

IBM Enterprise COBOL Value Unit Edition for z/OS 6.4 delivers simplified COBOL/Java interoperability, AMODE 31/AMODE 64 interoperability, and support for the new IBM z16 hardware

Table of contents

1 Overview	7 Publications
2 Key requirements	9 Technical information
2 Planned availability date	14 Ordering information
2 Description	17 Terms and conditions
6 Product positioning	22 Prices
6 Program number	23 Regional availability

At a glance

IBM^(R) Enterprise COBOL Value Unit Edition for z/OS^(R) is an advanced optimizing compiler that helps clients create and maintain COBOL applications that execute on IBM z/OS and take full advantage of the latest IBM Z^(R) hardware features.

New capabilities in Enterprise COBOL Value Unit Edition for z/OS 6.4 include:

- Support of the latest IBM z/Architecture^(R) to maximize your IBM z16 investment, reduce CPU usage, and improve performance of critical COBOL applications
- Improved JavaTM/COBOL interoperability to easily extend the capabilities of your COBOL programs with Java
- Interoperability between AMODE 31 (31-bit) and AMODE 64 (64-bit) COBOL programs to handle your growing COBOL program data without converting the entire application to run in AMODE 64
- Support for user-defined functions to enable you to write your own functions and invoke them like intrinsic functions, improving code modularity and maintainability
- Improved integration with IBM Automatic Binary Optimizer for z/OS to invest in your future so that modules you compile today take advantage of future IBM Z hardware enhancements, without having to be recompiled

Overview

Enterprise COBOL Value Unit Edition for z/OS is a leading-edge, IBM z/OS based compiler that helps you create, modernize, and maintain mission-critical, line-of-business COBOL applications to execute on your z/OS operating systems. The applications that are created using Enterprise COBOL Value Unit Edition for z/OS can interoperate with transactional and data systems such as IBM CICS^(R), IBM Db2^(R), and IBM IMS. The COBOL compiler helps your existing COBOL applications work with modern infrastructure technologies, such as mobile, web, and cloud, with native support for JSON, XML, and Java.

A key strength of the Enterprise COBOL compiler is the continual support of the latest IBM Z hardware architectures. The ARCH level option instructs the compiler to generate optimized code that can leverage a particular IBM Z hardware architecture. Application developers can recompile using the ARCH level compiler option of their choice to instruct the compiler to generate code for their application

that uses instructions available on a particular architecture level. This translates into immediate support for that architecture level and improved computational performance without any source code changes.

Over the course of multiple releases, Enterprise COBOL Value Unit Edition for z/OS has offered new functions to provide the tools you need to maximize your IBM Z hardware ROI and improve the performance of your business-critical applications.

Enterprise COBOL Value Unit Edition for z/OS 6.4 continues the IBM commitment to the COBOL programming language on IBM Z through investment in new compiler technology and the continued delivery of new features. With version 6.4, you gain the benefit of new investment that is combined with more than 60 years of IBM experience in compiler development.

Key requirements

Enterprise COBOL Value Unit Edition for z/OS 6.4 requires z/OS V2.3 (5650-ZOS), or later.

For additional details, see the [Software requirements](#) section.

Planned availability date

May 27, 2022

Availability within a country is subject to local legal requirements.

Description

Enterprise COBOL Value Unit Edition for z/OS 6.4 includes the following new features:

Support of the latest z/Architecture to maximize your IBM z16 investment, reduce CPU usage, and improve performance of critical COBOL applications

Enterprise COBOL Value Unit Edition for z/OS 6.4 incorporates leading-edge code generation and optimization technology to maximize hardware utilization and to help improve application performance.

- Enterprise COBOL Value Unit Edition for z/OS 6.4 adds support for the new vector packed-decimal enhancement facility 2 in IBM z16 through the new ARCH(14) compiler option. No source changes are required to take advantage of this new facility; just recompile with ARCH(14) to target IBM z16.
- This new facility adds performance improvements for COBOL programs that contain one or more of the following types of statements:
 - Exponentiation statements on packed or zoned decimal data items where the exponent is declared with one or more fractional digits
 - Arithmetic statements involving mixed decimal and floating-point data items
 - Statements using numeric-edited data items

Improved Java/COBOL interoperability to easily extend the capabilities of your COBOL program with Java

Enterprise COBOL Value Unit Edition for z/OS 6.4 helps simplify interoperability between your COBOL and Java applications so that you can easily extend your COBOL application with Java. Java is a popular language that is familiar to your enterprise-wide developers, including those newly hired.

- Removes the need to write object-oriented COBOL and reduces the number of manual JNI calls required compared to COBOL 6.3.

- Compared to COBOL 6.3, COBOL 6.4 automatically handles a wider variety of interoperation scenarios between COBOL and Java, so the COBOL/Java interoperability feature in COBOL 6.4 reduces the need for users to manually make JNI calls from their programs.
- Three COBOL/Java communication features are provided:
 - Enabling a COBOL program to be callable from Java
 - Enabling the CALL statement in COBOL to call a static Java method
 - Enabling Java applications to easily access the working-storage memory of a COBOL program
- Interoperate existing AMODE 31 (31-bit) COBOL applications and Java applications without converting the entire COBOL application to run in AMODE 64 (64-bit) or using AMODE 31 (31-bit) Java.
 - Interoperate existing AMODE 31 COBOL applications and AMODE 64 Java applications.
 - No need to convert your entire COBOL application to run in AMODE 64.
 - Use of this feature requires IBM Language Environment^(R) (LE) 2.3 or 2.4 with APAR PH28966, or LE 2.5.
 - Client applications that previously used the AMODE 31 Java SDK might need to be modified to run in AMODE 64 mode. Only AMODE 64 versions are available with the Java SDK Version 11.
- Use of these features requires IBM SDK for z/OS, Java Technology Edition 8.0.6.36 (JVM) or later.

