

Enterprise PL/I for z/OS
6.1

Data Sheet

IBM

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This edition applies to Version 6 Release 1 of IBM® Enterprise PL/I for z/OS® (program number 5655-PL6) and to all subsequent releases and modifications until otherwise indicated in new editions. Make sure that you are using the correct edition for the level of the product.

You can view or download softcopy publications free of charge in the [Enterprise PL/I for z/OS library](#). Because Enterprise PL/I for z/OS supports the continuous delivery (CD) model and publications are updated to document the features delivered under the CD model, it is a good idea to check for updates once every two months.

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Chapter 1. Enable your PL/I applications to take advantage of the latest z/Architecture®

Enterprise PL/I is a leading-edge enterprise class PL/I compiler for IBM z/OS. It helps you to create and maintain mission-critical, line-of-business PL/I applications to execute on your z/OS operating systems. The applications that are created by using Enterprise PL/I can interoperate with IBM CICS®, Db2®, IMS, and other transactional and data systems.

Enterprise PL/I for z/OS® 6.1 delivers advanced compiler support, which not only enables you to take advantage of the latest IBM Z® hardware achievements, but also facilitates your new, on demand business endeavors by helping incorporate modern web technology, such as web services, XML, JSON and Java™ into your existing PL/I applications. With its enhanced capabilities, you can deliver new enhancements quicker, with less cost and lower risk.

Enterprise PL/I for z/OS 6.1 reinforces the continuing IBM commitment to the PL/I programming language on the z/OS operation systems and the continued delivery of new features. With Enterprise PL/I for z/OS 6.1, you can benefit from over 50 years of IBM experience in PL/I compiler innovation and development.

Chapter 2. Highlights

Enterprise PL/I for z/OS 6.1 delivers the following new and improved features:

- Utilization of the new IBM z16 processor and architecture
- Support for 31-bit to 64-bit interoperability and vice-versa so that you can extend your existing 31-bit (AMODE 31) PL/I programs to work with your 64-bit (AMODE 64) programs
- New and enhanced features that allow you to modernize your existing PL/I applications
- Features that allow for easier problem resolution to increase your productivity
- Features that improve support for date/time handling
- Inclusion of thirty additional features implemented in the previous release via the continuous delivery model.

Support for latest IBM z16 architecture

Enterprise PL/I for z/OS 6.1 incorporates leading-edge code generation and optimization technology to improve delivery of z/Architecture utilization, maximize hardware utilization, and help improve application performance.

Enterprise PL/I 6.1 adds support for the new vector-packed-decimal-enhancement facility 2 in z16 through the new ARCH(14) compiler option.

This new facility adds performance improvements for PL/I programs that contain statements using numeric-edited data items.

No source changes are required to take advantage of this new facility; just recompile with ARCH(14) to target z16.

31-bit and 64-bit interoperability

IBM Enterprise PL/I for z/OS 6.1 allows you to extend existing 31-bit (AMODE 31) PL/I programs to work with 64-bit (AMODE 64) PL/I programs by providing the addressing space needed to handle your growing PL/I program data without requiring you to convert the entire application to 64-bit. With this new feature, 31-bit code can invoke and be invoked by 64-bit code.

Disclaimer: Use of this feature requires z/OS Language Environment (LE) 2.4 with APARs PH43999 (31-bit) or PH44010 (64-bit), or z/OS LE 2.5 with APAR PH44011.

New and enhanced features that allow you to modernize your existing PL/I applications

- Building the compiler itself as a 64-bit application, thus enabling full compilation of much larger source programs
- Allowing the use of typed structures in JSON and PUT DATA statements
- Supporting an explicit CONFORMANCE condition
- Supporting the use of named constants in the JSONNAME attribute
- Predefining 2 integer types that will make it much easier to write code that will be correct for 32-bit and later for 64-bit
- Supporting the INITACROSS attribute which makes it easier to initialize some arrays (and especially those declared via DIMACROSS)
- Introducing a new built-in function that will compare 2 buffers and return the index where they differ

