Enterprise PL/I for z/OS, Version 4 Release 3 — Program Number 5655-W67

With IBM® Enterprise PL/I for z/OS® V4R3, you can get more than 30 years of IBM experience in application development to facilitate your new On Demand Business endeavors. Enterprise PL/I helps you integrate PL/I and web-based business processes in web services, XML, Java, and PL/I applications. This interoperability of the compiler lets you capitalize on existing IT investment while smoothly incorporating new, web-based applications as part of your organization's infrastructure.

Enterprise PL/I is a leading-edge, IBM z/OS-based compiler that helps you create and maintain mission-critical, line-of-business PL/I applications to execute on your z/OS systems. It offers access to IBM DB2®, IBM CICS®, and IBM IMS™ systems, and other data and transaction systems.

**Highlights**

The following enhancements and improvements are added in Enterprise PL/I for z/OS V4R3:

- Exploitation of the latest hardware architecture, IBM zEnterprise™ EC12, for improved compiler performance
- SQL preprocessor and SQL support enhancements
- Productivity improvements, many of them customer-requested

**Performance improvements**

Enterprise PL/I for z/OS V4R3 contains the following performance improvements:

- The new ARCH(10) compiler option produces code that uses instructions available on the 2827-xxx models.
- The compiler uses some of these new instructions to improve the performance of some conversions from PICTURE to FIXED BIN and from PICTURE to FLOAT.
- Inlined code (rather than calls to library routines) is now used for:
  - VERIFY and SEARCH when they have 3 arguments and the second is a single character
  - More conversions from PICTURE to DFP
  - More conversions of BIT to CHAR
  - More conversions of BIT to WIDECHAR
- The compiler generates faster code for TRIM of FIXED DEC.
- The compiler generates code to get and set nonnative string lengths faster.

**Middleware support enhancements**

Enterprise PL/I for z/OS V4R3 contains the following enhancements on middleware support:

- The SQL preprocessor includes the following improvements:
  - It supports the ONEPASS SQL option.
  - It supports the new DEPRECATE option, so that you can deprecate the use of these EXEC SQL statements:
    - EXPLAIN
    - GRANT
    - REVOKE
    - SET CURRENT SOLID
- Host variable declarations can use some restricted expressions.
- Variables declared with the LIKE attribute can be used as host variables.
- The listing of the EXEC SQL statement is now displayed in a readable format that is similar to the original source.
- Missing and extraneous END statements are now flagged, helping make it easier to track down syntax errors that cause problems in resolving host variable references.
Productivity enhancements requested by compiler users

Enterprise PL/I for z/OS V4R3 contains improvements that help to increase productivity and that are made according to user requests:

- The new UTF8, UTF8TOCHAR, and UTF8TOWCHAR built-in functions:
  - Provide the ability to convert between CHAR and UTF-8 with sensitivity to the CODEPAGE option.
  - Simplify conversions between UTF-8 and UTF-16.
  - Allow you to create UTF-8 literals and initialize static variables with UTF-8 data.
- With the new MSGSUMMARY compiler option, you can request that the listing include a brief and useful summary of the messages that are produced in a compilation and, optionally, where those messages are issued.
- With the new CASERULES compiler option, you can specify casing rules to be applied to PL/I keywords. For example, you can specify that all keywords must be in uppercase.
- The new STMT suboption of the DEPRECATE compiler option allows the deprecation of a wide range of statements.
- The new DEPRECATENEXT compiler option allows the staged deprecation of any of the items you can specify in the deprecate option.
- The new ALLCOMPARE built-in function supports comparing structures.
- The new ASSERT statement helps make it easier to verify the correctness of a program.
- The RTCHECK compiler option is expanded to allow the checking for dereferencing of pointers that are equal to the old NULL() value, namely, pointers with the hex value of ’FF000000’x.
- The maximum length of WIDECHAR strings is increased to 32767 so that it matches the limit for CHAR and BIT.
- The RULES compiler option is enhanced so that you can flag the use of the following items:
  - CONTROLED variables by using the NOCONTROL suboption
  - RECURSIVE procedures by using the NORECURSIVE suboption
  - Nested procedures that occur in executable code by using the NOLAXNESTED suboption
  - Assignments with the form of x = y = z by using the NOLAXIF suboption
- The RULES(NOLAXSCALE) option now flags ROUND(x,p) when p is negative with a different message from the one that is issued when the option flags declarations with a negative scale factor. With this difference, you can use the EXIT option to suppress one message while keeping the other.
- The SUPPRESS attribute can now be used on PROCEDURE statements so that you can direct the compiler not to flag selected procedures when the procedures are unreferenced or in violation of RULES(NOLAXNESTED).
- The support of handles is enhanced as follows:
  - Comparing handles with the same associated type.
  - Adding to and subtracting from handles with sensitivity to the associated structure type.
  - Computing the difference of two handles with sensitivity to the associated structure type.

