IBM CICS Transaction Server for z/OS, V5.6 delivers significant improvements to the developer experience, security, resilience, and management

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Overview

IBM CICS Transaction Server for z/OS, V5.6

CICS TS V5.6 delivers significant new capabilities to improve the developer experience, including the choice of APIs, frameworks, editors, and build tools, while at the same time providing updates in the key areas of security, resilience, and management. These new capabilities are presented under the following themes:

• Developer experience
  – New support for Pivotal Spring Boot
  – New support for Jakarta EE 8
  – Enhanced CICS Java API
  – New Maven Central libraries for CICS Java application development
  – New plug-ins for Maven and Gradle to automate building CICS bundles
  – New deployment API to simplify CICS bundle deployment during development
  – New support for Node.js version 12

• Security
  – Enhanced support for CICS TS as an HTTP client when using TLS
  – Enhanced VERIFY TOKEN command to process JSON Web Tokens
  – New CICS monitoring for security domain

• Resilience
  – Improved reporting and action for z/OS short-on-storage conditions
  – Improved usage of BAS data space storage for large CICSPlex environments
  – Improved management of CICSPlex System Manager data space usage
  – Support for COMMAREAAs up to 32 KB on distributed program links

• Management
  – New and enhanced system programming interfaces to assist with JVM server administration
  – New Policy system rule types
  – New z/OS workload management health policy action
  – New support for IBM z/OS Workload Interaction Correlator

CICS Tools support for CICS TS V5.6
The following CICS Tools support CICS TS V5.6:

- CICS Configuration Manager for z/OS V5.4 (CICS CM)
- CICS Interdependency Analyzer for z/OS V5.5 (CICS IA)
- CICS Performance Analyzer for z/OS V5.4 (CICS PA)
- CICS VSAM Recovery for z/OS V5.2 (CICS VR)

**CICS TS Value Unit Edition V5.6**

CICS TS Value Unit Edition (VUE) V5.6 delivers all of the speed, reliability, and value of CICS TS with a one-time-charge (OTC) price model. Eligible workloads include Java applications that are deployed in qualifying IBM Z(R) New Application License Charges (zNALC) logical partitions (LPARs). These workloads can be integrated and managed alongside existing CICS TS workloads using CICSPlex SM.

**CICS TS Developer Trial V5.6**

CICS TS Developer Trial V5.6 is available as a try-before-you-buy edition of CICS TS V5.6 and has a zero-cost license charge. It is made available at no charge so that clients can assess the value to be gained from a CICS TS upgrade, before making an upgrade decision. CICS TS Developer Trial V5.6 can be upgraded to either CICS TS V5.6 or CICS TS VUE V5.6, without the need for a full reinstallation. It is fully supported by IBM and is updated periodically during its lifetime. Unlike earlier releases of CICS TS Developer Trial, which offered the latest and prior releases to clients, from V5.6 onwards only the latest release will be made available.

**Key requirements**

The minimum required hardware prerequisite is the IBM zEnterprise(R) EC12 or subsequent 64-bit IBM z/Architecture(R) processors.

The minimum required level of operating system is IBM z/OS, V2.3 (5650-ZOS).

The minimum required level of Java is IBM 64-bit SDK for z/OS, Java Technology Edition, V8.0.

**Planned availability date**

June 12, 2020:

- CICS TS V5.6
- CICS TS VUE V5.6
- CICS TS Developer Trial V5.6

**Description**

CICS Transaction Server for z/OS (CICS TS) is a powerful mixed-language application server that can process hundreds of thousands of business transactions every second.

With CICS TS V5, developers are able to focus on enhancing core business application components by using the best mix of programming languages and frameworks for the task, including integrating with the cloud through API enablement. CICS provides an excellent foundation for a stepwise, low-risk, high-return approach to application modernization.
CICS TS V5.6 delivers the following significant new capabilities to improve the developer experience, and also delivers updates in the key areas of security, resilience, and management:

**Developer experience**

- **New support for Spring Boot**
  - The CICS Liberty JVM server supports Spring Boot applications using the Spring application programming model. Spring was originally designed to simplify Java Enterprise Edition (EE), using plain old Java objects (POJOs) and dependency injection. It has since grown to extend and encompass many aspects of Java EE development. Spring Boot builds on Spring by adding components to avoid complex configuration, reduce development time, and offer a simpler startup experience.
  - Support is added for the Liberty features springBoot-1.5 and springBoot-2.0, allowing Spring Boot JARs to be deployed directly to a Liberty JVM server.
  - Spring Boot applications can run on CICS without modification, as Spring Boot JARs. It also is possible to configure Spring Boot applications for integration with CICS transactions and security, and to call the CICS Java API if applications are packaged and deployed as Spring Boot web application archives (WARs).
  - When built as a WAR, a Spring Boot application can be deployed and managed using CICS bundles in the same way as can other CICS Liberty applications.
  - A Spring Boot application can use the annotation @CICSProgram to define a method as the target of a CICS program. This can be linked to from COBOL or any other language using the CICS channel and container interface.
  - This support is also available for CICS TS V5.5 with the PTF for APAR PH14856.

- **New support for Jakarta EE 8**
  - The CICS Liberty JVM server now supports Jakarta Enterprise Edition (EE) 8. The Jakarta EE 8 full platform technologies and specifications are an evolution of Java EE 8, allowing developers and applications to easily transition from Java EE to Jakarta EE. The promise of Jakarta EE is a community-driven open source model, enjoying more frequent releases than Java EE and evolving more quickly to address the needs of modern applications.

- **Enhanced CICS Java API**
  - A subset of CICS functionality is supported by new Java API classes that provide developers with the following capabilities:
    -- A more natural, modern, Java style that is easier to understand for Java developers new to CICS
    -- An API that is easier to unit test using stubbing and mocking approaches
    -- An API that is executable on JVMs on the developer’s own machine, allowing hot code replace and debug, and with access to CICS APIs for experimentation and understanding during development
  - Code written using the new Java API classes will execute without change, both in remote development mode and when deployed to run in CICS.
  - The existing CICS Java API classes can be used together with the new Java API classes. However, only the new Java API will benefit from the capabilities listed above.
  - The new Java API classes are designed to address some of the most common scenarios for using Java in CICS, focused on calling CICS programs with channels and containers.

- **New Maven Central libraries for CICS Java application development**
  - A set of artifacts for CICS are provided on Maven Central to help developers resolve Java dependencies:
    -- CICS Java class library (JCICS): the Java equivalent of the EXEC CICS API that is provided for other CICS supported languages, such as COBOL
-- CICS annotations: a Java library that provides the @CICSProgram annotation to enable CICS programs to invoke Java applications in a Liberty JVM server

-- CICS annotation processor: a Java library that is used during compilation to create metadata, enabling CICS programs to invoke Java applications in a Liberty JVM server

-- Bill of materials (BOM): defines versions of all the artifacts to ensure they are at the same release level of CICS TS

  - Java developers can specify these artifacts in the popular Maven or Gradle build tools to build CICS Java applications. The dependencies can be resolved directly from Maven Central, or from locally hosted and approved repositories using tools such as JFrog Artifactory or Sonatype Nexus.