Interoperability between AMODE 31 (31-bit) and AMODE 64 (64-bit) COBOL programs to handle your growing data without converting the entire application to run in AMODE 64

Enterprise COBOL Value Unit Edition for z/OS 6.4 provides support for creating AMODE 64 COBOL applications that can interoperate with your existing AMODE 31 COBOL applications. AMODE 64 COBOL applications can access data items greater than the existing AMODE 31 data size limits, without changes to the program logic.

- An AMODE 64 COBOL program can access data stored in the address space above 2 GB (up to 16 EB), extending the available space for your growing data. With AMODE 31 COBOL, this storage is limited to the address space below 2 GB.
- Removes the need to convert the entire COBOL application to run in AMODE 64 immediately. Gradually convert AMODE 31 applications to AMODE 64.
- AMODE 31 COBOL programs can call AMODE 64 COBOL programs and AMODE 64 COBOL programs can call AMODE 31 COBOL program using dynamic calls.
- The compiler and the COBOL runtime library take advantage of a new Language Environment feature to manage AMODE switching.
- This LE feature allows a DLL subprogram to have a different AMODE from its caller. Existing applications running in AMODE 31 using dynamic calls can take advantage of this feature with minimal or no changes.

Support for user-defined functions to write your own functions and invoke them like intrinsic functions, improving code modularity and maintainability

Write your own functions using the new Enterprise COBOL construct, the user-defined function definition, and invoke them like intrinsic functions. As with many popular programming languages, COBOL 6.4 supports user-defined functions, which gives new COBOL programmers a familiar structure.

- User-defined functions can only be called statically and must be defined within the same compilation group as the programs that call them.
- User-defined functions is a COBOL 2002 standard feature. Support of programming language standards provides you with additional functionality so that you can modernize your application. It also allows for maximum portability of your source code among a variety of compiler implementations.

Improved integration with IBM Automatic Binary Optimizer for z/OS to invest in your future so that modules you compile today take advantage of future IBM Z hardware enhancements, without having to be recompiled

- Automatic Binary Optimizer for z/OS (sold separately) improves the performance of already-compiled COBOL program modules without recompiling, source code migration, or performance tuning.
- COBOL 6.4 generates metadata that is designed to allow modules compiled with COBOL 6.4 today to be easily optimized in the future by Automatic Binary Optimizer for z/OS.
- Use Enterprise COBOL Value Unit Edition for z/OS 6.4 for new development, modernization, and maintenance. Use Automatic Binary Optimizer for z/OS to improve the performance of the COBOL modules without a recompilation plan.

Additional enhancements

- Enterprise COBOL Value Unit Edition for z/OS 6.4 adds support for building and running COBOL applications for the z/OS V2.5 operating system.
- Default ARCH changed to ARCH(10) [zEC12/zBC12] and support removed for ARCH(8) [z10EC, z10BC] and ARCH(9) [z196, z114].

Features of Enterprise COBOL Value Unit Edition for z/OS 6.4 made available through continuous delivery

Since version 6.1, Enterprise COBOL Value Unit Edition for z/OS has been enhanced to support the continuous delivery (CD) model. Through continuous delivery, new features and enhancements are included in program temporary fixes (PTFs) along with corrective and preventative service. You receive new features and enhanced capabilities as soon as the code is ready. You benefit by receiving enhancements in a faster and more continuous way without waiting for the next release.

Enterprise COBOL Value Unit Edition for z/OS 6.4 includes all the version 6.3 features delivered through continuous delivery. These features include:

- JSON:
 - JSON GENERATE and PARSE boolean values enablement with the new CONVERTING phrase
 - JSON GENERATE SUPPRESS enhancement to conditionally suppress data items during JSON GENERATE with the new when-phrase and generic-suppression-phrase
 - Support for NAME is OMITTED phrase of JSON GENERATE statement
- AMODE 64 (64-bit):
 - Support for UTF-8 data items in AMODE 64
 - Support for dynamic-length elementary items in AMODE 64
 - Add support for the new >>DATA directive for AMODE 64 COBOL programs
 - Support COBOL Dynamic Call in a mixed AMODE 31/AMODE 64 environment
- Intrinsic functions:
 - New date and time intrinsic functions. With the new date and time intrinsic functions (as part of the 2002 and 2014 COBOL Standards), you can encode and decode date and time information to and from formats specified in ISO 8601, and encode and decode date and time information to and from integers that are suitable for arithmetic.
 - Support for new intrinsic function UUID4.
- Performance:
 - Performance improvement for INSPECT statement
 - TUNE option support
- Discovering invalid data:
 - Enhancement to the INITCHECK option to find all possible "used without being initialized" fields

- Support for new NUMCHECK(ZON) suboptions LAXREDEF and STRICTREDEF
- Add support for INVDATA option for improved compatibility with NUMPROC(MIG) option from version 4 and earlier
- Debug support:
 - Debug support for UTF-8 data items
 - Enable debug support for dynamic-length elementary items
- General:
 - Set OPTFILE as default without affecting SYSOPTF file availability
 - New rules suboptions LAXREDEF|NOLAXREDEF
 - Improved COBOL OFFSET report usability
 - Diagnose options coded as OPTION() instead of OPTION= in the COBOL customization macro

Section 508 of the US Rehabilitation Act

Enterprise COBOL Value Unit Edition for z/OS 6.4 is capable as of May 27, 2022, when used in accordance with associated IBM documentation, of satisfying the applicable requirements of Section 508 of the Rehabilitation Act, provided that any assistive technology used with the product properly interoperates with it. A US Section 508 Accessibility Conformance Statement can be requested on the [Product accessibility information](#) website.

