative (OSGi) Console¹
- Lightweight Directory Access Protocol (LDAP) registry
- Session Persistence - Java Database Connectivity (JDBC) type 4 driver only¹

Existing WebSphere Liberty profile features are enhanced, specifically by adding enterprise archive (EAR) support for bundles, with the addition of SQLJ support for use with the DB2[®] type 2 driver data sources, and adding transaction support to the Blueprint feature, and CICS security integration that uses distributed identities from an LDAP registry.

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

Enhanced interoperability: CICS TS V5.3 includes the ability for Java programs in a WebSphere Liberty profile JVM server to invoke other CICS programs, using a locally optimised version of the JEE Connector Architecture (JCA). This provides the ability to port JEE 6 Web Profile applications that previously used the CICS Transaction Gateway (CICS TG) External Call Interface (ECI) resource adapter directly into a CICS Liberty JVM server without modification.

Additionally, the WebSphere Liberty z/OS Connect feature is now supported by CICS TS V5.3¹. This provides RESTful services and accepts JavaScript™ Object Notation (JSON) payloads between CICS, mobile devices, and cloud environments.

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

- JMX Connector¹
- Monitoring¹
- REST connector (for JMX)¹

Users of the WebSphere 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.

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.

¹ Also available in CICS TS V5.2 by using APAR PI25503.

Enhanced Java SE support: Enhanced support is provided for Java SE developers who need access to IBM MQ for z/OS. Java SE programs that run in a CICS OSGi JVM server can now use the MQ classes for JMS, as an alternative to the proprietary MQ classes for Java. Developers familiar with the JMS API can easily access MQ for z/OS resources. The CICS MQ attachment facility is enhanced to support the necessary new commands.

Support is limited to Java programs that run in an OSGi JVM server. There is currently no support in a WebSphere Liberty profile JVM server. However, IBM intends to provide this support, as defined in a Statement of Direction made in this announcement.

The new PHASEIN support for the SET BUNDLE command enables the registration of a new version of an OSGi bundle with the OSGi framework, to replace any version currently registered. The new version of any OSGi services that are implemented by the OSGi bundle will then be used by any new invocation of a Java program defined to use this OSGi service. Existing requests will continue to use the old version until the request completes.

The CICS TS V5.3 JVM server environment is enhanced to support 64-bit SDK for z/OS, Java Technology Edition, Version 8.0 (Java 8), in addition to support for Version 7.0 and Version 7.1. The enhanced support for Java 8 in CICS TS enables the use of new facilities delivered by IBM z13™, which are exploited by Java 8. These new facilities include 'Single Instruction Multiple Data' (SIMD) instructions for vector operations and the faster CP Assist for Cryptographic Function (CPACF) processor.

Operational efficiency

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

The pipeline processing of HTTP requests are improved by 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.

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 Task Control Block (TCB) switches are eliminated

for these scenarios. Therefore, these implementations should also see performance improvements.

New capability for performance tuning of HTTP connections is provided to protect CICS from unconstrained resource demand. When activated, if a region becomes overloaded, new inbound HTTP connections requests are suspended. All new connections are marked as non-persistent and existing persistent connections are closed after their next request.

The performance of JSON-based web services running inside z/OS Connect, inside CICS TS, is now dramatically improved through the introduction of a new optimised JSON parser. This new processing infrastructure provides greater throughput, while using substantially less overall CPU. This CPU usage reduction is predominantly in the Java code path, meaning that less zIIP CPU should be needed to run the same processing.

Performance improvements: Internal performance improvements are made in many areas of CICS TS V5.3 to help reduce CPU overhead. These include:

- The exploitation of a number of the new hardware instructions that were 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
- Further tuning of internal procedures
- Over thirty existing SPI commands have been made threadsafe

Improvements in efficiency are seen in:

- The CICS trace facility
- The CICS monitoring facility
- Multi-region operation (MRO) connections with high session counts.

Enhanced metrics: 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 CICS TS V5.3 is extended to transactions that are started by the CICS-MQ for z/OS 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 CICS TS V5.3 regions, without the overhead of collecting and processing SMF 110 monitoring records.

Additional security options: CICS TS V5.3 also includes the following new and enhanced security options:

- New support for the Enhanced Password Algorithm, which was implemented in RACF^(R) APAR OA43999, to allow stronger encryption of passwords. This support has been applied to CICS TS V4.2 and CICS TS V5 in APARs PI21865 and PI21866 respectively.
- 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.
- A new CICS System Initialization Table (SIT) option, MINTLSLEVEL, which allows installations to specify the minimum level of Transport Layer Security (TLS) supported by CICS.

Additionally, enhancements are made to further off-load authentication requests to open TCBs. This reduces contention on the resource owning (RO) TCB, which was previously used for processing all authentication requests.

Cloud with DevOps

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

CICS TS V5.3 introduces the CICS Build Toolkit, which provides a command-line interface for automating the building of CICS projects created using the CICS Explorer. This includes CICS bundles, CICS applications, CICS application bindings, and projects that are referenced by CICS bundles, such as OSGi applications, OSGi bundles, enterprise applications, and dynamic web projects.

The building of CICS applications can be automated by calling the CICS Build Toolkit from build scripts. In a continuous integration environment, a build script can automatically run when developers make updates to their applications. This build script can check out the latest application version from source control, along with its dependencies. The script then calls the CICS Build Toolkit to build the projects that form the application. Finally, the script copies the built projects to a suitable location, such as an artifact repository or a staging area on zFS.

Resolving variables in CICS bundles can be automated by calling the CICS Build Toolkit from deployment scripts. A script will typically use the built projects together with a properties file or binding that defines values for variables in the target environment. This enables the same scripts to be used to ready the bundle for different target environments, without having to build from source each time.

The CICS Build Toolkit is supported on z/OS, Linux™, and Microsoft™ Windows™ operating systems and supports CICS TS V4.1 and later. For more information, go to

http://www.ibm.com/support/knowledgecenter/SSGMCP_5.3.0/com.ibm.cics.ts.applicationprog_ramming.doc/topics/cicsbt_overview.html

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

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

- 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 remove them when they are no longer required.

IBM UrbanCode™ Deploy support: IBM UrbanCode Deploy orchestrates and automates the deployment of applications, middleware configurations, and database changes as part of a continuous delivery environment. 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.

The CICS TS plug-in for UrbanCode Deploy provides steps for installing and discarding resources, changing their state, and performing actions such as NEWCOPY and PHASEIN for programs and SCAN for pipelines. The plug-in provides support for CICS TS V4.1 and later and is available for download, at

<https://developer.ibm.com/urbancode/plugin/cics-ts/>

An updated CICS TS beta plug-in adds support for CICS TS V5.3 and enables deployment of CICS applications and bundles as part of these orchestrations. It is available for download, at

<http://www.ibm.com/cics/openbeta>

A trial release of UrbanCode Deploy is available from IBM for evaluation. Go to

[https://developer.ibm.com/urbancode/products/urbancode-deploy/evaluate-urbancode-deploy /](https://developer.ibm.com/urbancode/products/urbancode-deploy/evaluate-urbancode-deploy/)

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

Support for threshold policies is enhanced by providing the ability to supply a threshold policy for the number of MQ for z/OS requests, DL/I requests, named counter requests, shared temporary storage requests, or any EXEC CICS request issued by a CICS task. This brings the total number of thresholds against which an action can be triggered to 15.

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 support delivers the ability in CICS TS 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.

The handling of DB2 data in a cloud environment is easier and more flexible with the introduction of the new private resource PACKAGESET. This new resource enables the specification of different DB2 collections across different environments. Using PACKAGESET, CICS can issue the EXEC SQL SET CURRENT PACKAGESET command on behalf of the application. The PACKAGESET resource is optional, and existing mechanisms to manage different collections across different environments remain available.

