

Enable your COBOL applications to exploit the latest z/Architecture

Enterprise COBOL is a premier enterprise class COBOL compiler for IBM® z/OS®. It delivers innovation for modernizing business-critical applications, programming features to increase programmer productivity, and bolsters the overall benefits of transactional and data systems such as IBM CICS®, IMS™, and DB2®.

Enterprise COBOL for z/OS, V5.2 delivers advanced compiler support to allow you to fully benefit from hardware advancements. The Enterprise COBOL for z/OS compiler is capable of unleashing the full power of IBM processors delivered in the various models of z Systems 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 z Systems hardware on which the application will run.

With its enhanced capabilities, simplified programming, and increased programmer productivity features, you can use Enterprise COBOL for z/OS to modernize existing business-critical applications. You can deliver new enhancements quicker, with less cost and with lower risks. You can add modern graphical user interfaces to business-critical COBOL applications or extend them to work with web, cloud, or mobile infrastructures. With the investment in new compiler technology and the continued delivery of new features, Enterprise COBOL for z/OS, V5.2 reaffirms IBM's commitment to COBOL on z/OS. You gain the benefit of new investments combined with more than 50 years of IBM experience in compiler innovation and development.

Highlights

Enterprise COBOL for z/OS, V5.2 delivers the following new and improved features:

- Support for the new IBM z13 hardware
- New, restored, and enhanced compiler options for ease of migration and programmer productivity
- New features added from the ISO 2002 COBOL Standard
- New IBM extensions to COBOL
- Product-related enhancements

With the new ARCH(11) compiler option, the compiler will generate application code that exploits the instructions available with the latest z13 servers. Specifying ARCH(11) instructs the compiler to include exploitation of the new Single Instruction Multiple Data (SIMD) instructions and new packed-decimal to DFP conversion instructions. Enterprise COBOL can generate faster code for INSPECT TALLYING, INSPECT REPLACING and COMP-3 arithmetic by leveraging the new instructions in the z13 architecture.

Support for the new IBM z13 hardware

IBM Enterprise COBOL for z/OS V5.2 delivers z/Architecture® exploitation, including features for the new IBM z13 hardware, and additional performance optimizations for your applications. Enterprise COBOL for z/OS V5.2 introduces a new ARCH level and enhanced OPTIMIZE compiler options:

The enhanced OPTIMIZE compiler option allows you to select from multiple levels of increasing optimization that run from no optimization at all, through comprehensive low-level optimizations to more extensive optimizations, designed to improve the performance of your COBOL applications.

New, restored, and enhanced compiler options for ease of migration and programmer productivity

- The RULES option helps identify code that you might want to change to improve your programs, such as opportunities for improved runtime performance, improved use of memory, and conformance to standard COBOL coding practices.
- The QUALIFY option allows users to control the behavior of name resolution and can enable references to data items that the COBOL Standard would not allow, name references that the Standard would describe as ambiguous.
- The VLR option allows COBOL programmers to indicate the desired behavior for 'wrong length read' conditions, either File Status=4 or File Status=0. File Status = 0 is compatible with previous IBM COBOL compilers for ease of migration.
- The XMLPARSE option allows COBOL programmers to indicate which XML PARSE is used. XMLPARSE(COMPAT) provides compatibility with the Enterprise COBOL V3 parser for ease of migration.
- New suboptions for the MAP compiler option allow users to choose hexadecimal or decimal offsets for MAP output in compiler listing. MAP(HEX) provides compatibility with earlier COBOL compilers for ease of migration.
- The COPYRIGHT option places a string in the object module for copyright purposes; the SERVICE option places a string in the object module for serviceability and debugging purposes.
- The ZONEDATA option allows programmers to indicate whether the generated code should tolerate invalid zone bits in zoned decimal (numeric USAGE DISPLAY) data items in comparisons.

New features added from the ISO 2002 COBOL Standard

In Enterprise COBOL, V5.2, the following features are added for ISO 2002 COBOL Standard conformance:

The table SORT statement

The table SORT statement causes table elements to be arranged in a sequence that you specify.