  - This support is also available for CICS TS V5.2, or later.

• New plug-ins for Maven and Gradle to automate building CICS bundles

  - Developers can now use Maven or Gradle to build CICS bundles that provide a convenient packaging mechanism for Java applications, and a wide range of CICS resources. These tools are widely used and provide more precise control of how to build applications than alternatives, such as the CICS Explorer® SDK or CICS build toolkit. These tools can be called from a command line or from or integrated development environments, including Eclipse, IntelliJ IDEA, and Visual Studio Code. The following capabilities are provided by this enhancement:

    -- Open source projects for Maven (cics-bundle-maven) and Gradle (cics-bundle-gradle) are provided that contain a collection of Maven and Gradle plug-ins and utilities respectively. These collections can be used to build CICS bundles as part of Maven or Gradle build tools, ready to be installed into CICS TS.

    -- The CICS bundle Maven plug-in (cics-bundle-maven-plugin) in the Maven Central Repository and CICS bundle Gradle plug-in (com.ibm.cics.bundle) in both Gradle plugins and Maven Central can push and lifecycle bundles as part of the build process. These bundles can contain any of the following bundle parts: Enterprise Application Archive (.ear), Enterprise Bundle Archive (.eba), Event binding (.evbind), Event processing adapter (.epadapter), Event processing adapter set (.epadapterset), File (.file), Library (.library), OSGI bundle (.osgibundle), Policy (.policy), Program (.program), TCP/IP service (.tcpipservice), Transaction (.transaction), URI map (.urimap), and Web Archive (.war).

    -- The availability of the JCICS library and CICS annotation processor in Maven Central means that Java developers can easily add the required versions of the Java CICS APIs and the CICS annotation processor to their dependencies in a Gradle build. The dependencies can be resolved directly from Maven Central or from an approved local repository using tools such as JFrog Artifactory or Sonatype Nexus.

    - This support is also available for CICS TS V5.2, or later.

• New deployment API to simplify CICS bundle deployment during development

  - A new bundle deployment API is provided by the CICS management client interface (CMCI) JVM server to simplify the deployment of CICS bundles for developers.

  - The bundle deployment API is most powerful when used in conjunction with the CICS plug-ins for Maven and Gradle, allowing developers to deploy and lifecycle CICS bundles as part of their build process, thereby significantly reducing the time to rebuild and deploy the application.

  - The bundle deployment API receives metadata and the compressed CICS bundle, including details of the CICSPlex, the CICS region, and a CICS bundle definition. The CICS bundle is installed and enabled into the specified CICS region, with any existing CICS bundle disabled and discarded where required. A subset of CICS resources and artifacts, primarily those that are applicable to Java developers, are supported within CICS bundles deployed in this way.

• New support for Node.js version 12
CICS TS V5.5 introduced support for IBM SDK for Node.js -z/OS V8. This earlier release of Node.js -z/OS provided a full JavaScript runtime, server-side APIs, and libraries to efficiently build high-performance, highly scalable network applications for IBM Z. This enabled developers to write JavaScript applications including optimized calls to CICS programs and for those applications to be run and managed in CICS.

With CICS TS V5.6, Node.js -z/OS support is enhanced for version 12, including the Node.js -z/OS long-term support release. This provides for faster startup, better default heap limits, updates to the V8 JavaScript engine, Transport Layer Security, the HTTP parser llhttp, N-API, and ES6 module support.

This support is also available for CICS TS V5.5 with the PTF for APAR PH18618.

Security

- Enhanced support for CICS TS as an HTTP client when using TLS
  - CICS TS supports the use of Server Name Indication (SNI), as defined in Internet Engineering Task Force RFC 6066. No configuration change is required. CICS supports SNI if supported by the communicating HTTP server.

- Enhanced VERIFY TOKEN command to process JSON Web Tokens
  - The VERIFY TOKEN command has been enhanced to support JavaScript Object Notation (JSON) Web Tokens (JWTs) provided by IBM RACF(R). With this capability, a user’s basic authentication credentials can be converted to a time-limited secure token. This is particularly useful where applications currently using passwords are converted to use multifactor authentication (MFA) tokens. This support requires the PTFs for RACF APAR OA55926 and IBM System Authorization Facility (SAF) APAR OA55927.

- New CICS monitoring for security domain
  - CICS TS supports many different types of authentication. Some of these involve other components in addition to the external security manager (ESM). To make it easier to diagnose authentication problems, monitoring is now introduced for the CICS security domain. This enhancement includes the following functional updates:
    -- The performance data in group DFHTASK provides two new fields that indicate the total elapsed time that a user task spent verifying authentication credentials.
    -- The user domain statistics provide new global statistics, giving a more comprehensive view of user instances.
    -- CICS now collects global statistics on the security domain, providing a comprehensive view of authentication requests.

Resilience

- Improved reporting and action for z/OS SOS conditions
  - New resilience features are added to CICS TS to monitor and guard against a shortage of z/OS 24-bit and 31-bit storage. Short-on-storage (SOS) messages will be issued to indicate when CICS is short of z/OS storage. The new policy option of setting WLM Health can be used in conjunction with these messages to direct workloads away from this region until the SOS is resolved. In addition, the creation of open task control blocks (TCBs), obtained by CICS, can be configured to wait if CICS is in an SOS condition.

- Improved usage of BAS data space storage for large CICSPlex environments
  - The CICSPlex System Manager (SM) Business Application Services (BAS) component is enhanced to use all available BAS data space storage, by spreading large resource deployment lists for BAS across multiple data spaces instead of being constrained to a single data space. This feature is enabled by default and can be controlled with feature toggle com.ibm.cics.cpsm.bas.largecicsplex.
  - This support is also available for CICS TS V5.4 and CICS TS V5.5 with the PTF for APAR PH19761.
• Improved management of CICSPlex SM data space usage
  – Enforced protection is added for CICSPlex System Manager (SM) API programs that exceed the available CICSPlex SM data space storage limits. CICSPlex SM API commands now return an appropriate response, rather than causing CICSPlex SM address space (CMAS) termination that results from exceeding the available data space storage.
  – Warning message EYUXC0028 is issued when the data space usage for a CICSPlex SM component, such as workload management (WLM) or BAS, exceeds any of the usage allocation tiers of 70%, 80%, 90%, and 95%. This warning alerts users to potential CICSPlex SM auxiliary storage issues before they can become problematic.
• Support for COMMAREAs up to 32 KB in size on DPLs
  – The restriction of limiting communication areas (COMMAREAs) to 24 KB when passed on distributed program link (DPL) calls between CICS regions is removed. Therefore, a maximum-sized 32 KB COMMAREA can now be passed between CICS regions. This enables full-sized COMMAREAs to be used together with a transaction channel and an extended identity context reference (ICRX).
  