CICS Explorer: CICS Explorer V5.3 is updated to support the new and enhanced capabilities delivered by CICS TS V5.3, including transaction entrypoint and PACKAGESET support for cloud applications, bundle phase-in for OSGi Java programs, and support for new threshold policies. Further enhancements include enhanced connection support providing default connections, automatic connection at start-up, and export functionality. CICS Explorer V5.3 also makes it easier to see the CICS data that is required by providing enhanced customization options for table views, which can then be saved for future use.

IBM zTools support: IBM makes concurrent announcements today for IBM zTools, which highlight major enhancements with immediate support and exploitation of the new capabilities in CICS TS V5.3. In addition, the following OMEGAMON[®] XE releases provide immediate support for CICS TS V5.3:

OMEGAMON XE for CICS on z/OS V510 and V530 (with APAR OA48778)

OMEGAMON XE for CICS TG on z/OS V510 and V530 (with APAR OA48780)

IBM Operations Analytics for z Systems 2.1 (IOAz) also provides support for CICS TS V5.3 to enable analytics and insight into CICS' subsystems.

For more information, see the relevant IBM software product announcements in the [Reference information](#) section.

Support for IBM GDPS^(R) Active-Active continuous availability

CICS TS V5 and CICS VR V5 provide support for the replication of VSAM data for IBM GDPS Active-Active continuous availability. The Active-Active Sites concept is defined as two data-centre sites, which are separated by unlimited distances, that run the same applications and have the same data to provide cross-site workload balancing and continuous availability and disaster recovery. This is a fundamental paradigm shift from a failover model to a continuous availability model. This concept is designed to achieve unlimited distances between data centre sites and to achieve the recovery-time objectives of one minute or less, previously available only in a metro area solution. The previously available, active-standby, configuration-supported replication of DB2 and IMSTM data. This is now expanded to include VSAM data. Additionally, with a new Active-Query configuration, it is possible to use the capacity in the secondary site and take advantage of an additional workload balancing capability.

VSAM datasets requiring replication can be defined with new replication attributes. CICS TS produces replication log records capturing the updates made to the VSAM files by on-line transactions. CICS VR provides the same replication logging support when the VSAM datasets are offline and being updated by batch. The replication log records are used by InfoSphere^(R) Data Replication for VSAM for z/OS which provides the cross site replication capability. IBM Multi-site Workload Lifeline provides routing services while IBM GDPS Active-Active, IBM System Automation for z/OS, and IBM Tivoli^(R) NetView^(R) Monitoring for GDPS provides the automation platform, and the monitoring and visualization of key performance and availability metrics.

CICS Tools

Updates of four core foundational CICS Tools exploit and augment the latest operational efficiency and service agility enhancements made in CICS TS V5.3.

- CICS CM V5.3
- CICS DA V5.3
- CICS IA^(R) V5.3
- CICS PA V5.3

For more information refer to Software Announcement [A15-0705](#), dated October 5, 2015. Also, refer to

<http://www.ibm.com/cics/tools>

CICS TG V9.2 open beta offering

The CICS TG V9.2 open beta offering delivers the following functions:

- CICS Intercept plug-in, which provides powerful capabilities for continuous integration testing for JSON web services and all remote CICS TG applications.
- Supports current releases of the CICS TS family, and TXSeries^(R) for Multiplatforms products.

IBM Problem Determination Tools

Problem Determination Tools Studio V13 delivers an Eclipse-based, rich client platform, which is preloaded with plug-ins for the following Problem Determination Tools:

- Application Performance Analyzer for z/OS
- Debug Tool for z/OS
- Fault Analyzer for z/OS
- File Manager for z/OS

- Workload Simulator for z/OS and OS/390^(R)

Problem Determination Tools Studio V13 is built on the z/OS Explorer and provides users with a consistent experience, regardless of the platform. CICS users can quickly extend Problem Determination Tools Studio with the CICS Explorer SDK and CICS Tools plug-ins to produce a powerful, multi-functional, CICS workbench for all technical roles. To download Problem Determination Tools Studio z/OS, V12.1, go to

<http://www.ibm.com/software/awdtools/deployment/pdtpugins/>

IBM HourGlass

IBM HourGlass V7.1 provides support for time simulation in z/OS. With HourGlass, any date and time that can be represented by the underlying computer hardware can be simulated, such as past, present, or future, without changing application code or modifying the MVS system clock.

The benefits of using HourGlass in a CICS environment include:

- Support for SVC 11 system time requests, PC Time system service, and MVS STCKSYNC system service time requests on the z/OS operating system
- Ability to set the HourGlass date and time for a CICS region by using the HourGlass CICS Batch Time Management process
- Command-level CICS applications that are enabled to receive an altered date and time for EXEC CICS ASKTIME (including ASKTIME ABSTIME) commands; LE/370 date and time functions; COBOL ACCEPTs; and DB2 date, time, and timestamp SQL accesses
- Ability to track various uses of date and time in user transactions using the CICS Audit Trail Facility
- Support for Store Clock and Store Clock Extended instructions

HourGlass also provides global-level and user-level control in a CICS system environment:

- Global Level or CICS Control causes a single date or time specification to be applied only to groups of users, terminals, or transactions within the CICS region.
- User Control provides each individual user with the ability to specify an HourGlass date or time that is unique to the user's session. Dates and times entered with User Control always take precedence over Global Control settings.

HourGlass provides support for altered time in EXEC CICS START TRANSID(name) TIME(hhmmss), by using the TIME(hhmmss) specification on the DELAY, POST, or START TRANSID CICS API commands. This support can be implemented in a CICS region on the CICS XICEREQ user-exit point. When implemented, this program is given control by CICS at the onset of the CICS time-interval processing. If certain conditions are satisfied, the AGGICGX program applies the current HourGlass time offset value to the TIME(hhmmss) specification on the subject DELAY, POST, or START TRANSID CICS API command.

For more information, go to the HourGlass home page at

<http://www.ibm.com/software/products/en/hourglass>

Details of the latest HourGlass maintenance fixes for CICS are available, at

<http://www.ibm.com/support/docview.wss?uid=swg24022199>

For details of HourGlass V7.1, refer to Software Announcement [A13-0829](#), dated October 1, 2013.

Stabilization of support and discontinued functions

Support for SSL V3: In previous releases of CICS TS, SSL V3 was not enabled by default after the installation of APAR PI27936. In CICS TS V5.3, CICS SSL V3 is no

longer supported. The stronger TLS protocols are available. The minimum protocol level can be set by the new SIT option MINTLSLEVEL.

Support for defaulting ciphers: In CICS TS V5.3, the ENCRYPTION parameter has been deprecated, following the withdrawal of the WEAK and MEDIUM ciphers. These were withdrawn in APARS PI39806, PI39808, PI39809, PI36886, PI36884, PI36885, and PI27936 applied to earlier releases. CICS TS V5.3 supports stronger cryptographic ciphers, as defined in NIST Special Publication 800-131A.

CICS use of Partitioned Data Sets (PDS): In CICS TS V5.3, PDS can be used for libraries which contain CICS modules, such as hlq.SDFHLOAD or hlq.SEYULOAD (where hlq denotes high level qualifier). However, use of Partitioned Data Set Extended (PDSE) has many benefits, and has been available on z/OS for over 20 years. Some of the CICS libraries already use PDSE; for example, hlq.SDFJAUTH. CICS TS also makes use of Generalized Object File Format (GOFF) for CICS modules.

Use of PDSE and GOFF in CICS TS may, in some cases, require review of utilities which manage the CICS library data sets. Most PDSE interfaces are indistinguishable from PDS interfaces and can be used in place of nearly all PDSs. For more information, refer to

http://www.ibm.com/support/knowledgecenter/zosbasics/com.ibm.zos.zconcepts/zconcepts_16_6.htm

Note that the use of PDSE over PDS would not affect user load libraries used for application programs.

