IBM Enterprise COBOL for z/OS and OS/390 V3.2 Integrates COBOL Business and Web-Oriented Processes

Overview
The goal of Enterprise COBOL V3.2 is to enable developers to leverage more than 30 years’ worth of applications in new endeavors. It gives you the needed COBOL function to begin integration of both COBOL and Web-oriented business processes. This release provides:

• Support for the new advanced functions in Debug Tool
• Enhancements to object-oriented COBOL and Java™ interoperability
• Enhanced use of Unicode data in COBOL DB2® applications
• Simplified componentization of COBOL programs and interoperability enabled with Java components across distributed applications

Key Prerequisites
One of the following:

• z/OS™ V1.1 (5694-A01), or later
• OS/390® V2.10 (5647-A01), or later

Depending on the function used, certain levels of other programs may be required. Refer to the Software Requirements section for details.

Planned Availability Date
September 27, 2002

At a Glance

IBM Enterprise COBOL for z/OS and OS/390 V3.2 provides the following new functions:

• Support for new advanced functions in Debug Tool
• Enhanced Java interoperability
• Enhanced COBOL DB2 Unicode support

For ordering, contact:
Your IBM representative, an IBM Business Partner, or IBM Americas Call Centers at 800-IBM-CALL

Reference: LE001
**Compiler Enhancements**

**Enhancement to Object-Oriented COBOL and Java Interoperability:** Applications using object-oriented syntax for Java interoperability can now be executed in IMS™ environments. Mixed COBOL and Java applications may be executed in the new IMS Java-dependent regions that are provided in IMS V8, and also in IMS V7 via a program temporary fix (PTF). These applications are supported in both Java Message Processing (JMP) and in Java Batch Processing (JBP) regions. This support provides the ability to build an application with IMS message processing in a Java class and IMS database access in a COBOL routine. It also supports an application with IMS message processing logic in a COBOL “main” method, and that invokes other Java or COBOL routines that perform IMS database access.

Object-oriented COBOL class definitions may now define a “main” method, and can be directly executed using the Java command.

The OPTIMIZE compiler option is now fully supported for programs containing object-oriented syntax for Java interoperability.

A new environment variable, COBJVMINITOPTIONS, is now provided, enabling the user to specify options that will be used when COBOL initializes a Java virtual machine (JVM). In particular, this capability facilitates execution of COBOL programs that use J2EE client interfaces to invoke methods on enterprise beans running in WebSphere® z/OS or 390.

**Using Unicode in DB2 COBOL Applications:** The DB2-COBOL co-processor support has been enhanced so that when host variables are specified in SQL statements it is no longer necessary, in most cases, to specify the code pages for the host variables declared with USAGE NATIONAL, DISPLAY, or DISPLAY-1 using the SQL DECLARE VARIABLE statements.

**Support for Debug Tool**

The Enterprise COBOL compiler is enhanced in V3.2 to support the new level of Debug Tool included in either the Full Function offering, or, as the separate, new IBM Debug Tool for z/OS and OS/390 V3 product. Included in the compiler is support for the following new Debug Tool feature:

**Optimized Code Debug Support:** This support provides enhanced optimized code debug capability for COBOL programs compiled with the OPT(STD) or OPT(FULL) compiler options. You can set breakpoints to suspend the execution of the program, and inspect the contents of data items. You can step through your program one statement at a time, or resume execution until the next breakpoint is encountered. Automonitoring of variables and the playback function, which provides a “reverse review” capability, is supported for optimized programs.

**Support for Debug Tool Utilities and Advanced Functions**

The Enterprise COBOL compiler is enhanced in V3.2 to support the new, optional, separately-purchased IBM Debug Tool Utilities and Advanced Functions for z/OS and OS/390 V3 product, which includes the following new features.

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**Playback Support:** This support allows you to replay and review the application execution paths and data values starting at the point where you begin recording. You can simulate the backward execution of the application and review application data values using appropriate debug tool commands.