Value Unit-based pricing

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

Value Unit pricing offers price benefits for you. 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*. Each of the various Value Unit Exhibits stipulate that the larger your required license capacity, the fewer Value Units per MSU you will need. Value Unit Exhibits are uniquely identified by a three digit code and referred to using the nomenclature VUExxx, where xxx is the three digit code.

Subsequent acquisitions of Value Unit priced programs offer additional price benefits. The quantity of each IBM Z IPLA program that you have acquired is referred to as *entitled license capacity*. If you wish to grow your entitled license capacity for an IBM Z IPLA program, the calculation to determine additional needed Value Units is based upon the number of Value Units already acquired.

For each IBM Z IPLA program with Value Unit pricing, you should:

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

To simplify conversion from the designated measurement to Value Units or vice versa, use the Value Unit Converter tool. For additional information or to obtain a

copy of the Value Unit Converter tool, see the [IBM Z software pricing tools](#) website. Select "Download" under VU Converter to obtain the converter tool.

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

To determine the required license capacity for the IBM Z IPLA program you selected, see the [Terms and conditions](#) section.

Product positioning

Enterprise COBOL is a premier, enterprise-class COBOL compiler for the z/OS system. It is a proven and reliable program that:

- Delivers innovation for modernizing business-critical applications and programming features to increase programmer productivity
- Bolsters the overall benefits of transactional and data systems, such as CICS, IMS, and Db2

Modern IBM Z hardware has increasing complexity and is designed to deliver performance through the implementation of hardware features and compiler support. To get the most out of your IBM Z hardware, you need to use the latest Enterprise COBOL Value Unit Edition for z/OS compiler and selectively optimize CPU-intensive parts of the applications. This will help you reduce CPU utilization and operating costs.

The ARCH and OPTIMIZE compiler options of Enterprise COBOL Value Unit Edition for z/OS can be used to unleash the full power of IBM processors that are delivered in the various IBM Z hardware models. COBOL 6.4 now supports the ARCH(14) option that is designed to achieve the best performance on IBM z16 hardware. COBOL programmers no longer need a deep understanding of IBM z/Architecture to leverage leading-edge performance of new IBM Z hardware. Developers only need to focus on the logic of the applications and let the compiler determine the best way to transform and optimize the code generation for the IBM Z hardware on which the application will run. To maximize your performance potential, consider using Automatic Binary Optimizer for z/OS (sold separately) to optimize any COBOL modules that are not under active development.

With Enterprise COBOL Value Unit Edition for z/OS 6.4, the return on your hardware and middleware investments is increased. With the implementation of advanced code generation and optimization technology, Enterprise COBOL Value Unit Edition for z/OS 6.4 establishes a foundation for delivery of additional optimization features and support of IBM z/Architecture.

With its enhanced capabilities, simplified programming, and increased programmer productivity, you can continue to use Enterprise COBOL Value Unit Edition for z/OS to modernize existing business-critical applications. Modernization enables the reuse of your proven business logic and helps you to:

- Deliver new enhancements quicker, with less cost and lower risk
- Add modern GUIs to business-critical COBOL applications or extend them to work with web, cloud, or mobile infrastructures
- Build on proven applications in which you do not need to write original code

Enterprise COBOL Value Unit Edition for z/OS 6.4 continues the IBM commitment to COBOL on z/OS. With this release, you gain the benefit of new investment combined with more than 60 years of IBM experience in compiler development.

Program number

Program number

VRM

Program name

5697-V61	6.4.0	IBM Enterprise COBOL Value Unit Edition for z/OS 6
Program PID number	Subscription and Support PID number	
5697-V61	5697-ECS	

Offering Information

Product information is available on the [IBM Offering Information](#) website.

Publications

Publications

The following publications will be available in [IBM Documentation](#) or you can contact your IBM representative or IBM Business Partner.

Online documentation

- Online documentation is available in [IBM Documentation](#) after planned availability.

PDF documentation

- Documentation is provided for download in PDF from IBM Documentation after planned availability. See [PDF version documentation](#) for details.

Program Directories

Title	Form number	Availability date
<i>Program Directory</i>	GI13-4529-03	May 27, 2022

Licensed Program Specifications

Title	Form number	Availability date
<i>Licensed Program Specifications</i>	GI13-4530-04	May 27, 2022

Additional product documentation

Title	Form number	Availability date
<i>Language Reference</i>	SC27-8713-03	May 27, 2022
<i>Customization Guide</i>	SC27-8712-03	May 27, 2022
<i>Messages and Codes</i>	SC27-4648-02	May 27, 2022
<i>Migration Guide</i>	GC27-8715-03	May 27, 2022
<i>Performance Tuning Guide</i>	SC27-9202-02	May 27, 2022
<i>Programming Guide</i>	SC27-8714-03	May 27, 2022
<i>What's New</i>	SC31-5708-00	May 27, 2022

Services

IBM Systems Lab Services

Systems Lab Services offers infrastructure services to help build hybrid cloud and enterprise IT solutions. From servers to storage systems and software, Systems Lab Services can help deploy the building blocks of a next-generation IT infrastructure to empower a client's business. Systems Lab Services consultants can perform infrastructure services for clients online or onsite, offering deep technical expertise, valuable tools, and successful methodologies. Systems Lab Services is designed to help clients solve business challenges, gain new skills, and apply best practices.

Systems Lab Services offers a wide range of infrastructure services for IBM Power^(R) servers, IBM Storage systems, IBM Z, and IBM LinuxONE. Systems Lab Services has a global presence and can deploy experienced consultants online or onsite around the world.

For assistance, contact Systems Lab Services at ibmsls@us.ibm.com.

To learn more, see the [IBM Systems Lab Services](#) website.