CICS TS Feature Pack for Dynamic Scripting

Clients are reminded that:

- CICS TS Feature Pack for Dynamic Scripting V1.0 runs on CICS TS V4.1 only.
- CICS TS Feature Pack for Dynamic Scripting V1.1 runs on CICS TS V4.2 only.
- CICS TS Feature Pack for Dynamic Scripting V2.0 runs on CICS TS V5.1 or later.

Product positioning

CICS TS is the premier, enterprise grade, mixed language, application server. For over 45 years, CICS consistently delivered innovative solutions that companies have used to differentiate themselves by creating, extending, and evolving mission-critical applications.

CICS TS is designed to enable clients to create and maintain a competitive advantage by building custom, differentiated CICS applications. For these clients this is the fastest and most effective ways to maintain and extend the leadership position they have earned.

IBM creates innovative and essential CICS TS technologies that enable clients to deliver on their business imperatives. CICS TS is continuously enhanced to help clients add value to their core CICS assets, first by extending them to the Internet, then by embracing Java workloads, and more recently by building comprehensive service-oriented architectures (SOAs) from existing systems.

CICS TS V5.3 satisfies over 70 client requirements (RFEs). Many of these help solve the 2 most pressing challenges companies face today that drive operational efficiencies, while increasing service agility.

New and enhanced capabilities in CICS TS V5.3 are delivered in a way that positions CICS users for the next transformational era in technology to move them towards a service delivery platform for cloud computing.

In particular, CICS TS V5.3 extends the cloud-style development, deployment, and operations capabilities that were introduced in CICS TS V5.2. It provides the opportunity to evaluate these capabilities, determine their relevance to the enterprise, and provide feedback to IBM on the concept and implementation.

Clients were advised that the end of support for CICS TS V3 is announced, effective December 31, 2015. For more details, refer to Software Withdrawal Announcement [A13-0056](#), dated April 23, 2013.

Clients were further advised that the end of support for CICS TS V4 is announced, effective September 30, 2017, for CICS TS V4.1, and September 30, 2018, for CICS TS V4.2. For more details, refer to Software Withdrawal Announcement [A15-0080](#), dated February 3, 2015.

CICS TS VUE

CICS TS VUE V5.3 offers an OTC price metric for eligible workloads that are deployed in qualified zNALC LPARs.

The term Eligible Workload is defined as net new Java workload that executes within the CICS TS VUE JVM server environment, on condition that the workload is qualified and approved through the zNALC qualification process.

The OTC price metric provides an alternative pricing model for new CICS Java applications and new CICS Java-based, service-enablement workloads.

Support for the zNALC metric offers a reduced price for the z/OS operating system on LPARs that run a qualified application.

CICS TS VUE V5.3 can connect to other supported versions of CICS TS for z/OS (whether in zNALC or non-zNALC environments) for the purpose of workload federation and systems management.

CICS TS VUE is a separately licensed program and does not initiate any Single Version Charging (SVC) period for monthly license charge (MLC) versions of CICS TS. This means that new CICS TS VUE applications can federate with existing CICS TS V3, CICS TS V4, and CICS TS V5 workloads, without mandating an upgrade of those systems.

CICS TS Developer Trial

CICS TS Developer Trial V5.3 is also available as a try-before-you-buy edition of CICS TS V5.3. It has a zero-cost license charge and does not initiate any single version charging (SVC) period. Clients who want to assess the value that could be gained from a CICS TS upgrade, before making an upgrade decision, should order this product.

CICS TS Developer Trial contains the complete set of CICS TS features and functions. However, there are a number of imposed restrictions, in performance and capacity, licensing terms, and a fixed expiry date, that make CICS TS Developer Trial suitable only for use in non-production environments.

Clients can now obtain support from IBM for CICS TS Developer Trial. Furthermore, if clients order a full product version of CICS TS V5.3 or CICS TS VUE V5.3, then they can upgrade from the CICS TS Developer Trial without the need to reinstall the product.

CICS TS Developer Trial V5.3 is available through IBM Shopz as a standard offering. In countries where Shopz is not yet available, contact your IBM representative (or IBM Business Partner) to handle their order by using the traditional IBM ordering process. For more information, refer to

<http://www.ibm.com/software/htp/cics/cicsdt/>

CICS TS Developer Trial is complemented by the continuing availability of IBM Rational^(R) Development and Test Environment for System z^(R), which provides a low-

cost, z Systems environment for developing and testing mainframe applications on Intel™ and Intel-compatible platforms. For more details on the features and benefits of Rational Development and Test Environment for System z, refer to

<http://www.ibm.com/software/rational/products/devtest/systemz/>

CICS seminars

IBM offers free, customized, CICS seminars that are delivered by CICS technical experts, at your clients' location and with the opportunity to choose the topics and time. Given to a mixture of personnel involving operations, development, and strategy, this can provide an effective discussion on how CICS can deliver real value to an enterprise. For more details, contact an IBM representative by email, at cicsem@uk.ibm.com.

Statement of direction

IBM makes the following statements of general direction:

- IBM intends to deliver support for Java applications that exploit Java EE 7 Full Platform features when running in the WebSphere Liberty profile that is integrated with IBM CICS Transaction Server for z/OS (CICS TS).
- IBM intends to deliver additional Java EE 7 components and technologies for the CICS TS hosted WebSphere Liberty profile through continuous delivery of new features in the coming months. These additional components and technologies are intended to include support for Java EE 7 Web Profile features, support for JMS 2.0 with IBM MQ for z/OS, and the ability to LINK from a CICS TS COBOL program to a CICS TS hosted Liberty application.

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 remain at our sole discretion.

Hardware and software support services

SmoothStart/installation services

IBM Services has the breadth, depth, and reach to manage your services needs. You can leverage the deep technical skills of our WebSphere lab-based services and the business consulting, project management, and infrastructure expertise of our IBM Global Services team. Also, IBM Services extends our reach through IBM Business Partners to provide an unmatched portfolio of capabilities. Together, IBM provides the global reach, intellectual capital, industry insight, and technology leadership to support any critical-business need.

For information on IBM IT Services, refer to

<http://www.ibm.com/services>

To learn more about IBM Software Services, refer to

<http://www.ibm.com/developerWorks/websphere/services/>

To locate an IBM Business Partner, refer to

<http://www.ibm.com/partnerworld/wps/bplocator/landing>

For services for CICS, refer to

<http://www.ibm.com/software/ts/cics/service/>

Reference information

IBM Software Announcements

The following software announcements are relevant to CICS TS V5.3 and include information on the following CICS Tools:

- CICS CM V5.3
- CICS DA V5.3
- CICS IA V5.3
- CICS PA V5.3

Refer to Software Announcement [A15-0705](#), dated October 5, 2015.

For more information on CICS Optimization Solution Pack for z/OS, V5.3, refer to Software Announcement [A15-0705](#), dated October 5, 2015.

For more information on CICS Modernization Solution Pack for z/OS, V5.2, refer to Software Announcement [A14-0499](#), dated July 1, 2014.

For information on CICS TG V9.1, refer to Software Announcement [A14-0499](#), dated July 1, 2014.

For information on CICS TG, V9.2 open beta offering, refer to Software Announcement [A15-0054](#), dated February 17, 2015.

For information on CICS TS, V5.2, refer to Software Announcement [A14-0211](#), dated April 7, 2014.

For information on CICS TS Value Unit Edition, V5.2, refer to Software Announcement [A14-0211](#), dated April 7, 2014.

For information on CICS TS Feature Pack for Dynamic Scripting, V2.0, refer to Software Announcement [A13-0625](#), dated August 13, 2013.

For information on CICS TS Feature Pack for Mobile Extensions, V1.0, refer to Software Announcement [A13-0354](#), dated April 23, 2013.

For information on CICS TS Feature Pack for Modern Batch, V1.0, refer to Software Announcement [A13-0354](#), dated April 23, 2013.