Easier problem resolution to increase your productivity

- Including the invalid index and array bounds in the messages produced when a SUBSCRIPTRANGE error occurs
- Including the invalid value and the source and target attributes when a SIZE error occurs
- Supporting tests of ORDINAL data via the VALID built-in function
- Additional flagging at compile-time of both risky and poor-performing code
- Introducing a compiler option to request that the compiler generate code to check that the source is not too big when a FLOAT is converted to FIXED DECIMAL

Improved support for date/time handling

- Supporting the date/time pattern YYYYMMDDHHMISS999999
- Providing a built-in function that will generate the PTF hardware instruction
- Inlining of REPATTERN when patterns use MMM and Mmm
- Inlining some VALIDDATE code

Performance improvements

- Generating better code for some common usage of FIXED DECIMAL and PICTURE variables
- Utilizing some of the new hardware instructions
- Internally reformatting some user SELECT statements and thereby improving both compile-time and run-time performance
- Generating better code for the ORDINALNAME, ORDINALPRED, and ORDINALSUCC built-in functions
- Generating better code for the INLIST and INARRAY built-in functions

Inclusion of features implemented in the previous release via the continuous delivery model

Enterprise PL/I for z/OS supports the continuous delivery model. Through continuous delivery, new features and enhancements are included in Program Temporary Fixes (PTFs) along with corrective and preventative service.

The continuous delivery model for this enterprise-level program reinforces the continuing IBM commitment to the PL/I programming language on the IBM z/OS platform. With the support of the continuous delivery model, you gain the benefit of immediate delivery of new compiler technology and new functions while taking advantage of more than 50 years of IBM experience in PL/I compiler and compiler related development.

Enterprise PL/I for z/OS 6.1 includes all of the Enterprise PL/I for z/OS 5.3 features delivered through continuous delivery. These features include:

- Expand open to allow specification of DD and member - in 64-bit
- Provide better detection of missing or superfluous end,), ;, etc
- Support RULES(NOUNSET)
- Flag more possible STRINGSIZE conditions
- Add option to cause matching unqualified name in parent block to be found
- Support the SUBTO built-in function
- Support LBI (Large Block Interface)
- Expand REGEX to return group offsets
- Allow NULLINIT and REINIT with DEFINEd STRUCTs
- Flag EXEC HANDLE CONDITION and EXEC SQL WHENEVER as violations of RULES(NOGOTO)

- Flag passing INONLY to INOUT, INONLY to OUTONLY, and NONASGN to ASGN
- Support +DD: in options strings in ibmziop
- Don't flag risky INONLY parms if OPTIONS(ASSEMBLER)
- Add ALL/SOURCE and STRICT/LOOSE suboptions to NOLAXINOUT
- Support XMLIGNORE attribute
- Allow XMLATTR with arrays if only dims are on parents
- Support the XMLOMIT attribute
- Support the XMLUCHAR built-in function
- Support DEFINE STRUCT types in XMLCHAR
- Support the JSONTRIMR attribute
- Support increased length limit for SYSPARM option
- Extend QUICKSORT to make it parallel to BINSEARCH
- Support SYSNAME, SYSNODE and SYSPLEX in GETSYSWORD
- Support DEC(CHECKFLOAT)
- Provide option so UUID and UUID4 return a lowercase result
- Support the date/time pattern YYYYMMDDHHMISS999999
- Support the NOEOLCOMM macro option
- Support PLIPARSE built-in subroutine
- Add new compiler messages for REPATTERN to avoid runtime errors with IBM
- Improve the RULES(NOLAXENTRY) option

Chapter 3. Other Enterprise PL/I for z/OS features

Handle big data requirements with 64-bit support

Enterprise PL/I for z/OS supports 64-bit applications with the LP(64) option. This means that all the storage limitations of 32-bit applications are lifted; your application can acquire and manipulate more than 2GB of total storage, and individual structures and arrays can now be larger than 2GB in size. In addition, Enterprise PL/I for z/OS enables you to make use of the removal of these data limits while using all the PL/I statements and functions as in your existing 32-bit applications.

Use of System Management Facilities records to ease administration

A new level of z/OS System Management Facilities (SMF) tracking support within Enterprise PL/I for z/OS, Version 6, allows you, when you have implemented sub-capacity tracking, to reduce your administrative reporting overhead.