IBM Consulting

As digital transformation continues across every industry, businesses need a strategic partner to map and implement their enterprise-wide business and mainframe modernization journey. IBM Consulting is the business partner to help accelerate change across an organization. IBM mainframe modernization consultants and architects can help businesses succeed through finding collaborative ways of working that forge connections across people, technologies, and partner ecosystems. IBM Consulting brings together the business expertise, technology leadership and proven methodology along with an ecosystem of technologies that help solve some of the biggest problems faced by organizations. The integrated approach that is grounded in modern mainframe innovations, an open and flexible hybrid cloud architecture, and incorporating technology from IBM Research^(R), IBM Watson^(R) AI, and IBM Consulting enables businesses to lead change with confidence and deliver continuous improvement across a business and its bottom line.

COBOL Upgrade is one of the many mainframe modernization patterns from IBM Consulting. IBM consultants can help you with your strategy and capacity to migrate applications from older IBM COBOL compilers to Enterprise COBOL for z/OS and Enterprise COBOL Value Unit Edition for z/OS 6.2, 6.3, or 6.4 and reduce cost with optimized code. Optimization of COBOL modules with IBM Automatic Binary Optimizer for z/OS is also available.

For additional information, see the [IBM Consulting](#) website.

IBM Technology Support Services (TSS)

Get preventive maintenance, onsite and remote support and gain actionable insights into critical business applications and IT systems. Speed developer innovation with support for over 240 open-source packages. Leverage powerful IBM analytics and AI-enabled tools to enable client teams to manage IT problems before they become emergencies.

TSS offers extensive IT maintenance and support services that cover more than one niche of a client's environment. TSS covers products from IBM and OEMs, including servers, storage, network, appliances, and software, to help clients ensure high availability across their data center and hybrid cloud environment.

For details on available services, see the [Technology support for hybrid cloud environments](#) website.

IBM Expert Labs

Expert Labs can help clients accelerate their projects and optimize value by leveraging their deep technical skills and knowledge. With more than 20 years of industry experience, these specialists know how to overcome the biggest challenges to deliver business results that can have an immediate impact.

Expert Labs' deep alignment with IBM product development allows for a strategic advantage as they are often the first in line to get access to new products, features, and early visibility into roadmaps. This connection with the development enables them to deliver First of a Kind implementations to address unique needs or expand a client's business with a flexible approach that works best for their organization.

For additional information, see the [IBM Expert Labs](#) website.

IBM Security^(R) Expert Labs

With extensive consultative expertise on IBM Security software solutions, Security Expert Labs helps clients and partners modernize the security of their applications, data, and workforce. With an extensive portfolio of consulting and learning services, Expert Labs provides project-based and premier support service subscriptions.

These services can help clients deploy and integrate IBM Security software, extend their team resources, and help guide and accelerate successful hybrid cloud solutions, including critical strategies such as zero trust. Remote and on-premises software deployment assistance is available for IBM Cloud Pak^(R) for Security, IBM Security QRadar^(R)/QRoC, IBM Security SOAR/Resilient^(R), IBM i2^(R), IBM Security Verify, IBM Security Guardium^(R), and IBM Security MaaS360^(R).

For more information, contact Security Expert Labs at sel@us.ibm.com.

For additional information, see the [IBM Security Expert Labs](#) website.

Technical information

Specified operating environment

Hardware requirements

Enterprise COBOL Value Unit Edition for z/OS 6.4 runs on and generates code that runs on the following IBM Z servers:

- IBM z16
- IBM z15TM Models T01 and T02
- IBM z14^(R) Models M01-M05
- IBM z14 Model ZR1
- IBM z13^(R)
- IBM z13s^(R)
- IBM zEC12
- IBM zBC12

Software requirements

Enterprise COBOL Value Unit Edition for z/OS 6.4 runs under the control of, or in conjunction with, the currently supported releases of the following programs and their subsequent releases or their equivalents. For more information, see the *Program Directory* and the preventive service planning (PSP) bucket.

- z/OS V2.3 (5650-ZOS), or later, is required.
- For installation on z/OS, z/OS SMP/E is required.
- For customization during or after installation, z/OS High Level Assembler is required.
- Enterprise COBOL XML PARSE statements in programs, which are compiled with the XMLPARSE(XMLSS) compiler option, require z/OS XML System Services 2.3 (5650-ZOS), or later.
- The new COBOL/Java interoperability feature available in Enterprise COBOL Value Unit Edition for z/OS 6.4 requires IBM SDK for z/OS, Java Technology Edition 8.0.6.36 (JVM), or later.

Optional licensed programs

Depending on the functions used, you may require other software products such as CICS, Db2, or IMS. For a list of compatible software, see the [Software Products Compatibility Reports \(SPCR\)](#) website. From the SPCR website, click **Create a**

Report under in-depth reports, search for **Enterprise COBOL for z/OS**, choose **Version 6.4**, and then click **Submit**.

Companion products

The following products or services can be purchased with this product:

- IBM Automatic Binary Optimizer for z/OS
- COBOL Report Writer
- IBM SDK for z/OS, Java Technology Edition or IBM Semeru Runtime Certified Edition for z/OS
- IBM Consulting Mainframe Application Modernization - COBOL Upgrade Services
- IBM Application Delivery Foundation for z/OS
 - IBM Fault Analyzer for z/OS
 - IBM File Manager for z/OS
 - IBM Developer for z/OS
 - IBM Debug for z/OS
 - IBM Dependency Based Build for z/OS
 - IBM Application Performance Analyzer for z/OS
- IBM Z and Cloud Modernization Stack
- IBM Z Virtual Test Platform
- IBM Application Discovery and Delivery Intelligence
- IBM COBOL for AIX^(R)

IBM Automatic Binary Optimizer for z/OS (5697-AB2)

Automatic Binary Optimizer for z/OS optimizes previously compiled COBOL program modules to increase application performance and reduce CPU usage without source recompilation. It performs high-fidelity optimizations and generates code that exploits the z/Architecture without changing program logic or behavior. Automatic Binary Optimizer for z/OS, in conjunction with Enterprise COBOL for z/OS, also helps to reduce the scope of migration.