For information on CICS TS Feature Pack for Security Token Extensions, V1.0, refer to Software Announcement [A13-0900](#), dated October 8, 2013.

For information on CICS VT, V2.1, refer to Software Announcement [A11-0752](#), dated October 4, 2011.

For information on IBM 64-bit SDK for z/OS, Java Technology Edition, V7, refer to Software Announcement [A11-0570](#), dated October 4, 2011.

For information on IBM Application Performance Analyzer for z/OS, V13.1, refer to Software Announcement [A13-0736](#), dated October 1, 2013.

For information on IBM Communications Server for Data Center Deployment, V7.0, refer to Software Announcement [A12-0715](#), dated October 3, 2012.

For information on IBM DB2 11.1 for z/OS, refer to Software Announcement [A13-0734](#), dated October 1, 2013.

For information on IBM Debug Tool for z/OS, V13.1, refer to Software Announcement [A13-0736](#), dated October 1, 2013.

For information on IBM Enterprise PL/I for z/OS, V4.5, refer to Software Announcement [A15-0022](#), dated January 14, 2015.

For information on IBM Explorer for z/OS, V3.0, refer to Software Announcement [A15-0718](#), dated October 5, 2015.

For information on IBM Fault Analyzer for z/OS, V13.1, refer to Software Announcement [A13-0736](#), dated October 1, 2013.

For information on IBM File Manager for z/OS, V13.1, refer to Software Announcement [A13-0736](#), dated October 1, 2013.

For information on IBM Operations Analytics for z Systems V2.1, refer to Software Announcement [A15-0263](#), dated April 21, 2015.

For information on IBM z/VSE^(R), V6.1, refer to Software Announcement [A15-0406](#), dated October 5, 2015.

For information on IMS 14, refer to Software Announcement [A15-0772](#), dated October 5, 2015.

For information on Rational Developer for System z, V9.1, refer to Software Announcement [A14-0373](#), dated April 28, 2014.

For information on Rational Host Access Transformation Services, V8.5, refer to Software Announcement [A12-0381](#), dated May 29, 2012.

For information on TXSeries for Multiplatforms V8.2 (for AIX^(R) and Linux), refer to Software Announcement [A15-0091](#), dated February 17, 2015.

For information on TXSeries for Multiplatforms V8.2 (for Microsoft Windows and HP-UX), refer to Software Announcement [A15-0639](#), dated September 8, 2015.

For information on WebSphere Application Server, V8.5, refer to Software Announcement [A12-0248](#), dated April 24, 2012.

CICS web pages

For up-to-date information on CICS, refer to

<http://www.ibm.com/software/ts/cics/>

For the latest information on CICS TS V5.3, refer to

<http://www.ibm.com/software/products/en/cics-tserver-zos>

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

http://www.ibm.com/support/entry/portal/Overview/Software/Other_Software/CICS_Transaction_Server

CICS SupportPacs

CICS SupportPacs that extend and complement CICS TS are available, free of charge. Go to

<http://www.ibm.com/support/docview.wss?uid=swg27007241>

Availability of national languages

Description	Availability date	Language
CICS TS V5.3	December 11, 2015	Multilingual
CICS TS VUE V5.3	December 11, 2015	Multilingual
CICS TS Developer Trial V5.3	December 11, 2015	Multilingual

The product as delivered includes messages and CICSplex[®] SM WUI panels, and on-line help translated to Japanese and Simplified Chinese.

For CICS TS V5.3, some product documentation is translated. Refer to the [Product documentation](#) section for details.

The translated versions will be available on December 11, 2015.

Program number

Program name	VRM	Program number
CICS Transaction Server for z/OS	530	5655-Y04
CICS Transaction Server for z/OS Value Unit Edition	530	5722-DFJ
CICS Transaction Server for z/OS Value Unit Edition S&S	110	5722-DFK
CICS Transaction Server for z/OS Developer Trial	530	5655-Y30
CICS Transaction Server for z/OS Developer Trial S&S	110	5655-Y15

Education support

IBM training provides education to support many IBM offerings.

Call IBM training at 800-IBM-TEACH (426-8322) for catalogues, schedules, and enrollments.

The core training offerings for CICS are listed below. Versions of these courses will be available for CICS TS V5.3. Refer to your country's IBM education delivery organization for specific course codes and class schedules.

- CICS Fundamentals. This course teaches the major CICS concepts and facilities that are applicable to the CICS family of products. It focuses on the tasks involved in designing, programming, and managing applications.
- CICS Basic Tailoring. This course is intended for systems programmers who will be installing and tailoring CICS TS.
- CICS Advanced System Programming Topics. This course is designed to teach experienced CICS system programmers the more advanced resource definition and tailoring skills needed to fully leverage the many features available in today's CICS environments. Topics include troubleshooting, configuration and tailoring, planning for recovery, and tailoring CICS support for web services.
- CICSplex System Manager Introduction. This course teaches students the concepts and facilities of CICSplex System Manager.
- CICSplex System Manager Administration. This course builds upon the foundation established in the introduction to CICSplex System Manager and teaches students how to install, configure, and manage a CICSplex environment using CICSplex System Manager.
- CICS Command Level Coding. This course teaches students to design, code, and debug CICS Command Level application programs.

- CICS Application Development for SOA and Web Services. This course teaches students how to design, code, and debug CICS application programs that utilize CICS web support and web services facilities.

For additional information, or to check for the latest updates, refer to the IBM Education web page at

<http://www.ibm.com/services/learning/>

Select your country to view the available offerings. This site has links to descriptions for all classroom and self-study courses available in each country. The web page also contains information on course schedules and enrollment procedures.

Technical information

Specified operating environment

Hardware requirements

Processor

The minimum required hardware prerequisite for CICS TS V5.3 is IBM z Systems z9 or subsequent, 64-bit z/Architecture processors.

Parallel Sysplex^(R) support

A Parallel Sysplex environment is not required for CICS TS V5.3 but can be exploited by each of the following data-sharing facilities supported by CICS, and by the usage of the MVS system logger's log stream merging facility:

- IMS databases
- DB2 databases
- VSAM data sets
- CICS temporary storage
- Coupling facility data tables
- Named counter server

z Systems cryptographic hardware

Appropriate z Systems cryptographic hardware is required if clients need to exploit signature verification functions with WS-Security. For z Systems 800 and 900, this hardware is the Cryptographic Coprocessor Feature and the PCI Cryptographic Coprocessor. For z Systems 890, 990, z9 and z10TM, it is the CP Assist for Cryptographic Functions and the Crypto Express^(R) 2 Coprocessor. For z196 it is CP Assist for Cryptographic Functions and the Crypto Express 3 Coprocessor. For zEnterprise^(R) EC12, it is the CP Assist for Cryptographic Functions and the Crypto Express4S.

Katakana terminal devices

CICS TS has to issue certain messages in mixed-case, and is therefore not supported with displays or terminal emulators that are restricted to the non-extended single-byte character set (SBCS) Katakana part of code page 930.

Software requirements

Operating environment

The minimum required level of operating system for CICS TS V5.3 is IBM z/OS V1.13 (5694-A01) with APAR OA38409.

Java Runtime Environment

The IBM 64-bit SDK for z/OS, Java Technology Edition, V7.0 SR1 or later, V7.1, or V8.0 is required if using Java application programs, SAML support, JSON web services, the CICS Web Services Assistant, or the CICS XML Assistant. The IBM SDK for z/OS is available, without charge, on tape or by download. Refer to

<http://www.ibm.com/servers/eserver/zseries/software/java/>

CICS to IMS connection, by using TCP/IP

For CICS TS V5.3, connection to IMS Transaction Manager (TM) using TCP/IP requires IMS 13, which supports the CICS IP interconnectivity (IPIC) protocol.