**AutoMonitor Support:** This support automatically displays, in the Monitor window, the values of the variables referenced in the current statement. The values are displayed when Debug Tool gets control, for example, when you step to a statement or when a breakpoint is reached. Data items referenced by the current statement while the automonitor is in effect are automatically selected for monitoring and are displayed in the Debug Tool Monitor window and/or the Debug Tool log. Those explicitly selected for monitoring will also be displayed in the Monitor window.

**TEST Compiler Option:** The Debug Tool GOTO command is now enabled for programs compiled with the NOOPTIMIZE option and any variant of the TEST option. Programs compiled with the options OPTIMIZE and TEST(NONE,SYM,xxx) are now supported for debugging with the Debug Tool.

For more information on the new IBM Debug Tool Utilities and Advanced Functions for z/OS and OS/390 V3 product refer to Software Announcement 202-193, dated August 20, 2002.

**Full Function Versus Alternate Function Offerings**

The mainframe interactive debug tool is offered with the Enterprise COBOL compiler in what is called the Full Function offering. This debug tool is a common facility that supports:

- Enterprise COBOL for z/OS and OS/390
- Enterprise PL/I for z/OS and OS/390
- COBOL for OS/390 and VM
- COBOL for MVS™ and VM
- VisualAge® PL/I for OS/390
- PL/I for MVS and VM
- z/OS C/C++ optional feature
- OS/390 C/C++ optional feature

Only one Full Function offering is required for debugging applications written using any of these programming products. An Alternate Function offering is available for customers who do wish to receive the Enterprise COBOL for z/OS and OS/390 compiler but not the debug tool.

The debug tool is also offered as a separate product, IBM Debug Tool for z/OS and OS/390 V3.1. For more information about the functionality offered in the debug tool, refer to Software Announcement 202-194, dated August 20, 2002.

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**Hardware and Software Support Services**

**SmoothStart®/Installation Services**

IBM SmoothStart and Installation Services are not provided.
Trademarks

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Java is a trademark of Sun Microsystems, Inc.
Other company, product, and service names may be trademarks or service marks of others.
Technical Information

Specified Operating Environment

Hardware Requirements: Enterprise COBOL for z/OS™ and OS/390® will run on any hardware configuration supported by the licensed programs specified below.

Note: The COBOL support for the Debug Tool playback support requires a hardware level available in ESA/390 and z/Architecture that supports the compare-and-move-extended facility and the Compare Until Substring Equal instruction.

Software Requirements: Unless otherwise announced by IBM, Enterprise COBOL for z/OS and OS/390 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 programs listed below that require program temporary fixes (PTFs), refer to the program directory, the customization guide, and the preventive support planning (PSP) bucket.

Required Licensed Programs

- One of the following:
  - z/OS V1.1 (5694-A01) or later
  - OS/390 V2.10 (5647-A01)

Optional Licensed Programs

- CICS Transaction Server for OS/390 V1 (5655-147).
- CICS Transaction Server for z/OS V2 (5697-E93).
  - V2 of CICS Transaction Server is required to use the Integrated CICS Translator support.
- DB2® UDB for OS/390 V6 (5645-DB2).
- DB2 UDB for OS/390 V7 (5675-DB2).
  - V7 of DB2 UDB is required for DB2 coprocessor support.
- Debug Tool for z/OS and OS/390 V3.1 (5655-H32).
- Debug Tool Utilities and Advanced Functions for z/OS and OS/390 V3.1 (5655-J18).
- DFSORT™ R13 (5740-SM1).
- High Level Assembler/MVS™ and VM and VSE (5696-234).
- IMS/ESA® V6 (5655-158).
- IMS/ESA V7 (5655-B01).
- IMS™ V8 (5655-C56).

Compatibility: The following summarizes the compatibility characteristics of IBM Enterprise COBOL for z/OS and OS/390 V3. Full details will be provided in the Migration Guide and the Licensed Programming Specifications.