Specified operating environment for Enterprise PL/I

This section lists the hardware and software requirements for IBM Enterprise PL/I for z/OS, Version 4 Release 3.

Hardware requirements

Enterprise PL/I for z/OS V4R3 runs only on the following (and later) IBM servers:
- IBM zEnterprise EC12, or later
- zEnterprise 196, or later
- z10™ Enterprise Class, or later
- IBM System z9® Enterprise Class or z9 Business Class, or later
- zSeries® or z990, or later
- zSeries or z890, or later

Software requirements

Enterprise PL/I for z/OS V4R3 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 about programs listed in the following section that require program temporary fixes (PTFs), see the Program Directory and the preventive service planning (PSP) bucket.
Required licensed programs
Enterprise PL/I and its generated object programs run under the following zSeries operating system:
- z/OS, Version 1 Release 1.12 (5694-A01) or later

Optional licensed programs
If you use the following programs with Enterprise PL/I, you must use the minimum release or later as stated in the following list:
- CICS Transaction Server for z/OS, Version 4 (5655-S97)
- CICS Transaction Server for z/OS, Version 3 (5655-M15)
- Enterprise COBOL for z/OS Version 4 (5655-S71)
- Enterprise COBOL for z/OS and OS/390® Version 3 (5655-C53)
- IBM DB2 10 for z/OS (5605-DB2)
- IBM DB2 10 for z/OS VUE (5697-P31)
- IBM DB2 for z/OS Version 9 (5635-DB2)
- IBM DB2 for z/OS Version 9 VUE (5697-P12)
- IBM Debug Tool for z/OS, Version 12 (5655-W70)
- IBM Debug Tool for z/OS, Version 11 (5655-W65)
- IBM Debug Tool for z/OS, Version 10 (5655-V50)
- IBM Debug Tool for z/OS, Version 9 (5655-U27)
- Debug Tool for z/OS, Version 8 (5655-S17)
- Debug Tool Utilities and Advanced Functions for z/OS, Version 8 (5655-S16)
- IBM DFSORT element of z/OS (5694-A01) or OS/390® (5647-A01)
- IBM z/OS High Level Assembler/MVS and VM and VSE (5696-234)
- IBM IMS Version 11 (5635-A02)
- IBM IMS Version 10 (5635-A01)
- IBM IMS Version 9 (5655-J38)
- OS PL/I Version 2 Release 3 (5668-909, 5668-910, 5668-911)
- PL/I for MVS® & VM, Version 1 Release 1 (5688-235)
- IBM VS FORTRAN, Version 2 (5668-806, 5688-087)
- For C/C++ with Enterprise PL/I, you must use the XL C/C++ feature of z/OS (5694-A01).

Full Function Offering
As of September 8, 2008, IBM no longer offers the Full Function Offering with any version of the Enterprise PL/I for z/OS compiler.

The debugger functionality can be replaced by Debug Tool for z/OS.

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.

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This edition supersedes the previous W3C Recommendation of 16 August 2006.

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