CICS Explorer

CICS Explorer V5.3 requires CICS TS V5.3 in order to make use of the latest functionality provided. Details of other system requirements for both the CICS Explorer and CICS Explorer SDK are available at

<http://www.ibm.com/software/htp/cics/explorer/requirements/>

Details relating to service and support for CICS Explorer are available at

<http://www.ibm.com/support/docview.wss?uid=swg21380083>

For additional information on software requirements, refer to the relevant *Program Directory*. For on-line information, click on *Detailed system requirements for CICS TS for z/OS V5.3* from document *Detailed System Requirements for CICS Transaction Server*. Refer to

<http://www.ibm.com/support/docview.wss?uid=swg27006382>

Product documentation

Application programming summary

The high-level programming languages and compilers that are in service on z/OS and have CICS translator support are detailed in the **High-level language support** topic in the CICS TS V5.3 product documentation.

National language versions testing

Testing of the national language versions is complete.

Performance considerations

At general availability, performance information is available in both the on-line product documentation for CICS TS V5.3 and downloadable in the *Performance Guide* (SC32-7421).

User group requirements

The following Request for Enhancements (RFEs) were satisfied or partially satisfied in CICS TS V5.3:

RFE number	Description
17468	Describe the usage of JPA in CICS
17469	Support JMS within CICS
17694	HTTP Persistent connection request limit in CICS
20316	TCPIPSERVICE compatibility with AT-TLS
21091	Develop CEMT NEW COPY for BUNDLES
21748	Request to adjust the behaviour of IPCONN autoinstall program (DFHISAIP)
23394	API Inquire against Containers in a channel
24164	Message when shared data table is full
24193	CICS GLOBAL ENQUEUE / DEQUEUE issue related to use of RNL
24709	CICS TS should provide GETPASSTICKET API
24732	Problem with CICS Server: HTTP TRACE method
24969	Multithread the SAF (RACF) interface instead of single threading under the RO TCB
25009	Long running tasks using Channels and Containers
25246	Provide method to identify CSD's maintenance level
25409	Make SOAP ALIAS transaction available in CICS provided APPLDATA for SMF 119 records
25415	CICS Monitoring Enhancement for Shared TS Request Counts
25871	Extension to CPSM event detection and routing - for VSAM RLS and SMSVSAM failures
25966	include a new EXEC CICS API call to do the same as the FEPI one so that you don't need a FEPI environment
26190	Add a field to record peak TDQ depth in statistic
27159	Add filter for Available Attributes when customizing columns
27971	Newcopy feature for CICS Application Bundles(OSGi) needed
27992	CICS-MQ stormdrain
29213	Reduce TCB switches for CWXN
31455	Control CICS HTTP TRACE by SIT parm and supplied transaction
32146	Enhance COPY command in DFHCSDUP
34005	local EJBs and CDI in CICS JVM server
34490	Set HTTP TRACE to NOTRACE per Default
34506	CICS JVMSERVER logs administration
34510	Add the MQSeries [®] GET number in the policy specification
35212	EXEC CICS ASSIGN INPUTLENGTH()
35418	CICS Explorer Mac OS/X version
36670	Selective Export of CICS Explorer Connections
36939	DFHMQTRU GETMAIN should be in CICSKEY
37042	CICS remove banner viewed from HTTP server
37407	DFH0IPCC change to add USERAUTH

RFE number	Description
37536	Access to an existing CICS document from a java program using JCICS
37762	Support Kerberos authentication with CICS application
37938	Possibility to have RNL=No as CICS SIT parameter for System ENQ
40047	Connection URL stored in Master Workspace
40459	MQ JMS support for CICS Java
41099	provide OFFSET to user through ASSIGN when AEYD, AICA, ASRA, ASRB, and ASRD
41261	Allow declaring a default connection in Connections View
41455	add "customize columns" option also to the menu bar
42229	Platform/Application DB2 Schema
42408	Invalid data returned by INQUIRE PROGRAM after SET PROGRAM COPY(PHASEIN)
42963	CICS Explorer - enable item count range selection in filter views
43275	DFHPI0997 additional web service context needed
45188	No message issued after successful EXEC CICS VERIFY and unsuccessful attempt count was non-zero
45754	CICS commands proposed to be Threadsafe
46068	SAF protection of individual resource groups
46611	Enhance CICS Transaction Server Loader Domain Services to detect CICS program release mismatch at product initialization
46750	write java log to spool directly without CICS TDQ
47818	Extend the scope of CICS CPSM "Abend Compensation" to include MQ
50202	Extend the scope of CPSM abend-compensation to include DBCTL
50985	Allow CICS to use Passtickets instead of Passwords e.g. for Web Services
52913	Allow DFHRPL libraries to be placed in EAS space of EAV volumes
52932	CAM tooling needs the ability to control "Export to z/OS Unix File System" functions
53066	Create a CEMT SET() PHASEIN type command for JAVA bundles
54140	Ability to Control Valid Installation CICS Explorer Releases from the Mainframe
54769	CICS should be aware when a protected DB2 thread is cancelled
54953	Shared temporary storage statistics in missing SMF data
56287	Web Server Version Revealed by CICS
56445	SQLJ support in CICS Liberty Profile
56849	Management of requests for CICS Java tasks when JVMSERVER is not available
56850	CICS Liberty session persistence
58048	Protecting CPSM Api via SP and DFHEITBS
58289	CICS Explorer - CPSM WLM Admin Allow users to Control Resource Names

RFE number	Description
59112	Documentation Change for EXEC CICS DELETE GENERIC
65697	PSCHWAB1109-1294 CICS health status to Sysplex Distributor (WLM)
66804	Can CICS-MQ attachment facility operate like CICS-DB2 & CICS-DBCTL attachment facility by issuing 'already connected' msg
69208	All API Threshold policy
70581	DFHCMACD ABEND AEY9 is truncated
70589	Display SYSPLEX ENQ status in CICS dump
73552	Cryptographic Protocols setting granularity in CTS
73742	Reused L8 TCB causes MQ shutdown stall
76000	Optimize .js in CICS Liberty
107296	Allow DFHRPL libraries to be placed in EAS space of EAV volumes

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

<http://www.ibm.com/developerworks/rfe/>

Planning information

Packaging

Elements that are included in CICS TS V5.3

The base CICS element of CICS TS V5.3 is CICS V7.0.

The CICSplex SM element is CICSplex SM V5.3.

Other elements of CICS TS V5.3, which were previously available as separate IBM products, are:

- CICS REXX Runtime Facility
- CICS REXX Development System
- CICS REXX Common for z/OS

CICS TS V5.3 is shipped with CICS Service Flow Runtime, which allows the deployment of CICS business services (or service flows) created by the Service Flow Modeler component of Rational Developer for System z, V7.6 or later. The service flow runtime capability of CICS TS V5.3 is fully compatible with CICS Service Flow Feature V3.2. For clients upgrading to CICS TS V5.3, the integrated support for business services in this latest release of CICS TS can be used as a direct replacement for CICS Service Flow Feature V3.2.

CICS Application Migration Aid (5695-061) V1.1 is no longer provided as a separate element of CICS TS V5.3.

Physical delivery

The following hardcopy documents and DVDs are shipped, together with the basic machine-readable material for the product:

- Licensed Program Specifications DVD (for CICS TS V5.3) (GC34-7347)
- License Information DVD (for CICS TS VUE V5.3) (GC34-7350)
- License Information DVD (for CICS TS Developer Trial V5.3) (GC34-7349)
- License Information DVD (for IBM Knowledge Center for CICS local install) (GC34-7460)
- Memo to Licensees (GI13-3380)

- CICS Technical Services Flyer (GI13-3381)
- IBM z/OS Tools V5.3 Datasheet (GI13-3382)
- IBM Knowledge Center for CICS DVD (local install for Microsoft Windows, AIX, and Linux) (GC34-7459)

Certain other items, such as specification sheets of related IBM products, might be included.

