IBM COBOL for OS/390 & VM V2R2

Overview

IBM COBOL for OS/390® & VM Version 2 gives you the COBOL function you need on the S/390® platform to strengthen your program development efforts and optimize your existing applications. With Version 2, you can strategically position your application development for today’s rapidly changing marketplace.

This new release further enhances your development on the OS/390 platform by providing:

• Support for the development and execution of COBOL applications in the OS/390 UNIX® System Services environment
• Improved S/390 platform support using 31-digit decimal data support, TRUNC(BIN) performance enhancement, and a new COMP-5 data type
• Enhanced capabilities for debugging production applications
• Improved usability with the new DB2® coprocessor support for COBOL programs containing SQL statements

Key Prerequisites

One of the following:

• OS/390 Version 2 Release 4 (5647-A01), or later
• VM/ESA® Version 2 Release 3 (5654-030), 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 Dates

• OS/390 — September 29, 2000
• VM/ESA — October 27, 2000

At a Glance

IBM COBOL for OS/390 & VM V2R2 provides:

• New 31-Digit Decimal Data Support
• Debugging Enhancements
• TRUNC(BIN) Performance Enhancement
• New COMP-5 Data Type
• OS/390 UNIX System Services
• DB2 Coprocessor Integration
• Millennium Language Extensions

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Reference: LE001

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New 31-Digit Decimal Data

Support for decimal data is enhanced by raising the maximum precision from 18 to 31 digits and providing an extended-precision mode for intermediate result calculations in arithmetic statements. The new support is controlled by a new compiler option, ARITH.

Debugging Enhancements

The ability to debug production applications is enhanced by:

- Optionally enabling the COBOL program for debugging using overlay hooks rather than the compiled-in hooks that can have some performance impact
- Optionally generating the COBOL symbolic debugging information in a file separate from the object module, thus avoiding large memory requirements for load modules in production
- Using the Debug Tool to support debugging of COBOL applications running in the OS/390 UNIX environment, via the remote interface

Production debugging capability is available in the MVS®/TSO, OS/390 UNIX, and CICS® environments.

TRUNC(BIN) Performance Enhancement

The TRUNC(BIN) compiler option has been redesigned to help improve the performance of operations on binary data that require binary truncation rather than the standard COBOL truncation at base-10 picture descriptions. The performance benefit is designed to apply primarily to halfword and fullword binary data and is particularly applicable to COBOL applications executing on CMOS processors.

New COMP-5 Data Type

Data items declared with USAGE COMP-5 are represented in storage as binary data and may contain values of magnitude up to the capacity of the native binary representation (2, 4, or 8 bytes) instead of being limited to the value implied by the number of nines in the picture for the item.

OS/390 UNIX System Services

Mainframe COBOL is enhanced to support application development and execution in the OS/390 UNIX System Services environment:

- Development-time HFS support is provided for COBOL source files, COPY books, object modules, listings, IDL files, ADATA files, and executable modules.
- A command compiles and links COBOL programs within the OS/390 UNIX shell.
- COPY/BASIS processing is available.
- An OS/390 UNIX COBOL application may be run from the following OS/390 UNIX execution applications: OS/390 shell, OS/390 ISPF shell, TSO/E, and OS/390 batch.
- COBOL programs may call the standard UNIX/Posix functions, which are shipped as part of the OS/390 Language Environment® element.

- COBOL programs executing under OS/390 UNIX may access both HFS files and traditional MVS data sets.
- The DISPLAY statement is enhanced to optionally route the DISPLAY output to HFS, to stdout, or to stderr.
- The format-1 ACCEPT statement is enhanced to optionally obtain input from the HFS, or from stdin.

DB2 Coprocessor Integration

COBOL programs containing SQL statements will no longer require precompilation with the DB2 precompiler. With the coprocessor, both native COBOL and imbedded SQL statements in the source program are handled by the COBOL compiler. When the compiler encounters SQL statements, it interfaces with the DB2 coprocessor. The DB2 coprocessor takes appropriate action and returns to the compiler any native language statements that must be generated. The use of a coprocessor provides improved usability and the highest level of function. In particular, interactive debugging with the Debug Tool is enhanced with coprocessor support. Previously, the application would have been debugged at the level of the expanded source produced by the DB2 precompiler. With the new DB2 coprocessor support, the application can now be debugged at the original source level.