COBOL Report Writer (5798-DYR, 5798-DZX)

COBOL Report Writer is a separately orderable product that runs with the IBM COBOL compiler. This product defines and produces all the listings, reports, and displayed summaries that would normally be required in a COBOL application. Users can significantly reduce the time and effort required to code and test a COBOL program with printed output.

IBM SDK for z/OS, Java Technology Edition (5655-DGH, 5655-DGG) or IBM Semeru Runtime Certified Edition for z/OS (5655-DGJ)

Clients can interoperate Java and COBOL to easily extend the capabilities of their COBOL programs with Java. Java is a popular language that is familiar to enterprise-wide developers, including those newly hired.

Enterprise COBOL for z/OS 6.4 simplifies interoperability between clients' COBOL and Java applications, removing the need to write object-oriented COBOL and reducing the number of manual JNI calls required compared to COBOL 6.3.

- Three COBOL/Java communication features are provided:
 - Enabling a COBOL program to be callable from Java
 - Enabling the CALL statement in COBOL to call a static Java method
 - Enabling Java applications to easily access the working-storage memory of a COBOL program

- Use of this feature requires IBM SDK for z/OS, Java Technology Edition 8.0.6.36 (JVM) and up.

Interoperate existing AMODE 31 (31-bit) COBOL applications and AMODE 64 (64-bit) Java applications without converting the entire COBOL application to run in AMODE 64.

- Use of this feature requires IBM Language Environment^(R) (LE) 2.3 or 2.4 with APAR PH28966, or LE 2.5.
- Client applications that previously used the AMODE 31 (31-bit) Java SDK might need to be modified to run in AMODE 64 mode. Only AMODE 64 versions are available with the Java SDK Version 11 (IBM Semeru Runtime Certified Edition for z/OS).
- Use of this feature requires IBM SDK for z/OS, Java Technology Edition 8.0.6.36 (JVM) and up.

Semeru Runtime Certified Edition for z/OS 11 offers the latest language features, performance improvements, hardware exploitations, and security enhancements:

- Enables clients to exploit new capabilities available with z/OS V2.4 and z/OS V2.5, and the latest IBM Z hardware
- Contains a new OpenJCEPlus security provider that can optimize performance through exploitation of cryptographic hardware on IBM Z
- Contains cryptographic algorithms that are required for Transport Layer Security (TLS) 1.3 support in the OpenJCEPlus provider

IBM Consulting Mainframe Application Modernization - COBOL Upgrade Services

Mainframe Application Modernization Services from IBM Consulting helps clients to modernize and integrate their IBM Z applications and data in an enterprise hybrid cloud ecosystem. This helps to achieve innovation and business agility with reduced risk and cost. Improving performance efficiency of core IBM Z applications is essential to meet the digital needs of enterprises. COBOL Upgrade is one of the many mainframe modernization patterns from IBM Consulting. IBM consultants can help clients with their strategy and capacity to migrate applications from older IBM COBOL compilers to Enterprise COBOL for z/OS and Enterprise COBOL Value Unit Edition for z/OS 6.2, 6.3, or 6.4 and reduce cost with optimized code. Optimization of COBOL modules with IBM Automatic Binary Optimizer for z/OS is also available.

Clients can incorporate agility in their digital transformation with expertise and services from IBM Consulting.

IBM Application Delivery Foundation for z/OS (5655-AC6)

Application Delivery Foundation for z/OS consists of multiple development tools that can be obtained as part of the offering or individually:

- IBM Fault Analyzer for z/OS (5655-Q41) is designed to improve developer productivity and decrease deployment costs by helping to analyze and correct application failures quickly.
- IBM File Manager for z/OS (5655-Q42) enables users to manipulate production, test, and development data in a variety of data stores, including Db2, IMS, CICS, MQ, data sets, and HFS/zFS files.
- IBM Developer for z/OS (5724-T07), which can be licensed separately or as part of IBM Developer for z/OS Enterprise Edition (5755-AC5), offers a modern toolset for developing and maintaining z/OS applications using DevOps practices. It supports Enterprise COBOL for z/OS 6.4, including user-defined functions.
- IBM Debug for z/OS (5755-Q50) is available as a stand-alone product and provides z/OS application developers with a 3270 user interface and remote debugging through Eclipse. Additional z/OS Debugger capabilities and client options are available in IBM Developer for z/OS, IBM Developer for z/OS Enterprise Edition, and IBM Wazi Developer.

- IBM Dependency Based Build for z/OS (5737-K80) provides z/OS software development teams with a build tool kit that is designed to build applications for Git and analyze the dependencies that are required to build only what is needed. Dependency Based Build also includes Groovy for automation, which helps integrate mainframe processes with open source so that users can connect those mainframe processes to enterprise-wide continuous integration/continuous delivery by using open-source tools such as Jenkins.
- IBM Application Performance Analyzer for z/OS (5655-Q49) identifies z/OS application performance and response time problems and assists in reducing resource consumption. It is highly customizable, providing a performance view of an application and the statements that are creating performance degradation. Application Performance Analyzer for z/OS is accessible by both a 3270 interface and an Eclipse GUI interface.

IBM Z and Cloud Modernization Stack (5900-A8N)

IBM Z and Cloud Modernization Stack delivers a foundational IBM Z application and data modernization solution that can enable clients to integrate and extend their IBM Z systems, applications, and data with hybrid cloud environments through the Red Hat^(R) OpenShift^(R) Container Platform.