Electronic delivery

At general availability of CICS TS V5.3, CICS Explorer V5.3 will be available for download and use. This latest release of CICS Explorer can be used with each supported release of CICS TS and is available as a no-charge optional feature. Further information is available at

<http://www.ibm.com/cics/explorer/>

Security, auditability, and control

Information about security is available in both the on-line product documentation for CICS TS V5.3 and the *RACF Security Guide* (SC34-7423).

CICS TS V5.3 uses the security and auditability features of the operating system under which it is running.

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

Ordering information

New licensees

Orders for new licenses can be placed now.

Registered clients can access IBMLink for ordering information and charges.

Shipment will not occur before the availability date.

Unless a later date is specified, orders entered before the planned availability date will be assigned a schedule date of one week following availability.

New users of CICS TS should specify:

Type:5655 Model:Y04

Based on the customer-requested arrival date (CRAD) and to allow for order processing, the first customer shipment will begin within seven business days after general availability.

Graduated or processor-based charges: Not applicable.

Parallel Sysplex license charge (PSLC) basic license

To order a basic license, specify the program number and quantity of MSU.

If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable PSLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the System Usage Registration No-Charge (SYSUSGREG NC) Identifier on the licenses.

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, PSLC below 3 MSU Basic MLC, PSLC AD SYSUSGREG NC, PSLC AD
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

To order a basic license, specify the program number. Specify the PSLC Base feature. If applicable, specify the PSLC Level A and PSLC Level B, and PSLC Level C, and PSLC Level D features and quantity.

If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable PSLC feature numbers and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the PSLC No-Charge (NC) Identifier feature on the licenses.

Also, specify the feature number of the desired distribution medium.

Advanced Workload License Charges (AWLC) basic license

To order a basic license, specify the program number and quantity of MSUs. If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable AWLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the System Usage Registration No-Charge (SYSUSGREG NC) Identifier on the licenses.

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, AWLC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Advanced Entry Workload License Charges (AEWLC) basic license

To order a basic license, specify the program number and quantity of MSUs.

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, AEWLC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Workload License Charge (WLC) Basic License

If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable WLC license options and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the Workload Registration Variable WLC Identifier on the licenses.

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, Variable WLC Workload Registration, Variable WLC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

To order a basic license, specify the program number and the quantity of MSUs.

Entry Workload License Charge (EWLC) Basic License

To order a basic license, specify the program number and the quantity of MSUs.

To order EWLC software, specify the program number and the EWLC monthly charge feature number from the following table. Also, specify the feature number for the desired distribution medium.

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, Entry WLC

S/390 and z Systems Usage License Charge, basic license

Specify the applicable S/390^(R) and z Systems Usage License Charge option.

Charges will be based upon the Peak MSUs. Usage reported between thresholds of features 1, 2, or 3, will be rounded up to the next MSU level. Above 1.0 MSU, usage will be rounded to the nearest whole MSU. For example, 2.4 MSUs would round to 2.0 MSUs for pricing, and 2.5 MSUs would round to 3.0 MSUs for pricing.

The client pricing will be determined by selecting either:

Entitlement identifier	Description	License option/ Pricing metric
S0172DF	CICS TS V5.3	0 to 0.25 MSU Base
		0.26 to 0.5 MSU Base
		0.51 to 1.0 MSU Base
		Level A Chg/MSU (2 to 11 MSUs)
		Level B Chg/MSU (12 to 44 MSUs)
		Level C Chg/MSU (45 to 78 MSUs)
		Level D Chg/MSU (Above 78 MSUs)
		Level D Chg/MSU (Above 78 MSUs), per 50 MSUs

Examples for ordering:

A client with a measured usage (from the IBM Measured Usage report) of 0.3 MSU would:

A client with 6.6 MSUs (from the IBM Usage report) would:

- Be rounded up to 7.0 MSUs
- Order quantity 1 of the "0.51 to 1.0 MSU" base feature
- Order quantity 6 of the Level A 1 MSU feature

A client with 15 MSUs (from the IBM Usage report) would:

- Order quantity 1 of the "0.51 to 1.0 MSU" base feature
- Order quantity 10 of the Level A 1 MSU feature
- Order quantity 4 of the Level B 1 MSU feature

A client with 50 MSUs (from the IBM Usage report) would:

- Order quantity 1 of the "0.51 to 1.0 MSU" base feature
- Order quantity 10 of the Level A 1 MSU feature
- Order quantity 33 of the Level B 1 MSU feature
- Order quantity 6 of the Level C 1 MSU feature

A client with 85 MSUs (from the IBM Usage report) would:

- Order quantity 1 of the "0.51 to 1.0 MSU" base feature
- Order quantity 10 of the Level A 1 MSU feature
- Order quantity 33 of the Level B 1 MSU feature
- Order quantity 34 of the Level C 1 MSU feature
- Order quantity 7 of the Level D 1 MSU feature

z Systems entry license charge (zELC)

To order zELC software, specify the program number and z800 model.

Specify the zELC monthly license option.

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, zELC

Specify the zELC monthly charge feature number. Also, specify the feature number for the desired distribution medium.

Single version charging

To elect single version charging, the customer must notify and identify to IBM the prior program and replacement program and the designated machine the programs are operating on.

Basic machine-readable material

Feature description	Feature number
CICS TS V5.3 - English US, ENU - IBM 3590 Cartridge 1/2 Inch CST 34K Kbpi - Uncompressed	6003

Charge metric (for CICS TS VUE V5.3)

Program name	PID number	Charge metric
CICS TS VUE V5.3	5722-DFJ	Value Unit

Feature description	Feature number
CICS TS VUE V5.3	6051

The programs in this announcement all have Value Unit-based pricing.

Program number	Program name	Value unit exhibit
5722-DFJ	CICS TS VUE V5.3	VUE007

For each z Systems 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:

- The z Systems IPLA program you select
- The applicable Value Unit Exhibit
- The applicable terms
- Whether your current mainframes are full capacity or sub-capacity

Value Unit exhibit VUE007

	MSUs minimum	MSUs maximum	Value Units/MSU
Base	1	3	1
Tier A	4	45	0.45
Tier B	46	175	0.36
Tier C	176	315	0.27
Tier D	316	+	0.2

Value Units for mainframes without MSU ratings

Hardware	Value Units/machine
MP3000 H30	6
MP3000 H50	8
MP3000 H70	12
ESL models 2	2

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 z Systems IPLA product, the applicable Value Units would be:

Translation from MSUs to Value Units

	MSUs	*	Value Units/MSU	=	Value Units
Base	3	*	1.00	=	3.00
Tier A	42	*	.45	=	18.90
Tier B	130	*	.36	=	46.80
Tier C	140	*	.27	=	37.80
Tier D	1,185	*	.20	=	237.00
Total	1,500				343.50

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

Example: In the above ordering example, for the product running on a machine with 1,500 MSUs requiring 344 Value Units, order feature number G4FG, quantity 94, and feature number G4FH, quantity 1.

Basic license (for CICS TS VUE V5.3)

On/Off CoD

CICS TS VUE V5.3 is eligible for On/Off CoD with a temporary use charge calculated based on MSUs per-day usage.

Program name: CICS TS VUE V5.3

Program ID: 5722-DFJ

Entitlement ID	Description	License option/Pricing metric
S01770R	CICS TS VUE V5.3	Basic OTC, Per MSU-day TUC

Program name: CICS TS VUE V5.3

Program ID: 5722-DFJ

Entitlement ID	Description	License option/Pricing metric
S01770R	CICS TS VUE V5.3	Basic OTC, per Value Unit
Orderable supply ID	Language	Distribution medium
S017RFL	Multilingual	3590 Tape

Subscription and Support PID: 5722-DFK

Entitlement ID	Description	License option/Pricing metric
S01770Z	CICS TS VUE Subscription and Support	Basic ASC, per Value Unit SW S&S, No charge, decline SW S&S Per MSU SW S&S registration
Orderable supply ID	Language	Distribution medium
S01770X	Multilingual	Hardcopy publication

Subscription and Support (for CICS TS VUE V5.3)

To receive voice technical support via telephone 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.