Millennium Language Extensions

With this release, the Millennium Language Extensions are included in the base product. There is no longer a need to order and install the separate Millennium Language Extension product.

Other Enhancements

V2R2 also includes the following enhancements:

- Enhanced I/O, permitting dynamic file allocation via an environment variable
- Support for linking of COBOL applications using the DFSMS™ binder alone, with the prelinker required only in exceptional cases under CICS
- Diagnosis of moves that result in numeric truncation enabled via compiler option
- System-determined block size for the listing data set available by specifying BLKSIZE=0
- Limit on block size of QSAM tape files raised to 2 GB
- Support under CICS for DISPLAY to the system logical output device and ACCEPT for obtaining date and time

Year 2000

This product is Year 2000 ready. When used in accordance with its associated documentation, it is capable of correctly processing, providing, and/or receiving date data within and between the twentieth and twenty-first centuries, provided that all products (for example, hardware, software, and firmware) used with the product properly exchange accurate date data with it.

Euro Currency

This program is EuroReady.

For more information on the implications of the euro, visit the IBM euro Web site at:

http://www.ibm.com/euro
**EuroReady Products:** IBM considers an IBM product to be EuroReady if the product, when used in accordance with its associated documentation, is capable of correctly processing monetary data in the euro denomination and of respecting the euro currency formatting conventions (including the euro sign). This assumes that all other products (for example, hardware, software, and firmware) that are used with this product are also EuroReady. IBM hardware products that are EuroReady may or may not have an engraved euro sign key on their keyboards.

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Therefore, such IBM products will be designated as Hardware ready.

**EuroReady Solutions:** IBM considers a solution to be EuroReady when the solution providers have:

- Analyzed the euro requirements, including the need to comply with relevant EC rules
- Built in appropriate function

and can clearly demonstrate this by:

- Detailing euro related requirements
- Describing how these will be implemented in the solution
- Declaring when the implementation will be generally available

The euro capabilities of a EuroReady solution will be clearly identified as features of the Solution specification as described in the contracts document.

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**Hardware and Software Support Services**

**SmoothStart™/Installation Services**

SmoothStart and Installation Services are not provided.

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Technical Information

Specified Operating Environment

Hardware Requirements: IBM COBOL for OS/390® & VM will run on any hardware configuration supported by the licensed programs specified below.

Note: When the ARITH(EXTEND) compiler option is specified, the ESA/390™ HFP-extensions package is required for application execution. Support for this capability is available in G5 or later processors, or in the software emulation provided in OS/390 V2R6 or later. Software emulation is not available on VM/ESA®.

Software Requirements: Unless otherwise announced by IBM, IBM COBOL for OS/390 & VM V2R2 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 and customization publications that ship with the product.

Required Licensed Programs

One of the following:

- OS/390 Version 2 Release 4 (5647-A01)
  
  Note: The DFSMS™ element at OS/390 V2R10 or later is required to use the QSAM large block size support.

- VM/ESA Version 2 Release 3 (5654-030)

Optional Licensed Programs

- C for VM/ESA V3R1 (5654-033)
  - C/C++ for MVS/ESA™ Version 3 (5655-121)
  - CICS/ESA® V4R1 (5655-018)
  - CICS® Transaction Server for OS/390 R1 (5655-147)
  - COBOL for MVS™ & VM V1R2 (5688-197)
  - COBOL Report Writer R4 (5798-DYR, 5798-DZX)
  - DB2® for OS/390 V5 (5655-DB2)
  - DB2 UDB for OS/390 V6 (5645-DB2)
  - DB2 UDB for OS/390 V7 (5675-DB2)—Note: V7 or later is required for the DB2 coprocessor integration support.
  - DFSORT™ R13 (5740-SM1)
  - DFSORT/CMS V2 (5684-134)
  - High Level Assembler/MVS & VM & VSE (5696-234)
  - IMS/ESA® V5 (5695-176)
  - IMS/ESA V6 (5655-158)
  - IMS/ESA V7 (5655-B01)