IBM Enterprise COBOL for z/OS and OS/390 V3 provides source code and object code compatibility with its predecessor product, IBM COBOL for OS/390 and VM V2, with the following exceptions:

- The CMPR2 compiler option has been removed, so source programs still using VS COBOL II R1 or R2 level syntax must be migrated to conform to ANS/ISO COBOL 85 standard rules before they can be compiled with IBM Enterprise COBOL V3.
- SOM-based OO COBOL applications are no longer supported. Object-oriented COBOL syntax is retargeted for Java-based OO programming. Further, the primary purpose of the object-oriented syntax is not stand-alone OO COBOL programming. The syntax is intended to facilitate interoperation of COBOL and Java.
- Support for the VM/CMS environment is not provided in this product.
- New reserved words are defined.
- In addition to CMPR2, the ANALYZE, FLAGMIG, IDLGEN, and TYPECHK compiler options are removed.
- The pseudo-assembly listing produced by the LIST compiler option is slightly changed, which may impact development tools that process the listing. IBM recommends that such tools use the ADATA compiler option to obtain desired information about the compilation, rather than the listing.
- The defaults for compiler options DBCS, FLAG, RENT and XREF have been changed from NODBCS to DBCS, FLAG(I) TO FLAG(I,I), NORENT to RENT and NOXREF to XREF(FULL).
Planning Information

Packaging
The Enterprise COBOL for z/OS and OS/390 V3 package includes:

- Basic machine-readable material on the customer-selected distribution medium
- Program Directory (GI10-8423)
- Licensed Program Specifications (GC27-1411)

Security, Auditability, and Control
The announced program uses the security and auditability features of the host operating system software. The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communication facilities.

Ordering Information

Current Licensees
Current licensees of IBM Enterprise COBOL for z/OS and OS/390 V3.1 will be sent a program reorder form that can be returned directly to IBM Software Delivery and Fulfillment.

Reorder forms are scheduled to be mailed by two weeks after planned availability. Reorder forms returned to IBM Software Delivery and Fulfillment will be processed within 10 workdays of receipt. When V3.2 is available, V3.1 will no longer be available.

New Licensees
For ordering information on IBM Enterprise COBOL for z/OS and OS/390 V3 refer to Software Announcement 201-343, dated November 27, 2001.

Orders for new licenses can be placed now.

- Customers whose orders ship before the planned availability will receive IBM Enterprise COBOL for z/OS and OS/390 V3.1.
- Customers whose orders ship after the planned availability date will receive IBM Enterprise COBOL for z/OS and OS/390 V3.2.
- New users of IBM Enterprise COBOL for z/OS and OS/390 V3 should specify Type: 5655 Model: G53

For ordering information on IBM Enterprise COBOL for z/OS and OS/390 V3 refer to Software Announcement 201-343, dated November 27, 2001.

Unlicensed Documentation: A Program Directory (GI10-8423) and Licensed Program Specifications (GC27-1411) are supplied automatically with the basic machine-readable material. No other hardcopy publications are shipped with the product.

Displayable Softcopy Publications: All IBM Enterprise COBOL for z/OS and OS/390 V3 publications are available free of charge in displayable softcopy format (BookManager® and PDF) from the IBM COBOL Web site:

http://www.ibm.com/software/ad/cobol

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

Terms and Conditions
The terms for IBM Enterprise COBOL for z/OS and OS/390 V3 as previously announced in Software Announcement 201-343, dated November 27, 2001, licensed under the IBM Customer Agreement are unaffected by this announcement.

IBM Operational Support Services — Support Line: Yes

Prices
The pricing for IBM Enterprise COBOL for z/OS and OS/390 V3 as previously announced in Software Announcement 201-343, dated November 27, 2001, is unaffected by this announcement.

Entry Support License OTC: An OTC authorizes use only on IBM Entry End User/390 machines.

Global Financing
IBM Global Financing offers competitive financing to credit-qualified customers to assist them in acquiring IT solutions. Our offerings include financing for IT acquisition, including hardware, software, and services, both from IBM and other manufacturers or vendors. Offerings (for all customer segments: small, medium, and large enterprise), rates, terms, and availability can vary by country. Contact your local IBM Global Financing organization or visit the Web at:

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Note: Shipments will begin after the planned availability date.