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- Includes and extends the support services provided in the base support to include technical support via telephone.
- Entitles you to future releases and versions, at no additional charge. Note that you are not entitled to new products.

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

The combined effect of the IPLA license and the Agreement for Acquisition of Software Maintenance gives you rights and support services comparable to those under the traditional ICA S/390 and z Systems license or its equivalent. To ensure that you continue to enjoy the level of support you are used to in the ICA business model, you must order **both** the license for the program **and** the support for the selected programs at the same Value Unit quantities.

Charge metric (for CICS TS Developer Trial V5.3)

Program name	PID number	Charge metric
CICS TS Developer Trial V5.3	5655-Y30	No charge. Unlimited Installs

Basic license (for CICS TS Developer Trial V5.3)

CICS TS Developer Trial V5.3

Basic license: No charge. Unlimited Installs

Feature description	Feature number
CICS TS Developer Trial V5.3	6006

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.

Program name: CICS TS Developer Trial V5.3

Program ID: 5655-Y30

Entitlement ID	Description	License option/Pricing metric
S0172F9	CICS TS Developer Trial V5.3	No charge. Unlimited Installs
Orderable supply ID	Language	Distribution medium
S017V1Z	English	3590 tape

Subscription and Support PID: 5655-Y15

Entitlement ID	Description	License option/Pricing metric
S016Z0T	CICS TS Developer Trial Subscription and Support	No charge. Unlimited Installs. SW S&S Reg, No Charge
Orderable Supply ID	Description	
S016Z28	CICS TS Developer Trial S&S Hardcopy	

Customization options

Select the appropriate feature numbers to customize your order to specify the delivery options desired. These features can be specified on the initial or MES orders.

Unlicensed documentation

Product documentation

CICS TS V5.3 product documentation is provided in the following ways:

- On-line, in IBM Knowledge Center
- Off-line, in the versions of IBM Knowledge Center that are for use on a local system
- As PDF manuals. These can be downloaded from IBM Publications Center, or created dynamically in the on-line IBM Knowledge Center.

On-line information in IBM Knowledge Center

On-line documentation for CICS TS V5.3 is hosted in IBM Knowledge Center, which provides integrated tools for finding, filtering, customizing, saving, and sharing information. Documentation for CICS TS V5.3 in IBM Knowledge Center is refreshed

regularly to reflect feedback from users, and include changes that result from IBM Service.

For the CICS TS V5.3 product documentation in IBM Knowledge Center, refer to http://www.ibm.com/support/knowledgecenter/SSGMCP_5.3.0

Offline information, using the IBM Knowledge Center for CICS products

You can use versions of IBM Knowledge Center on Microsoft Windows, AIX, Linux, zLinux, and z/OS.

For Microsoft Windows, AIX, Linux, and zLinux:

IBM Knowledge Center for CICS products is a framework that you download to a local system. You can then load the framework with the documentation for CICS TS. Frameworks are available for Microsoft Windows, AIX, Linux, and under IBM WebSphere Application Server Liberty Profile for Microsoft Windows, AIX, Linux, and zLinux. CICS TS supplies these frameworks on a single DVD that is available from IBM Shopz (GC34-7459). The documentation for CICS TS that you can load into the framework is available at

<ftp://public.dhe.ibm.com/software/cics/knowledgecenter>

See the CICS TS V5.3 product documentation ("Downloadable information") for details about how the downloadable IBM Knowledge Center for CICS products works, and how to load the latest CICS TS documentation into it

http://www.ibm.com/support/knowledgecenter/SSGMCP_5.3.0/com.ibm.cics.proddoc.doc/topics/online_local.html

For IBM z/OS

IBM z/OS V2R2 contains a base element of IBM Knowledge Center for z/OS. If you have this level of z/OS, you can use the z/OS Softcopy Librarian feature to load CICS TS V5.3 documentation into the IBM Knowledge Center for z/OS.

See the z/OS 2.2 product documentation ("Installing, Managing, and Using the On-line Library") for details about how IBM Knowledge Center for z/OS works, and how to load the latest CICS TS documentation into it. Refer to

http://www.ibm.com/support/knowledgecenter/SSLTBW_2.2.0/com.ibm.zos.v2r1.ab0in02/toc.htm

Note: The contents of the IBM Knowledge Center for z/OS are refreshed on a quarterly schedule that is independent of product releases. As a result, the documentation in this format for CICS TS V5.3 will not be available at general availability, but will be added in a subsequent refresh.

IBM Knowledge Center accessibility

To request the accessibility status for the IBM Knowledge Center service, refer to the IBM Product accessibility information web page, at

<https://www.ibm.com/research/accessibility/requests/>

Select *IBM Knowledge Center - Hosted Edition*.

Within the IBM Knowledge Center, the CICS documentation is designed to be accessible. For example, instead of viewing diagrams, users can choose to read text descriptions.

Some product documentation is provided in PDF format for download from the IBM Publications Center, and clients can create bespoke PDFs from the IBM Knowledge Center. PDF format is accessible using Adobe™ Acrobat Reader 8.0 or later.

PDF manuals

Documentation for CICS TS V5.3 is provided for download in PDF format in two ways:

- From IBM Publications Center. Clients can download individual manuals,² or a complete set, known as a Product Kit (PKIT). For CICS TS V5.3 this is form number SK4T-2716. The full list of product documentation provided for CICS TS V5.3 is available at

http://www.ibm.com/support/knowledgecenter/SSGMCP_5.3.0/com.ibm.cics.proddoc.doc/topics/PDF.html

- From IBM Knowledge Center. CICS TS 5.3 provides special collections of topics that are equivalent to the CICS manuals. Using the features of IBM Knowledge Center, users can create and download a PDF of these collections³. These manuals are available at

http://www.ibm.com/support/knowledgecenter/SSGMCP_5.3.0/com.ibm.cics.ts.collections.doc/manuals/PDFs_intro.html

2 These manuals are not refreshed between releases of CICS TS.

3 Any changes that IBM makes to the information between releases is reflected in these collections.

National language versions

Some documentation is translated into languages other than English. For details of the content that is translated and the formats in which it is available, see the CICS TS 5.3 product documentation in IBM Knowledge Center (**Translated information** section), at

http://www.ibm.com/support/knowledgecenter/SSGMCP_5.3.0/com.ibm.cics.proddoc.doc/topics/nlv.html

Other translated PDF documentation is also available. For more information, refer to the IBM Publications Center at

<http://www.ibm.com/shop/publications/order>

Other CICS publications

For information on IBM Redbooks^(R), refer to

<http://www.redbooks.ibm.com/>

For information on IBM RedpapersTM, refer to

<http://www.redbooks.ibm.com/Redbooks.nsf/redpapers/>

Licensed documentation

CICS workshops

Workshops are available from IBM education services to help clients make the most of CICS and related CICS products. Available courses include:

Course name	Course code	Course duration
IBM CICS and Web services	WRB032	2.5 days
IBM CICS Tools and CICSplex SM	WRB033	3 days
IBM CICS Java development	WRB030	3 days
Integrating CICS applications in an SOA	WRB053	3 days
SOA application modernization on z/OS	WRB051	2 days

Course name	Course code	Course duration
IBM Workload Manager: Controlling system performance	WRB061	3 days
Analyzing and optimizing system performance for your installation	WRB058	5 days
Cross-site data sharing	ITS748	2 days
IBM z/OS diagnostics and analysis	WRB034	2 days

For more information, refer to

<http://www.ibm.com/training>

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

Customized Offerings

Product deliverables are shipped only via CBPDO and ServerPac. These customized offerings are offered for Internet delivery in countries where Shopz product ordering is available. Internet delivery reduces software delivery time and allows you to install software without the need to handle tapes. For more details on Internet delivery, refer to the Shopz help information at

<http://www.software.ibm.com/ShopzSeries>

You choose the delivery method when you order the software. IBM recommends Internet delivery. In addition to Internet and DVD, the supported tape delivery options include:

- 3590
- 3592

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

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

<http://www.software.ibm.com/ShopzSeries>

For additional information on the Product ServerPac option, refer to Software Announcement [A12-0593](#), dated July 31, 2012.