  **Note:** The strategic replacement for COMMAREAs is the use of channels and containers. Containers themselves are not restricted in size.

Management

• New and enhanced system programming interfaces to assist with JVM server administration
  – Administrators are now able to quickly and easily perform common tasks for Java workloads in CICS. These tasks include finding and refreshing JVM server configuration and endpoints, requesting dumps, and gathering diagnostics into a single file. The following new and updated system programming interfaces (SPIs) are available:
    -- INQUIRE JVMSERVER returns important JVM server files and locations that are useful during problem diagnosis and navigation within CICS Explorer. This includes the JVM profile, stdout/stderr/jvmlog/jvmtrace, the working directory (WORK_DIR), and the Java home directory (JAVAHOME).
    -- PERFORM JVMSERVER JVM DUMP / LIBERTY SERVERDUMP takes Java and Liberty dumps, including Javacore, heap, snaptrace, and Liberty server dumps. This is typically more convenient to use than sending process signals, or invoking UNIX system services (USS) commands and scripts.
    -- PERFORM JVMSERVER GATHER DIAGNOSTICS captures all the configuration, logs, traces, dumps, and output files produced by a JVM server across a configured set of lifecycles. These diagnostics are combined into a single archive file and can be used for problem diagnosis, or can be sent to an IBM service team to simplify the process of reporting issues.
    -- PERFORM JVMSERVER LIBERTY REFRESH APPLICATION/CONFIGURATION refreshes a Liberty application or the Liberty server configuration after changes have been made. The use of this command is typically more efficient and more controllable than using Liberty file system polling mechanisms.
    -- PERFORM JVMSERVER OSGI REFRESHPKGS configures the OSGi framework and its application components to ensure that the latest version of packages and dependent libraries are used as they are deployed. This particular SPI can be disruptive and stall workloads. Therefore, clients are recommended to update Java components to use OSGi declarative services.
    -- INQUIRE/SET JVMENDPOINT returns details of all HTTP and JMS MDB ports used in Liberty JVM servers, and allows them to be enabled or disabled.
• New Policy system rule types
  – Support for the following new Policy system rule types is introduced:
    -- DBCTL connection status, to monitor and react to the change in status of a connection between CICS and DBCTL
    -- IBM MQ connection status, to monitor and react to the change in status of a connection between CICS and IBM MQ
-- Pipeline enable status, to monitor and react to the change in the enable status of a CICS PIPELINE resource

- This support is also available for CICS TS V5.5 with the PTF for APAR PH07632.

- New z/OS workload management health policy action

- Support is added for a new policy action for all system rules to increase or decrease the z/OS workload management (WLM) health value of a CICS region, when all conditions are met.

- New support for IBM z/OS Workload Interaction Correlator

- Support is added to CICS TS to become an exploiter of the recently announced z/OS Workload Interaction Correlator infrastructure to collect transaction activities at timely intervals, including:
  -- Number of tasks
  -- Average response time per task
  -- Average CPU time per task
  -- CPU time on CP
  -- CPU time on z Integrated Information Processor (zIIP)

  CICS SMF 98 subtype 1024 summarizes activities for five-second intervals by recording aggregate activities across CICS regions with a most exceptional CICS region and task. The generated summary data can be used to establish a base-line, detect transient anomalies, and identify a significant contributing instance.

- This support is also available for CICS TS V5.4 and CICS TS V5.5 with the PTF for APAR PH16392.

Other key enhancements

- Extension of GMTRAN option DISCONNECT to CESF

- The DISCONNECT option of the GMTRAN system initialization parameter is extended to the CICS-supplied sign-off transaction CESF. This forces the terminal session to be disconnected upon sign-off. This enhancement increases users' control over terminal session security by preventing access to CICS at the terminal when it is running only with the default user ID.

- Resource definition online enhancements to support definition of DUMPCODEs

- The standard resource definition online (RDO) interfaces, CEDA, DFHCSHUP, EXEC CICS CREATE, and EXEC CICS CSD, are enhanced to support the definition of transaction dump codes and system dump codes through the new DUMPCODE resources. This allows DUMPCODEs for a CICS region to be installed at startup and removes the need to write a program list table (PLT) program that uses the SET TRANSDUMPCODE ADD and SET SYSDUMPCODE ADD system programming commands to add dump codes. These commands remain supported. DUMPCODEs now have a resource signature returned on the SPI commands to denote how they were created and installed.

  In addition, the DUMP system initialization parameter is extended to support a third option, TABLEONLY. The new option allows for all system dumps to be suppressed except for those dump codes that have an entry in the dump table added by CEDA or the SPI. This allows, for example, for an sdump to be taken for a specific dump code that occurs in production while suppressing all other sdumps.

- Capability to format recent trace entries for tasks

- In addition to auxiliary trace and internal trace, CICS stores data about the most recent trace entries for each task in a separate table. To format the trace for a particular task, the trace selection (TRS) parameter can be used to specify the KE_NUM of the task of interest.
The most recent trace entries contain basic information and are primarily intended for use in diagnosing problems with stalled tasks, where the data concerning the tasks may have been overwritten in the internal trace table.

- New replication log record
  - The replication logging capability is enhanced in support of Geographically Dispersed Parallel Sysplex® (GDPS®) Continuous Availability, to log a REDO record when an application issues an UNLOCK command following a read-update command, or a series of write-massinsert commands. This enables replication products to cater more efficiently for non-record-level sharing (RLS) applications, which, in the absence of browse for update support, issue read-update requests against all records in a file but update few and unlock most records.
  - This support is also available for CICS TS V.5.2, or later, with the PTFs for APAR PH09381 and APAR PH13200.

- New feature toggle to support RLS migration
  - A new feature toggle, com.ibm.cics.rls.delete.ridfld, supports RLS migration. When this feature is enabled, a DELETE command with the RIDFLD option can be issued for a single record, without causing an abend with code AFCG.
  - This support is also available for CICS TS V5.4 and CICS TS V5.5 with the PTF for APAR PH07596.

- Changes to feature toggle configuration
  - A region ID-specific feature toggle configuration is implemented in a subdirectory of the USSCONFIG, with a directory name equal to the region's APPLID. This allows region-specific feature toggles to override the common set of feature toggles in the USSCONFIG.