EXIT statement enhancements

- EXIT SECTION leaves the current section.
- EXIT PARAGRAPH leaves the current paragraph.
- EXIT PERFORM leaves an inline PERFORM block
- EXIT PERFORM CYCLE skips the remainder of the current iteration of an inline PERFORM block.

LEADING/TRAILING support for the REPLACING phrase of the COPY statement

This feature provides support for LEADING/TRAILING keywords of the REPLACING phrase of the COPY statement and also the REPLACE statement. This feature allows users to do partial-word replacement on copy files or source code. A new behavior allows for any COPY statement in a chain of nested COPY statements to have the REPLACING phrase, as long as there is only one such COPY statement in the chain. When the REPLACING phrase is specified for a COPY statement that appears in a chain of nested COPY statements, the REPLACING phrase applies to all library text that is included by COPY statements nested under the COPY statement that has the REPLACING phrase.

LEADING/TRAILING support for the REPLACE statement

This feature provides support for the LEADING/TRAILING keywords of the REPLACE statement.

New IBM extensions to COBOL

In Enterprise COBOL V5.2, the following IBM extensions are added:

- The >>CALLINTERFACE directive
- The enhanced XML GENERATE statement
- Support for nested COPY REPLACING
- Support for the VOLATILE clause in a data description entry

Product-related enhancements

Enterprise COBOL for z/OS, V5.2 delivers the following runtime and product-related enhancements:

- For COBOL applications in mobile and web solutions, the z/OS Client Web Enablement Toolkit provides JSON document parsing and generation.

- Debug Tool enhancements include showing new compiler options in DESCRIBE CU output and supporting new QUALIFY(EXTEND) name lookup rules in all commands that reference data items such as LIST.

Other Enterprise COBOL for z/OS features

Improved application development

Enterprise COBOL for z/OS provides a set of intrinsic functions including string handling, financial capabilities, statistical functions, and mathematical formulas. You can also use the COBOL CALL statement to take advantage of Language Environment[®] services for everything from storage management to condition handling. The condition handling support enables you to write programs in which exception handling is done in a separate routine that is loaded only when needed. Using Language Environment condition handling, you do not have to write the exception-handling routines in assembler — you can write them in COBOL! Enterprise COBOL for z/OS offers support for recursive calls, structured programming, improved interoperability with other languages, and dynamic link library (DLL) support. The Enterprise COBOL for z/OS runtime library, Language Environment (a base element of z/OS), also supports PL/I, C/C++, and Fortran programs.

Ease into migration

Enterprise COBOL for z/OS gives you a migration path from OS/VS COBOL, VS COBOL II, IBM COBOL for MVS[™] & VM, and IBM COBOL for OS/390[®] & VM. With the exception of OS/VS COBOL programs, VS COBOL II NORES programs, and any programs that were previously compiled with the CMPR2 compiler option, your current programs can continue to compile and run without modification, while you selectively update existing applications to take advantage of new functions.

You can convert OS/VS COBOL programs and programs compiled with the CMPR2 compiler option into 1985 COBOL Standard programs, which can then be compiled using Enterprise COBOL for z/OS. Use the COBOL conversion tool (CCCA) included in Debug Tool for this purpose. Debug Tool also includes a load module analyzer that can help identify which of your programs were compiled with the OS/VS compiler.

Support for modern development tools

Rational[®] Developer for System z[®] supports Enterprise COBOL and helps improve the productivity of COBOL developers. Rational Developer for System z provides an interactive, workstation-based environment to help you create, maintain, and reuse applications. Rational Developer for System z includes support for traditional development using COBOL, but also has the ability to generate Web services interfaces from COBOL constructs to ease creation of Web services from existing COBOL applications.

Rational Developer for System z provides a workstation interface to Debug Tool, and is also integrated with IBM File Manager and Fault Analyzer. File Manager integration enables you to access Keyed Sequence Data Set (KSDS) files from the Rational Developer for System z workbench, and gives you the ability to browse and update data sets. By integrating with Fault Analyzer, Rational Developer for System z enables you to browse Fault Analyzer ABEND reports on CICS, IMS, batch, Java[™], WebSphere[®], and other run times.