In addition to the suite of essential development and deployment tools, clients also gain access to a core suite of programming languages. Python, Node.js, Go, and Java are included at no additional charge. Clients can extend the capabilities of COBOL applications with modules written in these open enterprise languages. They can develop new microservices natively on z/OS, leverage the open-source communities, and access a vast pool of developers worldwide.

IBM Z Virtual Test Platform (5696-VTP)

Z Virtual Test Platform enables a developer to record the transactions and batch programs within their application and replay them in a virtualized environment without the need for middleware so that application changes can be tested before they are deployed.

Clients can use Z Virtual Test Platform and efficiently run regression testing without impact on existing test environments after their COBOL compiler upgrades.

IBM Application Discovery and Delivery Intelligence for IBM Z (5737-B66)

Application Discovery and Delivery Intelligence (ADDI) is an analytical platform for z/OS application modernization that is designed to help developers and architects rapidly discover and analyze relationships between application (including COBOL application) components, data, and jobs to make changes safely and efficiently. Clients can use ADDI to help with their COBOL compiler upgrades, COBOL application modernization, and understanding of the business rules in their COBOL programs.

Key capabilities include the following:

- Expedite critical initiatives that reduce business risks and enable an agile response to business requirements
 - Upgrade COBOL compiler: understand application dependencies and identify inefficient code ahead of time.
 - Discover business logic embedded in COBOL applications: business rules can implement critical business decisions, but they can be difficult to find in applications that have been maintained over many years. ADDI discovers business rules that are embedded in the logic of web, online, and batch mainframe applications so that they can be efficiently identified, validated, transformed. When the rules are ready, they can be externalized and managed in IBM Operational Decision Manager.
 - Become Quantum Safe: discover cryptography used in COBOL applications to plan your Quantum Safe modernization and protect against harvesting of confidential data.

- Accelerate data modernization and integrate IBM Z into clients' data fabric: leverage ADDI to automate discovery and configuration of thousands of z/OS data sets, so Data Virtualization Manager can then generate virtual tables using simple wizards and batch processes with no additional data collection.
- Accelerate application and data modernization
 - Modernize z/OS applications to support hybrid cloud execution by discovering, analyzing, and preparing client assets for modernization.
 - Reuse existing assets for the API economy and accelerate modernization by finding API candidates in existing applications and uncover reuse strategies.
 - Enable transition to fully leverage open-source technology, including Git by identifying clusters of closely related programs and copybooks for SCM modernization.
- Faster time-to-market with high quality by increasing productivity of client development and test teams
 - Ensure current and accurate insights by automating synchronization between SCM and application analysis.
 - Find relevant code faster and make changes with confidence by leveraging fast local analysis with graphical visualization of relationships between application components.
 - Perform root-cause analysis and optimize test execution by identifying code mapping, potential redundant and low-valued tests.
 - Enforce code quality, coding standards, and compliance by customizing coding rules and perform quality checks on both internal and external teams.

IBM COBOL for AIX (5765-COB, 5724-Z87)

COBOL for AIX is a development environment for building business-critical COBOL applications on IBM Power Systems. It includes a COBOL compiler, a runtime library for application development use, and a debugger that lets clients visually debug a program from their workstation. COBOL for AIX enables clients to create 32-bit or 64-bit applications.

Clients can use COBOL for AIX to write code to run on the mainframe. Clients can use COBOL for AIX to develop new applications and take advantage of the productivity gains and increased flexibility of using their IBM AIX workstations.

IBM Support

[IBM Support](#) is your gateway to technical support tools and resources that are designed to help you save time and simplify support. IBM Support can help you find answers to questions, download fixes, troubleshoot, submit and track problem cases, and build skills. Learn and stay informed about the transformation of IBM Support, including new tools, new processes, and new capabilities, by going to the [IBM Support Insider](#).

Additional IBM support

IBM Client Engineering for Systems

Client Engineering for Systems is a framework for accelerating digital transformation. It helps you generate innovative ideas and equips you with the practices, technologies, and expertise to turn those ideas into business value in weeks. When you work with Client Engineering for Systems, you bring pain points into focus. You empower your team to take manageable risks, adopt leading technologies, speed up solution development, and measure the value of everything you do. Client Engineering for Systems has experts and services to address a broad array of use cases, including capabilities for business transformation, hybrid cloud, analytics and AI, infrastructure systems, security, and more. For more information, see the [IBM Client Engineering for Systems](#) website.

Planning information

Packaging

The Enterprise COBOL Value Unit Edition for z/OS 6.4 package includes:

- Basic machine-readable material on the customer-selected distribution medium
- Program Directory (GI13-4529-03)
- Licensed Program Specifications (GI13-4530-04)

Security, auditability, and control

The announced program uses the security and auditability features of the host operating system software.

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

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

Program number	Program name	Value Unit exhibit
5697-V61	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	VUE007
5697-ECS	IBM Enterprise COBOL Value Unit Edition for z/OS Subscription and Support	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	+	0.20

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:

Tier	MSUs	Multiplied by Value Units per MSU	Equal Value Units
Base	3	1.00	3.00
Tier A	42	.45	18.90

Tier	MSUs	Multiplied by Value Units per MSU	Equal Value Units
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.

Ordering z/OS through the internet

Shopz provides an easy way to plan and order your z/OS ServerPac or CBPDO. It will analyze your current installation, determine the correct product migration, and present your new configuration based on z/OS. Additional products can also be added to your order (including determination of whether all product requisites are satisfied). For more details and availability, go to the [Shopz](#) website.