- Ability of CICS-MQ bridge to write SMF type 110 records
  - A new parameter, SMFMQGET, is added to the CICS-MQ bridge, CKBR, to instruct the bridge to write SMF type 110 records for the number of MQGET requests it has issued. These records are useful for performance analysis.

- Enhancements to CONFDATA to redact passwords in traces and dumps
  - CICS TS CONFDATA is enhanced by redacting information from additional trace points, including some data in containers and Base64 data. CONFDATA stops transport data from being traced that might contain passwords. The associated system initialization table (SIT) option is enabled by default.

- Support for HTTP OPTIONS
  - CICS TS provides a new user-replaceable module, DFHWBOPT. This is a handler program that can be invoked to process HTTP OPTIONS requests. For CICS TS V5.6, unlike CICS TS V5.4 and CICS TS V5.5, the feature toggle is removed. The OPTIONS handler must be specified on a new OPTIONSPGM parameter on TCPIPSERVICE resources. It returns a notification message that it has been invoked. When DFHWBOPT is invoked, an analyzer program is not invoked.
  - This support is also available for both CICS TS V5.4 and CICS TS V5.5 with the PTF for APAR PH16992, by feature toggle com.ibm.cics.http.options.handler.

1 For details of related software announcements for CD models and the general availability of products, see the Reference information section.

**CICS Tools support for CICS TS V5.6**

The following CICS Tools are updated in support of CICS TS V5.6:

- CICS CM V5.4 is updated with the PTF for APAR PH10610.
- CICS IA V5.5 is updated with the PTF for APAR PH21851.
- CICS PA V5.4 is updated with the PTF for APAR PH22290.

CICS VR V5.2 supports CICS TS V5.6 without requiring any update.
Stabilization of support and discontinued functions

Removal of utility DFHSCAN

The CICS TS utility DFHMSCAN, which scanned a load module library to identify programs that used CICS macros, is removed from this release of CICS TS and later.

Stabilization of WSDL 2.0

Support for Web Services Description Language (WSDL) 2.0 is stabilized and will be removed in a future release of CICS TS. Support for WSDL 1.1, the de facto standard for SOAP-based web services, is unaffected and will continue to be supported by CICS TS.

Stabilization of the JVMSERVER-based configuration option for the WS data transformation service

Support for the JVMSERVER-based configuration option for the Web Services (WS) data transformation service is stabilized and will be removed in a future release of CICS TS. Clients are advised to avoid using the following pipeline configuration file options:

- `<cics_soap_1.1_handler_java>`
- `<cics_soap_1.2_handler_java>`
- `<cics_json_handler_java>`
- `<apphandler_class>`

The following JVMSERVER profile option should also be avoided:

- `JAVA_PIPELINE=YES`

These options should be replaced with the use of non-Java CICS Web Services, IBM z/OS Connect, or similar technologies. WSBind files that are currently deployed to an Axis2 pipeline can be redeployed into a non-Java pipeline with no changes being required to the WSBind files.

Stabilization of WS-Security infrastructure

Support for WS-Security infrastructure is stabilized.

Stabilization of CICS Service Flow Runtime for CICS TS

Support for CICS Service Flow Runtime for CICS TS is stabilized and will be removed in a future release of CICS TS.

For additional information on any of the stabilized and discontinued functions described in this section, contact your IBM representative.

Section 508 of the US Rehabilitation Act

CICS TS V5.6 is capable as of June 12, 2020, when used in accordance with associated IBM documentation, of satisfying the applicable standards, including the Worldwide Consortium Web Content Accessibility Guidelines, European Standard EN 301 349, and US Section 508, provided that any assistive technology used with the product properly interoperates with it. An Accessibility Conformance Statement can be requested on the Product accessibility information website.

Hardware and software support services

SmoothStart/installation services

IBM SmoothStart Services, on-site implementation and training startup services, are designed to accelerate your productive use of your IBM solution. The services are provided by IBM Global Services or your IBM Business Partner at an additional cost.
For additional information, contact your IBM representative and ask for SmoothStart Services for CICS.

Reference information


For information on the October 2019 continuous delivery update of CICS TS V5.5, see Software Announcement 219-465, dated October 1, 2019.

For information on the July 2019 continuous delivery update of CICS TS V5.5, see Software Announcement 219-103, dated July 2, 2019.

For information on the October 2018 general availability of CICS TS V5.5, see Software Announcement 218-352, dated October 2, 2018.

For information on the October 2018 general availability of CICS Explorer (R) V5.5, see Software Announcement 218-430, dated October 2, 2018.

For information on the October 2018 general availability of CICS Interdependency Analyzer for z/OS V5.5, see Software Announcement 218-400, dated October 2, 2018.

For information on the December 2019 general availability of IBM SDK for Node.js - z/OS, V12, see Software Announcement 219-549, dated December 10, 2019.

For information on IBM z/OS Workload Interaction Correlator, see Software Announcement 220-032, dated January 21, 2020.

Availability of national languages

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For CICS TS V5.6, some product documentation is translated. Refer to the Ordering information section for details.

Translation information, if available, can be found at the Translation Reports website.

Program number

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**Business Partner information**

If you are a Direct Reseller - System Reseller acquiring products from IBM, you may link directly to Business Partner information for this announcement. A PartnerWorld ID and password are required (use IBMid).

**BP Attachment for Announcement Letter 220-077**

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**Technical information**

**Specified operating environment**

**Hardware requirements**

**Processor**

CICS TS V5.6 runs on any machine that supports the required z/OS operating system. For example, the minimum required hardware prerequisite for CICS TS V5.6 is IBM zEnterprise EC12 or subsequent 64-bit z/Architecture processors.

**Parallel Sysplex\textsuperscript{(R)} support**

A Parallel Sysplex environment is not required for CICS TS V5.6 but can be exploited by each of the following data-sharing facilities that are supported by CICS, and by the usage of the MVS\textsuperscript{(TM)} system logger's log stream merging facility:

- IMS databases
- Db2\textsuperscript{(R)} databases
- VSAM data sets
- CICS temporary storage
- Coupling facility data tables
- Named counter server

**IBM Z cryptographic hardware**

Appropriate IBM Z cryptographic hardware is required if clients need to exploit signature verification functions with WS-Security. For IBM System z9\textsuperscript{(R)} and z10, it is the CP Assist for Cryptographic Functions and the Crypto Express\textsuperscript{(R)} 2 Coprocessor. For z196, it is the CP Assist for Cryptographic Functions and the Crypto Express 3 Coprocessor. For zEnterprise EC12, it is the CP Assist for Cryptographic Functions and the Crypto Express 4 Coprocessor. For z13\textsuperscript{(R)}, it is the CP Assist for Cryptographic Functions and the Crypto Express 5 Coprocessor.