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

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

Terms and conditions

The terms for CICS TS V5.3, announced in this Software Announcement [A15-0704](#), dated October 5, 2015, and licensed under the IBM Customer Agreement (ICA) are unaffected by this announcement.

For CICS TS VUE V5.3 and CICS TS Developer Trial V5.3 only

The information provided in this announcement letter is for reference and convenience purposes only. The terms and conditions that govern any transaction with IBM are contained in the applicable contract documents such as the IBM International Program License Agreement, IBM International Passport Advantage^(R) Agreement, and the IBM Agreement for Acquisition of Software Maintenance.

Licensing: IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

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The IBM Agreement for Acquisition of Software Maintenance (Z125-6011) agreement applies for Software Subscription and Support (Software Maintenance) and does not require customer signatures,

These programs are licensed under the IBM Program License Agreement (IPLA) and the associated Agreement for Acquisition of Software Maintenance, which provide for support with ongoing access to releases and versions of the program. These programs have 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.

License Information numbers for IPLA programs

LI number	Program name
L-JRON-9WBFP5	IBM CICS Transaction Server for z/OS V5.3 Value Unit Edition
L-JRON-9WBFWC	IBM CICS Transaction Server for z/OS V5.3 Developer Trial
L-APIG-9U5DA7	IBM Knowledge Center for IBM CICS products V1.5 ⁴

⁴ The IBM Knowledge Center for IBM CICS products is also shipped with CICS TS V5.3.

The License Information documents for these Programs are available for review on the IBM Software License Agreement website

<http://www.ibm.com/software/sla/sladb.nsf>

IBM Operational Support Services - Support Line

Yes

Statement of good security practices

IT system security involves protecting systems and information through prevention, detection, and response to improper access from within and outside your enterprise. Improper access can result in information being altered, destroyed, or misappropriated or can result in misuse of your systems to attack others. Without a comprehensive approach to security, no IT system or product should be considered completely secure and no single product or security measure can be completely effective in preventing improper access. IBM systems and products are designed to be part of a comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective. IBM does not warrant that systems and products are immune from the malicious or illegal conduct of any party.

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<http://www.ibm.com/support/electronic>

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For additional information, please refer to IBM Electronic Service Agent

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Customized support: Using the IBM ID entered during activation, you can view system and support information in the My Systems and Premium Search sections of the Electronic Support website at

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My Systems provides valuable reports of installed hardware and software using information collected from the systems by Electronic Service Agent. Reports are available for any system associated with your IBM ID. Premium Search combines the function of search and the value of Electronic Service Agent information, providing advanced search of the technical support knowledgebase. Using Premium search and the Electronic Service Agent information that has been collected from your system, you are able to see search results that apply specifically to your systems.

For more information on how to utilize the power of IBM Electronic Services, contact your IBM Systems Services Representative, or refer to

<http://www.ibm.com/support/electronic>

Prices

Prices are subject to change without notice.

GST, QST, and sales taxes, where applicable, are extra.

For additional information and current prices, contact your IBM representative.

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, zELC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Parallel sysplex license charge (PSLC)

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, PSLC below 3 MSU, SYSUSGREG NC, PSLC AD
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, AWLC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, AEWLC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Variable workload license charge (VWLC)

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, Variable WLC Workload Registration
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape

Sub-capacity charges for VWLC products

Sub-capacity charges for VWLC products are based on product LPAR utilization capacity. Product LPAR utilization capacity for a VWLC product is the highest number of MSUs utilized by the combined LPARs in which a VWLC product runs concurrently during a reporting period. The number of MSUs is based on the highest observed rolling 4-hour average utilization used by the combination of the relevant LPARs during the reporting period.

Sub-capacity charges terms and conditions

IBM z Systems software charges at less than full machine capacity for eligible VWLC products apply when z/OS is running in z/Architecture (64-bit) mode on an IBM z Systems 900, no other MVS-based operating system is licensed to that server, and the required information is provided by the client in accordance with the applicable terms.

Sub-capacity charges for a VWLC product is based on the utilization of the LPARs where/when the product executes. To obtain charges at less than full machine capacity for VWLC products, the client is required to:

- Sign and abide by the terms of the Attachment for z Systems workload license charges - (Z125-6516).
- Obtain the latest version of the Sub-Capacity Reporting Tool.
- Install any VWLC product and IBM e(logo)server z Systems 900 Licensed Internal Code (LIC) service required for sub-capacity charging. Required service will be listed on the WLC website
<http://www.ibm.com/zseries/swprice>
- Collect SMF data as required by the Sub-Capacity Reporting Tool. Retain the collected SMF data for a period of not less than six months.
- Use the IBM provided Sub-Capacity Reporting Tool to process the collected SMF data. The Sub-Capacity Report produced by the tool is used to determine required license capacity for the VWLC products. Required license capacity is determined based on the largest MSU value of a VWLC product running concurrently in all LPARs during the reporting period. IBM reserves the right to request the system data that supports these product-defined capacity values for a period of up to six months after the data was collected.
- Provide an initial Sub-Capacity Report to begin to receive the benefits of less than full machine capacity charges. Sub-capacity charging will follow submission of a Sub-Capacity Report. There will be no retroactive application of sub-capacity charges.
- Submit Sub-Capacity Reports monthly.
- Submit Sub-Capacity Reports for all VWLC products with complete data for the entire reporting period to the email address and by the date specified in the

current z Systems workload license charges exhibit (Z125-6324) and on the z Systems Software Pricing Website

<http://www.ibm.com/zseries/swprice>

Sub-Capacity Reports that reflect a changed product defined capacity will be considered to be orders placed by the client without further action on the client's part, and IBM is authorized to make any resulting billing increase or decrease. To place an order for a new license or to discontinue licenses, move licenses between machines, report a hardware model upgrade, or enable or disable product features, the client must contact IBM or their IBM Business Partner.

- Configure the machine to send weekly Transmit System Availability Data (TSAD) to IBM via the z Systems 900 Remote Support Facility (RSF). If the machine cannot connect via the RSF, provide this TSAD via an alternate means documented in the z/OS publication *Planning for workload license charges* at <http://www.ibm.com/zseries/swprice>

Entry Workload License Charge (EWLC)

Program name: CICS TS V5.3

Program ID: 5655-Y04

Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	Basic MLC, Entry WLC
Orderable supply ID	Language	Distribution medium
S017RBF	Multilingual	3590 tape
Entitlement ID	Description	License option/Pricing metric
S0172DF	CICS TS V5.3	0 to 0.25 MSU Base
		0.26 to 0.5 MSU Base
		0.51 to 1.0 MSU Base
		Level A Chg/MSU (2 to 11 MSUs)
		Level B Chg/MSU (12 to 44 MSUs)
		Level C Chg/MSU (45 to 78 MSUs)
		Level D Chg/MSU (Above 78 MSUs)
		Level D Chg/MSU (Above 78 MSUs), per 50 MSUs

Variable charges

The applicable processor based one-time charge will be based on the group of the designated machine on which the program is licensed for use. If the program is designated to a processor in a group for which no charge is listed, the charge of the next higher group listed applies. For movement to a machine in a higher group, an upgrade charge equal to the difference in the then-current charges between the two groups will apply. For movement to a machine in a lower group, there will be no adjustment or refund of charges paid.

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<http://www.ibm.com/planetwide/ca/>

Corrections

(Corrected on January 14, 2016)

The Hardware requirements section is revised.