- OS PL/I V2R3 (5668-909, 5668-910, 5668-911)
- PL/I for MVS & VM R1.1 (5688-235)
- VisualAge® PL/I for OS/390 V2R2 (5655-B22)
- SQL/DS™ V3R5 (5688-103)
- TCP/IP V3R2 for MVS (5655-HAL)
- VS FORTRAN V2 (5668-806, 5688-087)
- VSE/VSAM for VM V6 (5686-081)

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.

Customer Financing

IBM Global Financing offers attractive financing to credit-qualified commercial and government customers and Business Partners in more than 40 countries around the world. IBM Global Financing is provided by the IBM Credit Corporation in the United States. Offerings, rates, terms, and availability may vary by country. Contact your local IBM Global Financing organization. Country organizations are listed on the Web at:

http://www.financing.ibm.com

Ordering Information

Current Licensees

Current licensees of IBM COBOL for OS/390 and VM V2R1 will be sent a program reorder form that may be returned directly to IBM Software Delivery and Fulfillment (SDF). These reorder forms are scheduled to be mailed two weeks after planned availability. Reorder forms returned to SDF will be processed within 10 workdays of receipt. When V2R2 is available, V2R1 will no longer be available.

New Licensees

The ordering information for IBM COBOL for OS/390 & VM Version 2 as previously announced in Software Announcement 297-131, dated May 6, 1997, is unaffected by this announcement.

- Orders for new licenses can be placed now.
- Shipment will not occur before the availability date.
- Shipment will begin on the planned availability date.

This announcement is provided for your information only. For additional information, contact your IBM representative, call 800-IBM-4YOU, or visit the IBM home page at: http://www.ibm.com.
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.

New users of IBM COBOL for OS/390 & VM Version 2 should specify:

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Unlicensed Documentation: A memo to users, program directory, and one copy of the following publications are supplied automatically with the basic machine-readable material:

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<tr>
<th>Title</th>
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<tr>
<td>COBOL for OS/390 &amp; VM</td>
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<tr>
<td>Customization under OS/390</td>
<td></td>
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<tr>
<td>COBOL for OS/390 &amp; VM</td>
<td>GC26-9044</td>
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<tr>
<td>Licensed Program Specifications</td>
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The following optional publications will be available by October 20, 2000:

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<tr>
<td>COBOL for OS/390 &amp; VM Programming Guide</td>
<td>SC26-9049</td>
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<tr>
<td>IBM COBOL Language Reference</td>
<td>SC26-9046</td>
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<tr>
<td>Debug Tool User Guide and Reference</td>
<td>SC09-2137</td>
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The following optional publication will be available by October 27, 2000:

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<tr>
<td>COBOL for OS/390 &amp; VM Compiler and Run-Time Migration Guide</td>
<td>GC26-4764</td>
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Copies of unlicensed publications will be available for a fee after product availability. These copies may be ordered via direct order or you may contact your IBM representative.

Withdrawal of Publications Feature Numbers: Effective immediately, optional publications feature numbers 7048 and 7049 are withdrawn.

Displayable Softcopy Publications: All IBM COBOL for OS/390 & VM Version 2 unlicensed publications are available free of charge in displayable softcopy format (BookManager®, PDF) on the IBM COBOL Web site at: http://www.ibm.com/software/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.

Terms and Conditions

The terms for IBM COBOL for OS/390 & VM Version 2 as previously announced in Software Announcement 297-131, dated May 6, 1997, licensed under the IBM Customer Agreement are unaffected by this announcement.

Support Line: Yes

Charges

The charges for IBM COBOL for OS/390 & VM Version 2 as previously announced in Software Announcement 297-131, dated May 6, 1997, are unaffected by this announcement.

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Note: Shipments will begin after the planned availability date.

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Year 2000 Readiness Disclosure