**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 V5.6 is z/OS V2.3 (5650-ZOS).

**Java Runtime Environment**

The minimum level of Java is IBM 64-bit SDK for z/OS, Java Technology Edition, V8.0.
CICS Explorer

CICS Explorer versioning is updated to reflect its ability to connect to any version of CICS TS and identify the platform on which it is built. Therefore, CICS Explorer V5.5 is now referred to as CICS Explorer for Aqua\(^2\) V3.2.

CICS Explorer for Aqua V3.2 is updated to deliver new capabilities to connect to and support CICS TS V5.6.

\(^2\) In this announcement IBM Explorer for z/OS Aqua is referred to simply as Aqua.

Details of system requirements for CICS products are available at the Software Product Compatibility Reports website.

Details relating to service and support for CICS Explorer for Aqua, V3.2 are available on the Ordering maintenance for IBM CICS Explorer and CICS Explorer plug-ins web page.

User group requirements

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

The following Request for Enhancements (RFEs) are satisfied or partially satisfied in CICS TS V5.6:

<table>
<thead>
<tr>
<th>RFE number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>23469</td>
<td>Put transaction and system dump tables in RDO</td>
</tr>
<tr>
<td>23735</td>
<td>Manage SYSTEM DUMP CODE and TRANSACTION DUMP CODE as RDO object for CICS</td>
</tr>
<tr>
<td>25007</td>
<td>Suppress SDUMP in CICS</td>
</tr>
<tr>
<td>36778</td>
<td>Move EXCI security parameters from DFHXCOPT into ESM</td>
</tr>
<tr>
<td>42228</td>
<td>JCICS Maven Repository</td>
</tr>
<tr>
<td>61600</td>
<td>Move CICS storage subpool TSICDATA in temp storage in ECDSA to 64-bit storage</td>
</tr>
<tr>
<td>62074</td>
<td>Generate Java-/Heap-Dump from a running JVMServer</td>
</tr>
<tr>
<td>75575</td>
<td>Add HTTP OPTIONS support for resources</td>
</tr>
<tr>
<td>77110</td>
<td>Support of HTTP method patch in CICS</td>
</tr>
<tr>
<td>81721</td>
<td>Replace /usr/lpp/cicsts in the CICS Web Assistant script with a variable similar to PATHPREF or USSDIR</td>
</tr>
<tr>
<td>94554</td>
<td>SNI support for outbound connections in CICS</td>
</tr>
<tr>
<td>95173</td>
<td>Add message after CICS has recovered last UOW during Emergency Restart</td>
</tr>
<tr>
<td>101172</td>
<td>Enable CICS Liberty servers to tolerate changing zFS mount points</td>
</tr>
<tr>
<td>103473</td>
<td>CICS SMF 110 Model information is static</td>
</tr>
<tr>
<td>105644</td>
<td>Prevent CMAS termination with EYUXC0023S and EYUXC0024S if request for dataspace storage is from end-user query</td>
</tr>
<tr>
<td>108551</td>
<td>Use CICSPlex SM real time analysis to influence z/OS WLM IWM4HLTH metric and z/OS WLM routing decisions</td>
</tr>
<tr>
<td>118388</td>
<td>Add CICSPlex SM alert on dataspace utilization</td>
</tr>
<tr>
<td>118958</td>
<td>Add Custom Feature deployment support</td>
</tr>
<tr>
<td>122876</td>
<td>jsonnonjavaprovider &amp; Remote Tranid</td>
</tr>
<tr>
<td>RFE number</td>
<td>Description</td>
</tr>
<tr>
<td>------------</td>
<td>-------------</td>
</tr>
<tr>
<td>124699</td>
<td>SYSTEM Policy action to influence WLMHEALTH</td>
</tr>
<tr>
<td>125055</td>
<td>Externalize the QRCPUT/QRDISPT ratio in a message. Allow customization of threshold and frequency of message</td>
</tr>
<tr>
<td>125171</td>
<td>System Policy Rule for Pipeline Disable</td>
</tr>
<tr>
<td>125172</td>
<td>System Policy for DBCTL Connection Status</td>
</tr>
<tr>
<td>125173</td>
<td>System Policy for MQ connection status</td>
</tr>
<tr>
<td>125178</td>
<td>Allow enable/disable of transactions starting with C</td>
</tr>
<tr>
<td>126010</td>
<td>Add TSMODEL name attribute to EXEC CICS INQUIRE TSQUEUE</td>
</tr>
<tr>
<td>126506</td>
<td>COMMAREAs transported as CHANNELS</td>
</tr>
<tr>
<td>126569</td>
<td>Remove 24kb limit on COMMAREA if using DFHTRANSACTION channel</td>
</tr>
<tr>
<td>128727</td>
<td>Display DFHCSD being accessed by CEDA/ B/C</td>
</tr>
<tr>
<td>129305</td>
<td>UNLOCK FILE requests must be recorded to allow IIDR/VSAM to stop tracking READ UPDATES in memory when REWRITE is not done</td>
</tr>
<tr>
<td>129424</td>
<td>Add DEFINESOURCE to TRANDUMP</td>
</tr>
<tr>
<td>129840</td>
<td>Support http-method PATCH</td>
</tr>
<tr>
<td>130058</td>
<td>Metrics for requests arrival rates - MQ and HTTP</td>
</tr>
<tr>
<td>131652</td>
<td>Modify MQMONITOR support for APPLID</td>
</tr>
<tr>
<td>131937</td>
<td>Enhance DUMPWS SIT Parm to offer ALL option (like AUXTRSW)</td>
</tr>
<tr>
<td>134178</td>
<td>Real-time display of QR TCB usage and CPU/DISP ratio</td>
</tr>
<tr>
<td>134869</td>
<td>Optimize CICS/MQ Bridge error handling (enhanced ROUTEMEM)</td>
</tr>
<tr>
<td>136876</td>
<td>Address CKTI ABEND when region goes SoS</td>
</tr>
<tr>
<td>137462</td>
<td>Add IMS reason code to CICS message DFHDB8111</td>
</tr>
<tr>
<td>138506</td>
<td>CKTI Retry Logic</td>
</tr>
<tr>
<td>139100</td>
<td>Improve documentation around MQMonitor</td>
</tr>
<tr>
<td>139720</td>
<td>Issue message when Db2 Cancel Thread is done</td>
</tr>
</tbody>
</table>

**Security, auditability, and control**

The programs in this announcement use the security and auditability features of the operating system under which they are running. Information about security is available in the online product documentation for CICS TS V5.6, in IBM Knowledge Center.

The client 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.
Orders entered after the planned availability date will be assigned a schedule date for the week following order entry.

or

Orders entered with a scheduled date before the planned availability date will be shipped CICS TS V5.5.

Orders entered with a scheduled ship date after planned availability will be shipped CICS TS V5.6. Unless a later date is specified, an order is scheduled for the week following order entry.