Charge metric

Program name	Part number or PID number	Charge metric
IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	5697-V61	Value Units
IBM Enterprise COBOL Value Unit Edition for z/OS Subscription and Support	5697-ECS	Value Units

For more information about the value unit charge metric see the description in the section regarding "Value Unit-based pricing".

Basic license

On/Off CoD

Enterprise COBOL Value Unit Edition for z/OS 6.4 is eligible for On/Off CoD with a temporary use charge calculated based on MSUs per-day usage.

Program name IBM Enterprise COBOL Value Unit Edition for z/OS 6.4

Program PID 5697-V61

Entitlement identifier	Description	License option/Pricing metric
S017Z7K	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	Basic OTC, Per MSU-day TUC

Translation from MSUs to Value Units

	MSUs	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+	.2

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: IBM Enterprise COBOL Value Unit Edition for z/OS 6.4

Program PID: 5697-V61

Entitlement identifier	Description	License option/Pricing metric
S017Z7K	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	Basic OTC, per Value Unit
S017Z7K	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	MultiVersion Measurement, No charge
Orderable supply ID	Language	Distribution medium
S017Z7H	English	3590 Tape
S017Z7J	Japanese	3590 Tape

Subscription and Support PID: 5697-ECS

Entitlement identifier	Description	License option/Pricing metric
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	Basic ASC, per Value Unit SW S&S
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	No charge, decline SW S&S
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	Per MSU SW S&S Registration
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	MultiVersion Measurement, No charge
Orderable supply ID	Language	Distribution medium
S017V86	English	Hardcopy publication
S017V87	Japanese	Hardcopy publication

IBM Enterprise COBOL Value Unit Edition for z/OS is designed for clients who are adopting DevOps on IBM Z. It comes with built-in capacity to cover the increase in COBOL compile workload caused by moving to continuous delivery.

Subscription and Support

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 canceled 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^(R) and z Systems^(R) 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.

Customized Offerings

Product deliverables are shipped only through CBPDO and ServerPac. These customized offerings are offered for internet delivery. 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 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 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 within 3 business days after the planned availability date.
- ServerPac availability and shipments will begin within 3 - 4 weeks after the planned product availability date due to additional customization and data input verification.

Terms and conditions

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.

This software license includes Software Subscription and Support (also referred to as Software Maintenance).

Software Maintenance

The following agreement applies for Software Subscription and Support (Software Maintenance) and does not require client signatures:

- IBM Agreement for Acquisition of Software Maintenance (Z125-6011)

These programs are licensed under the IBM International 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 number

L-JYIP-CC8PXJ

See the [License Information documents](#) page on the IBM Software License Agreement website for more information.

A License Document DVD (LDCD) is shipped with the program media. The LDCD identifier is LC27-8710-03.

Limited warranty applies

Yes

Limited warranty

IBM warrants that when the program is used in the specified operating environment, it will conform to its specifications. The warranty applies only to the unmodified portion of the program. IBM does not warrant uninterrupted or error-free operation of the program or that IBM will correct all program defects. You are responsible for the results obtained from the use of the program.

IBM provides you with access to IBM databases containing information about known program defects, defect corrections, restrictions, and bypasses at no additional charge. For further information, see the [IBM Support Guide](#).

IBM will maintain this information for at least one year after the original licensee acquires the program (warranty period).

Program technical support

Enhanced support

Technical support of a program product version or release will be available for a minimum of five years from the planned availability date, as long as your Software Subscription and Support is in effect.

This technical support allows you to obtain assistance (by telephone or electronic means) from IBM for product-specific, task-oriented questions regarding the installation and operation of the program product. Software Subscription and Support also provides you with access to updates (modifications or fixes), releases, and versions of the program. You will be notified, through an announcement letter, of discontinuance of support with 12 months' notice.

If you require additional technical support from IBM, including an extension of support beyond the discontinuance date, contact your IBM representative. This extension may be available for a fee.

For additional information about the IBM Software Support Lifecycle Policies, see the [Standard and enhanced IBM software support lifecycle policies](#) website.

Money-back guarantee

If for any reason you are dissatisfied with the program and you are the original licensee, you may obtain a refund of the amount you paid for it, if within 30 days of your invoice date you return the program and its PoE to the party from whom you obtained it. If you downloaded the program, you may contact the party from whom you acquired it for instructions on how to obtain the refund.

For clarification, note that for programs acquired under any of IBM's On/Off Capacity on Demand (On/Off CoD) software offerings, this term does not apply since these offerings apply to programs already acquired and in use by you.

Volume orders (IVO)

No

Passport Advantage applies

No

Usage restrictions

Yes

See the [License Information documents](#) page on the IBM Software License Agreement website for more information.

Software Subscription and Support applies

Yes. During the Software Subscription and Support period, for the unmodified portion of a program, and to the extent problems can be recreated in the specified operating environment, IBM will provide the following:

- Defect correction information, a restriction, or a bypass.
- Program updates: Periodic releases of collections of code corrections, fixes, functional enhancements and new versions and releases to the program and documentation.
- Technical assistance: A reasonable amount of remote assistance by telephone or electronically to address suspected program defects. Technical assistance is available from the IBM support center in the organization's geography.

Additional details regarding Technical Assistance, which includes IBM contact information, are provided in the [IBM Support Guide](#).

Software Subscription and Support does not include assistance for:

- The design and development of applications.
- Your use of programs in other than their specified operating environment.
- Failures caused by products for which IBM is not responsible under the IBM Agreement for Acquisition of Software Maintenance.

Software Subscription and Support is provided only if the program is within its support timeframe as specified in the Software Support Lifecycle policy for the program.

Yes. All distributed software licenses include Software Subscription and Support (also referred to as Software Maintenance) for a period of 12 months from the date of acquisition, providing a streamlined way to acquire IBM software and assure technical support coverage for all licenses. Extending coverage for a total of three years from date of acquisition may be elected.