COBOL across platforms

Enterprise COBOL for z/OS is part of a family of compatible compilers, application development tools, and maintenance tools.

Software requirements

The following table presents the system requirements for Enterprise COBOL for z/OS V5.2.

Software	Hardware
Enterprise COBOL for z/OS, V5.2 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 on the following programs listed that require program temporary fixes (PTFs), refer to the Program Directory and the preventive service planning (PSP) bucket. <ul style="list-style-type: none">• z/OS V2.1 (5650-ZOS), or later• z/OS V1.13 (5694-A01), or later	Enterprise COBOL for z/OS, V5.2 will run on the following IBM servers: <ul style="list-style-type: none">• z13• zEnterprise® EC12 and zEnterprise BC12• zEnterprise 196• z10™ Enterprise Class and z10 Business Class• z9® Enterprise Class or z9 Business Class

Depending on the functions used, one or more of the following programs might be required:

- CICS Transaction Server for z/OS V5 (5655-Y04)
- CICS Transaction Server for z/OS Value Unit Edition V5 (5722-DFJ)
- CICS Transaction Server for z/OS V4 (5655-S97)
- CICS Transaction Server for z/OS V3 (5655-M15)
- IBM DB2 11 for z/OS (5615-DB2)
- IBM DB2 11 for z/OS Value Unit Edition (5697-P43)
- IBM DB2 10 for z/OS (5605-DB2)
- IBM DB2 10 for z/OS Value Unit Edition (5697-P31)
- IBM IMS V13 (5635-A04)
- IBM IMS Transaction Manager Value Unit Edition V13 (5655-TM2)
- IBM IMS Database Value Unit Edition V13 (5655-DSM)
- IBM IMS V12 (5635-A03)
- IBM IMS Transaction Manager Value Unit Edition V12 (5655-TM1)
- IBM IMS Database Value Unit Edition V12 (5655-DSQ)
- IBM DFSORT optional feature of z/OS V1.13 (5694-A01) or z/OS V2 (5650-ZOS)
- IBM High Level Assembler/MVS and VM and VSE (5696-234)
- IBM 31-bit SDK for z/OS, Java Technology Edition V8.0 (5655-DGG)
- IBM 31-bit SDK for z/OS, Java Technology Edition V7.0 (5655-W43)
- IBM 31-bit SDK for z/OS, Java Technology Edition V6.0 (5655-R31)
- IBM Debug Tool for z/OS V13.1 (5655-Q10)
- IBM Debug Tool for z/OS V12.1 (5655-W70)
- IBM Fault Analyzer for z/OS V13.1 (5655-Q11)
- IBM Fault Analyzer for z/OS V12.1 (5655-W69)
- IBM File Manager for z/OS V13.1 (5655-Q12)
- IBM File Manager for z/OS V12.1 (5655-W68)
- IBM Application Performance Analyzer for z/OS V13.1 (5655-Q09)

- IBM Application Performance Analyzer for z/OS V12.1 (5655-W71)
- IBM Rational Developer for System z, V9 (5724-T07)
- COBOL Report Writer Release 4 (5798-DYR, 5798-DZX)
- Enterprise COBOL for z/OS, V4 (5655-S71)
- Enterprise COBOL for z/OS and OS/390, V3 (5655-G53)
- Enterprise PL/I for z/OS, V4 (5655-W67)
- Enterprise PL/I for z/OS, V3 (5655-H31)
- For XL C/C++ with Enterprise COBOL -- You must use the XL C/C++ feature of z/OS V1.13 (5694-A01) or z/OS V2 (5650-ZOS)
- IBM VS FORTRAN V2 (5668-806, 5688-087)

Upgrade to Enterprise COBOL for z/OS V5.2

Upgrade to the latest Enterprise COBOL compiler and get more out of your zEnterprise investment and stay ahead of competitors on the technology curve.

For more information

To learn more about IBM Enterprise COBOL for z/OS V5.2, contact your IBM representative or IBM Business Partner, or visit: Enterprise COBOL for z/OS at www.ibm.com/software/products/us/en/entecoboforzos/

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January 2015
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