Shipment will begin on the planned availability date.

Orders that ship before the planned availability will receive CICS TS V5.5.

Orders that ship after the planned availability date will receive CICS TS V5.6.

New users of CICS TS V5.6 should specify Type: 5655 Model: Y04

New users of CICS TS VUE V5.6 should specify Type: 5722 Model: DFJ

New users of CICS TS Developer Trial V5.6 should specify Type: 5655 Model: Y30

Graduated or processor-based charges: Not applicable.

**Parallel Sysplex License Charge (PSLC)**

To order a basic license, specify the program number and quantity of Service Units in Millions (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 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 V5.6

Program ID: 5655-Y04

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, PSLC below 3 MSU, Basic MLC, PSLC AD, SYSUSGREG NC, PSLC AD</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orderable supply ID</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S018H91</td>
<td>Multilingual</td>
</tr>
</tbody>
</table>

**Advanced Workload License Charges (AWLC)**

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 V5.6

Program ID: 5655-Y04

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, AWLC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orderable supply ID</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S018H91</td>
<td>Multilingual</td>
</tr>
</tbody>
</table>
**Advanced Entry Workload License Charges (AEWLC)**

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

Program name: CICS TS V5.6

Program ID: 5655-Y04

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, AEWLC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orderable supply ID</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S018H91</td>
<td>Multilingual</td>
</tr>
</tbody>
</table>

**Country Multiplex License Charges (CMLC)**

**Country Multiplex License Charges (CMLC) basic license**

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

If there is more than one program copy in a Country Multiplex, the charge for all copies is associated to one license if all the copies are licensed to one customer number within the multiplex. If there is more than one customer number, the charge for all copies is prorated to one license for each customer within the multiplex.

For each license being charged, specify the applicable CMLC license options and the prorated quantity of the Service Units in Millions (MSUs) for each customer number within the multiplex. For all other program copies, specify the Workload Registration No-Charge (WLREG NC) Identifier on the licenses.

Program name: CICS TS V5.6

Program PID: 5655-Y04

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, CMLC</td>
</tr>
</tbody>
</table>

**Variable Workload License Charge (VWLC)**

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.

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, Variable WLC Workload Registration, Variable WLC</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Orderable supply ID</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S018H91</td>
<td>Multilingual</td>
</tr>
</tbody>
</table>

**Entry Workload License Charge (EWLC)**

**Entry Workload License Charge (EWLC) basic license**

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

Program name: CICS TS V5.6
### IBM Z Usage License Charge

**Usage License Charge (ULC) basic license**

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.

Program name: CICS TS V5.6

Program ID: 5655-Y04

<table>
<thead>
<tr>
<th>Entitlement identifier</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, Entry WLC</td>
</tr>
</tbody>
</table>

### IBM Z Entry License Charge (zELC)

To order a basic license, specify the program number and machine model.

Program name: CICS TS V5.6

Program ID: 5655-Y04

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172DF</td>
<td>CICS TS V5.6</td>
<td>Basic MLC, zELC</td>
</tr>
</tbody>
</table>

### Basic machine-readable material

**Charge metric (for CICS TS VUE V5.6)**

<table>
<thead>
<tr>
<th>Program name</th>
<th>PID number</th>
<th>Charge metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS VUE V5.6</td>
<td>5722-DFJ</td>
<td>Value Unit</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Program number</th>
<th>Program name</th>
<th>Value Unit Exhibit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5722-DFJ</td>
<td>CICS TS VUE V5.6</td>
<td>VUE007</td>
</tr>
</tbody>
</table>

For each IBM 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**. Your required license capacity is based upon the following factors:
• The IBM Z 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

<table>
<thead>
<tr>
<th></th>
<th>MSUs minimum</th>
<th>MSUs maximum</th>
<th>Value Units/MSU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Tier A</td>
<td>4</td>
<td>45</td>
<td>0.45</td>
</tr>
<tr>
<td>Tier B</td>
<td>46</td>
<td>175</td>
<td>0.36</td>
</tr>
<tr>
<td>Tier C</td>
<td>176</td>
<td>315</td>
<td>0.27</td>
</tr>
<tr>
<td>Tier D</td>
<td>316</td>
<td>+</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Value Units for mainframes without MSU ratings:

<table>
<thead>
<tr>
<th>Hardware</th>
<th>Value Units/machine</th>
</tr>
</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 2</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 IBM Z IPLA product, the applicable Value Units would be:

Translation from MSUs to Value Units

<table>
<thead>
<tr>
<th>MSUs</th>
<th>Value Units/MSU</th>
<th>=</th>
<th>Value Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Base</td>
<td>3</td>
<td>1.00</td>
<td>=</td>
</tr>
<tr>
<td>Tier A</td>
<td>42</td>
<td>.45</td>
<td>=</td>
</tr>
<tr>
<td>Tier B</td>
<td>130</td>
<td>.36</td>
<td>=</td>
</tr>
<tr>
<td>Tier C</td>
<td>140</td>
<td>.27</td>
<td>=</td>
</tr>
<tr>
<td>Tier D</td>
<td>1,185</td>
<td>.20</td>
<td>=</td>
</tr>
<tr>
<td>Total</td>
<td>1,500</td>
<td></td>
<td></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 (for CICS TS VUE V5.6)

On/Off CoD

CICS TS VUE V5.6 is eligible for On/Off CoD with a temporary use charge calculated based on MSUs per-day usage.

Program name: CICS TS VUE V5.6

Program ID: 5722-DFJ

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01770R</td>
<td>CICS TS VUE V5.6</td>
<td>MultiVersion Measurement, No Charge Value Units,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>On Off Capacity on demand Temporary Use Charge MSU-DAY(s),</td>
</tr>
</tbody>
</table>
### Program name: CICS TS VUE V5.6

**Program ID:** 5722-DFJ

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01770R</td>
<td>CICS TS VUE V5.6</td>
<td>MultiVersion Measurement No Charge Value Units, On Off Capacity on demand Temporary Use Charge MSU-DAY(s), Use-Based License One-Time Charge Value Units</td>
</tr>
</tbody>
</table>

#### Orderable supply ID

<table>
<thead>
<tr>
<th>Orderable supply ID</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01770X</td>
<td>Multilingual</td>
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</tbody>
</table>

**Subscription and Support PID:** 5722-DFK

<table>
<thead>
<tr>
<th>Entitlement ID</th>
<th>Description</th>
<th>License option/Pricing metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01770Z</td>
<td>CICS TS VUE Subscription and Support</td>
<td>Decline S&amp;S No Charge Value Units, MultiVersion Measurement S&amp;S No Charge Value Units, SW S&amp;S Annual Support Charge Value Units, SW S&amp;S Monthly Support Charge Value Units, SW S&amp;S Registration (minus Supply right) No Charge Per MSU</td>
</tr>
</tbody>
</table>

#### Orderable supply ID

<table>
<thead>
<tr>
<th>Orderable supply ID</th>
<th>Language</th>
</tr>
</thead>
<tbody>
<tr>
<td>S01770X</td>
<td>Multilingual</td>
</tr>
</tbody>
</table>

#### Subscription and Support (for CICS TS VUE V5.6)

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.