While your Software Subscription and Support is in effect, IBM provides you assistance for your routine, short duration installation and usage (how-to) questions, and code-related questions. IBM provides assistance by telephone and, if available, electronic access, only to your information systems (IS) technical support personnel during the normal business hours (published prime shift hours) of your IBM support center. (This assistance is not available to your end users.) IBM provides Severity 1 assistance 24 hours a day, every day of the year. For additional details, go to the [IBM Support Handbooks](#) page.

Software Subscription and Support does not include assistance for the design and development of applications, your use of programs in other than their specified operating environment, or failures caused by products for which IBM is not responsible under this agreement.

IBM Operational Support Services - SoftwareXcel

No

Variable charges apply

No

Educational allowance available

Yes. A 15% education allowance applies to qualified education institution clients.

Multi-Version Measurement

Multi-Version Measurement (MVM) replaces the previously announced Migration Grace Period time limit of six months and allows unlimited time for clients to run more than one eligible version of a software program. Clients may run multiple versions of a program simultaneously for an unlimited duration during a program version upgrade. Clients may also choose to run multiple versions of a program simultaneously for an unlimited duration in a production environment. MVM does not extend support dates for programs withdrawn from service.

For more information about MVM, including requirements for qualification, see the [MVM](#) web page. For a list of eligible programs, see the [IPLA Execution-Based](#) web page.

Sub-capacity terms and conditions

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.

For more information about the Value Unit Exhibit for the z Systems IPLA program you selected, see the [Ordering information](#) section.

Program number	Program name	Terms	Parent, if applicable
5697-V61	IBM Enterprise COBOL Value Unit Edition for z/OS 6	Execution-based	

Full-capacity mainframes

In cases where full capacity is applicable, the following terms apply.

Execution based, z/OS based, full machine based: The required capacity of a z Systems IPLA program with these terms equals the MSU-rated capacity of the machines where the z Systems IPLA program executes.

For more information about mainframe MSU-rated capacities, go to the [IBM System z^{\(R\)} Software Contracts](#) website.

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

Sub-capacity mainframes

In cases where sub-capacity is applicable, the following terms apply.

Execution based: The required capacity of a z Systems IPLA sub-capacity program with these terms equals the capacity of the LPARs where the z Systems IPLA program executes.

z/OS based: The required license capacity of a z Systems IPLA program with these terms equals the license capacity of z/OS on the machines where the z Systems IPLA program executes.

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

Full machine based: The required license capacity of a z Systems IPLA program with full machine based terms equals the MSU-rated capacity of the machines where the z Systems IPLA program executes.

For more information about mainframe MSU-rated capacities, see the *The IBM z Systems^(R) Machines Exhibit*, Z125-3901, or visit the Mainframes section of the z Systems Exhibits website.

For additional information for products with reference-based terms, z Systems IPLA sub-capacity programs with reference-based terms adds value to the parent program across the environment, regardless of where in the environment the z Systems IPLA program executes.

An environment is defined as either a single or stand-alone machine or a qualified Parallel Sysplex^(R). You may have one or more different environments across the enterprise. To determine the required license capacity for each z Systems IPLA program with referenced-based terms, each environment should be assessed separately.

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

- Where MLC pricing is aggregated across the sysplex.

Sub-capacity eligibility

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

- All instances of the OS/390^(R) operating system must be migrated to the z/OS operating systems.
- Any licenses for the OS/390 operating system must be discontinued.
- All instances of the z/OS operating systems must be running in z/Architecture (64-bit) mode.

For that machine, you must create and submit a Sub-Capacity Report to IBM each month. Sub-Capacity Reports must be generated using the Sub-Capacity Reporting Tool (SCRT). For additional information or to obtain a copy of SCRT, go to the [IBM System z Software Pricing](#) website.

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

- The complete terms and conditions of sub-capacity WLC are defined in the *IBM Customer Agreement - Attachment for z Systems Workload License Charges* (Z125-6516).

- The complete terms and conditions for sub-capacity EWLC are defined in the *IBM Customer Agreement - Attachment for EWLC, TWLC, zELC, and z/OS.e License Charges (Z125-6587)*.

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

Sub-capacity terms and conditions

IBM Getting Started Sub-capacity Pricing for z/OS IPLA Software applies.

Sub-capacity utilization determination

Sub-capacity utilization is determined based on the product's own execution as reported to IBM in accordance with the requirements for reporting sub-capacity utilization for products.

On/Off CoD

To be eligible for On/Off CoD pricing, you must be enabled for temporary capacity on the corresponding hardware, and the required contract, Attachment for IBM System z On/Off Capacity on Demand (Z125-7883) must be signed prior to use.

Statement of good security practices

IT system security involves protecting systems and information through intrusion 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 regulatory compliant, 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.

Prices

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

Information on charges is available on the [IBM Support Portal](#) website.

Pricing for IBM Enterprise COBOL Value Unit Edition for z/OS 6.4 MSU-based z Systems offerings

Program name: IBM Enterprise COBOL Value Unit Edition for z/OS6.4

Program PID: 5697-V61

Entitlement identifier	Description	License option/Pricing metric
S017Z7K	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	Basic OTC, per Value Unit
S017Z7K	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	Basic OTC, per MSU-day TUC
S017Z7K	IBM Enterprise COBOL Value Unit Edition for z/OS 6.4	MultiVersion Measurement, No charge

Subscription and Support PID: 5697-ECS

Entitlement identifier	Description	License option/Pricing metric
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	Basic ASC, per Value Unit SW S&S
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	No charge, decline SW S&S
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	Per MSU SW S&S registration
S017V84	IBM Enterprise COBOL Value Unit Edition for z/OS S&S	MultiVersion Measurement, No charge

Regional availability

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