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. This offering:

- 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 IBM Z 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 V5.6)**

<table>
<thead>
<tr>
<th>Program name</th>
<th>PID number</th>
<th>Charge metric</th>
</tr>
</thead>
<tbody>
<tr>
<td>CICS TS Developer Trial V5.6</td>
<td>5655-Y30</td>
<td>No charge. Unlimited Installs</td>
</tr>
</tbody>
</table>

**Basic license (for CICS TS Developer Trial V5.6)**

**CICS TS Developer Trial V5.6**

**Basic license:** No charge, Unlimited Installs.

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 V5.6

Program ID: 5655-Y30

**Entitlement ID** | **Description** | **License option/Pricing metric** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S0172F9</td>
<td>CICS TS Developer Trial V5.6</td>
<td>No charge, Unlimited Installs, Multi Version Measurement No Charge</td>
</tr>
</tbody>
</table>

**Orderable supply ID** | **Language** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S018H94</td>
<td>English</td>
</tr>
</tbody>
</table>

Subscription and Support PID: 5655-Y15

**Entitlement ID** | **Description** | **License option/Pricing metric** |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S016Z0T</td>
<td>CICS TS Developer Trial Subscription and Support</td>
<td>No charge, Unlimited Installs, SW S&amp;S Reg, No Charge, Multi Version Measurement No Charge</td>
</tr>
</tbody>
</table>

**Orderable Supply ID** | **Description** |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>S016Z28</td>
<td>CICS TS Developer Trial Subscription and Support</td>
</tr>
</tbody>
</table>

You choose the delivery method when you order the software. IBM recommends internet delivery. However, if you still require physical media, then you can choose DVD.

**Customization options**

Expedite shipments will be processed to receive 72-hour delivery from the time IBM Software Delivery and Fulfillment (SDF) receives the order. SDF will then ship the order by overnight air transportation.
Publications

Product documentation for CICS TS V5.6 is provided by IBM using four separate approaches. The documentation is refreshed regularly to reflect feedback from users, and includes changes that result from IBM Service. Detailed information is provided in What documentation is available?

- **Online information in IBM Knowledge Center**
  Online documentation for CICS TS V5.6 is hosted in IBM Knowledge Center.

- **PDF manuals**
  Documentation for CICS TS V5.6 is provided for download in Adobe™ PDF format from IBM Knowledge Center. See Documentation in PDF for details.

- **Offline information, by using IBM Knowledge Center Installer**
  IBM Knowledge Center Installer for IBM Explorer for z/OS (Aqua) is an application that enables the installation of an IBM Knowledge Center on a workstation for local access on Microsoft Windows or Linux™. The prebuilt IBM Knowledge Center includes documentation for CICS TS V5.6, and a number of other products related to IBM Explorer for z/OS.

  IBM Knowledge Center Installer replaces both the IBM Knowledge Center for CICS products and the documentation packages for CICS TS that were available for download that were available from IBM Shopz.

  See CICS TS V5.6 Downloadable documentation for details about CICS documentation in IBM Knowledge Center Installer for IBM Explorer for z/OS (Aqua).

- **Offline information, by using IBM Knowledge Center for z/OS**
  IBM z/OS V2R2 contains a base element of IBM Knowledge Center for z/OS which provides the ability to add content, and display, navigate, and search content in a manner similar to IBM Knowledge Center on the IBM Support site. See CICS TS V5.6 Downloadable documentation for details about how to add CICS TS V5.6 documentation into IBM Knowledge Center for z/OS.

IBM Knowledge Center update schedule

The contents of IBM Knowledge Center Installer and IBM Knowledge Center for z/OS are refreshed on a monthly schedule that is independent of IBM Z product releases. As a result, the documentation in this format for supported IBM products may not be available at their general availability, but will be added at a subsequent refresh.

IBM Knowledge Center accessibility

Within IBM Knowledge Center, the CICS documentation is designed to be accessible. For example, instead of viewing diagrams, users can choose to read text descriptions. A US Section 508 Accessibility Conformance Statement can be requested on the Product accessibility information website.

CICS TS program directories in IBM Publications Center

The following CICS TS program directories are available in the IBM Publications Center:

<table>
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<tr>
<th>Description</th>
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<tbody>
<tr>
<td>CICS TS for z/OS V5.6 - base</td>
<td>GI13-4441</td>
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<tr>
<td>CICS TS for z/OS V5.6 - activation module</td>
<td>GI13-4442</td>
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<td>CICS TS for z/OS Value Unit Edition V5.6 - activation module</td>
<td>GI13-4443</td>
</tr>
<tr>
<td>CICS TS for z/OS Developer Trial V5.6 - activation module</td>
<td>GI13-4444</td>
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</table>
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 V5.6 product documentation in IBM Knowledge Center, under section Translated documentation.

Other CICS publications

CICS TS V5.6 documentation is complemented by technical articles and papers in the CICS Developer Center.

Other CICS publications are available, in IBM Redbooks(R).

Packaging

CICS TS V5.6 consists of the base CICS component together with several other components providing CICS-enabling functions, such as:

- CICS Version 7.3
- CICSPlex SM Version 5.6
- CICS Service Flow Runtime for CICS TS
- REXX Development System for CICS/ESA Version 1.1
- REXX Runtime Facility for CICS/ESA Version 1.1

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 V5.6) (GC34-7382)
- License Information DVD (for CICS TS VUE V5.6) (GC34-7383)
- License Information DVD (for CICS TS Developer Trial V5.6) (GC34-7384)
- Memo to Licensees (GI13-4445)
- CICS Technical Services Flyer (GI13-4446)

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

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 through CBPDO and ServerPac. These customized offerings are offered for internet delivery from Shopz. For more details on internet delivery, go to the Help section on the Shopz website.

IBM recommends internet delivery. However, if you still require physical media, you can choose DVD.

Many products can be ordered in ServerPac the month following their availability in CBPDO. z/OS can be ordered through CBPDO and ServerPac on the planned availability date. 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, go to the Help section on the Shopz website.
Production of software product orders will begin on the planned availability date.

- CBPDO shipments will begin one week after the planned availability date.
- ServerPac shipments will begin two weeks after the planned availability date.

**Terms and conditions**

The terms for CICS TS V5.5\(^3\), licensed under the IBM Customer Agreement (Z125-4575) or IBM Client Agreement (Z125-4575) (ICA), or as a Monthly License Charge Program under the IBM Client Relationship Agreement (Z126-6552) with IBM Attachment for Mainframe Monthly License Charge Programs (Z126-6969), are unaffected by this announcement.

The terms for CICS TS Value Unit Edition V5.5\(^4\) and CICS TS Developer Trial V5.5\(^5\), licensed under the IBM International Program License Agreement (IPLA) family of agreements, are unaffected by this announcement.

\(^3\) Refer to IBM Licensed Program Specifications document GC34-7374 in the IBM Publications Center.

\(^4\) Refer to IBM License Information document L-ACRR-AZAGN6, published on the IBM Service Level Agreements (SLA) website.

\(^5\) Refer to IBM License Information document L-ACRR-AZACPH, provided with the product.

**IBM Operational Support Services - SoftwareXcel**

For operating system software, the revised IBM Operational Support Services - SoftwareXcel offering will provide support for those operating systems and associated products.

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 offering, go to the Supported product list website.

**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 lawful, comprehensive security approach, which will necessarily involve additional operational procedures, and may require other systems, products, or services to be most effective.

**Important:** IBM does not warrant that any systems, products, or services are immune from, or will make your enterprise immune from, the malicious or illegal conduct of any party.

**IBM Electronic Services**

Electronic Service Agent and the IBM Electronic Support web portal are dedicated to providing fast, exceptional support to IBM Systems clients. The IBM Electronic Service Agent tool is a no-additional-charge tool that proactively monitors and
reports hardware events, such as system errors, performance issues, and inventory. The Electronic Service Agent tool can help you stay focused on your company’s strategic business initiatives, save time, and spend less effort managing day-to-day IT maintenance issues. Servers enabled with this tool can be monitored remotely around the clock by IBM Support, all at no additional cost to you.

Now integrated into the base operating system of AIX\textsuperscript{®} V5.3, AIX V6.1, and AIX V7.1, Electronic Service Agent is designed to automatically and electronically report system failures and utilization issues to IBM, which can result in faster problem resolution and increased availability. System configuration and inventory information collected by the Electronic Service Agent tool can also be viewed on the secure Electronic Support web portal, and used to improve problem determination and resolution by you and the IBM support team. To access the tool main menu, simply type smitty esa_main, and select Configure Electronic Service Agent. In addition, ESA now includes a powerful web user interface, giving the administrator easy access to status, tool settings, problem information, and filters. For more information and documentation on how to configure and use Electronic Service Agent, go to the IBM Electronic Service Agent website.

The IBM Electronic Support portal is a single internet entry point that replaces the multiple entry points traditionally used to access IBM internet services and support. This portal enables you to gain easier access to IBM resources for assistance in resolving technical problems. The My Systems and Premium Search functions make it even easier for Electronic Service Agent tool-enabled clients to track system inventory and find pertinent fixes.

**Benefits**

**Increased uptime:** The Electronic Service Agent tool is designed to enhance the Warranty or Maintenance Agreement by providing faster hardware error reporting and uploading system information to IBM Support. This can translate to less wasted time monitoring the symptoms, diagnosing the error, and manually calling IBM Support to open a problem record. Its 24 x 7 monitoring and reporting mean intervention is not required to report errors.

**Security:** The Electronic Service Agent tool is designed to be secure in monitoring, reporting, and storing the data at IBM. The Electronic Service Agent tool is designed to securely transmit either through the internet (HTTPS or VPN) or modem to provide clients a single point of exit from their site. Communication is one way. Activating Electronic Service Agent does not enable IBM to call into a client's system.

For additional information, go to the IBM Electronic Service Agent website.

**More accurate reporting:** Because system information and error logs are automatically uploaded to the IBM Support Center in conjunction with the service request, you are not required to find and send system information, decreasing the risk of misreported or misdiagnosed errors. Once inside IBM, problem error data is run through a data knowledge management system and knowledge articles are appended to the problem record.

**Customized support:** Using the IBMid entered during activation, you can view system and support information in the My Systems and Premium Search sections of the IBM Electronic Support page.

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 IBMid. 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 go to the IBM Electronic Support website.
Prices

For additional information and current prices, contact your local IBM representative or IBM Business Partner.

Program name: CICS TS V5.6
Program ID: 5655-Y04

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Parallel Sysplex License Charge (PSLC)

Program name: CICS TS V5.6
Program ID: 5655-Y04

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**Variable Workload License Charge (VWLC)**

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- **Sub-capacity charges for AWLC, AEWLC, CMLC, zNALC, VWLC, EWLC, and MWLC products**

Sub-capacity charges for eligible products are based on product LPAR utilization capacity. Product LPAR utilization capacity for a sub-capacity product is the highest number of MSUs utilized by the combined LPARs in which the 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 software charges at less than full machine capacity for eligible sub-capacity products apply when z/OS, z/TPF, or z/VSE® is running in z/Architecture (64-bit) mode on an IBM Z, no other MVS-based, TPF-based, or VSE-based operating system respectively 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 sub-capacity product are based on the utilization of the LPARs where/when the product executes. To obtain charges at less than full machine capacity for sub-capacity products, the client is required to:

- Sign and abide by the terms of one of the following:
  - Attachment for IBM System z® Advanced Workload License Charges (Z125-8538)
  - Attachment for IBM System z Advanced Entry Workload License Charges (Z125-8755)
  - Attachment for zNALC on IBM System z (Z125-7454)
  - Attachment for IBM System z Workload License Charges (Z125-6516)
  - Attachment for EWLC, TWLC, zELC, and z/OS.e License Charges (Z125-6587)
  - Attachment for IBM System z Midrange Workload License Charges (Z125-7452)
- Required service will be listed on the IBM Z software pricing website.
- Collect SMF or SCRT89 data as required by the Sub-Capacity Reporting Tool. Retain the collected data for a period of not less than six months.
- Use the IBM provided Sub-Capacity Reporting Tool to process the collected SMF or SCRT89 data. The Sub-Capacity Report produced by the tool is used to determine required license capacity for the sub-capacity products. Required license capacity is determined based on the largest MSU value of a sub-capacity 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 between the second and ninth day of the month after the reporting period.
• Submit Sub-Capacity Reports for all sub-capacity products with complete data for the entire reporting period through the method specified on the IBM Z software pricing website.

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, including the ordering of any necessary new licenses. 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 through the IBM Z Remote Support Facility (RSF). If the machine cannot connect through the RSF, provide this TSAD through an alternate means documented in the SCRT Users Guide (SG24-6522) publication on the IBM Z software pricing website.

**Entry Workload License Charge (EWLC)**

Program name: CICS TS V5.6

Program ID: 5655-Y04

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**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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