SMF collects and records system and job related information that is used by the Sub-Capacity Reporting Tool (SCRT) to report on sub-capacity products.

With Version 6, Enterprise PL/I for z/OS is instrumented so it can be tracked by SMF89 records. If you have enabled the collection of SMF70 and SMF89 records on your machine and you are using SCRT to report the usage of the PL/I compiler, you will no longer have to tell SCRT where your PL/I compiler runs. Enterprise PL/I for z/OS, Version 6 can automatically be tracked by SMF89 records and is supported by SCRT Java release 23.13.4 and SCRT Classic release 23.7.4. You must use SCRT Java release 23.13.4 or SCRT Classic release 23.7.4, or a later release, whenever you use Enterprise PL/I for z/OS, Version 6.

In conjunction with the SMF record support, system administrators can now define a disablement policy through the SYSx.PARMLIB(IFAPRDxx) parameter library. This client-requested feature can be used to disable the use of the Enterprise PL/I for z/OS, Version 6 compiler within a specific z/OS system.

You continue to gain the benefits of implementing sub-capacity for Enterprise PL/I for z/OS, Version 6 while reducing your administrative overhead.

Provides compatibility for PL/I programs and Java components

Because it supports the Institute of Electrical and Electronics Engineers (IEEE) decimal floating point standard, the Enterprise PL/I for z/OS compiler can receive, manipulate, and send Java data without any translation.

To further improve Java interoperability, Enterprise PL/I for z/OS provides a thread-safe PL/I library and multithreading statements (ATTACH, WAIT, DETACH) as part of the PL/I language supported by the compiler.

Easier migration

The Enterprise PL/I for z/OS Compiler and Runtime Migration Guide provides you with helpful information you might need to move your existing OS PL/I V2 and PL/I for MVS & VM applications to the new runtime environment. Migrating to the new compiler allows your existing applications to take advantage of the many new functions available in Enterprise PL/I for z/OS and to enjoy the many performance benefits provided by the new compiler.

Cross-platform support and workstation-based development

Enterprise PL/I for z/OS is part of a family of compatible compilers, application development tools, and maintenance tools. Along with Enterprise PL/I for z/OS, IBM offers PL/I compilers for multiple platforms as well as IBM File Manager, IBM Fault Analyzer, and Debug Tool. The recommended workstation-based

development environment is IBM Developer for z/OS, which provides an interactive, workstation-based environment to help you create, maintain, and reuse applications.

Chapter 4. System requirements

The following table presents the system requirements for Enterprise PL/I for z/OS 6.1.

Software	Hardware
<p>Enterprise PL/I for z/OS 6.1 runs under the control of, or along with, the currently supported releases of the following programs and their subsequent releases or their equivalents. For more information about the following programs listed that require program temporary fixes (PTFs), refer to the <i>Program Directory</i> and the preventive service planning (PSP) bucket.</p> <p>Required licensed programs:</p> <ul style="list-style-type: none"> • z/OS 2.4 (5650-ZOS), or later <p>Optional licensed programs:</p> <p>Depending on the functions that are used, one or more of the following programs may be required:</p> <ul style="list-style-type: none"> • IBM CICS Transaction Server for z/OS 5 (5655-Y04) • IBM CICS Transaction Server for z/OS Value Unit Edition 5 (5722-DFJ) • Enterprise COBOL for z/OS 6 (5655-EC6) • Enterprise PL/I for z/OS 5 (5655-PL5) • IBM Debug for z/OS 15.0 (5755-Q50) • IBM Debug for z/OS 14.2 (5655-Q50) • IBM DFSORT element of z/OS (5650-ZOS) • IBM z/OS High Level Assembler/MVS and VM and VSE (5696-234) • IBM Fault Analyzer for z/OS 14.1 (5655-Q41) • IBM File Manager for z/OS 14.1 (5655-Q42) 	<p>Enterprise PL/I for z/OS 6.1 runs on the following IBM Z[®] servers:</p> <ul style="list-style-type: none"> • IBM z16 • IBM z15™ • IBM z14™ • IBM z13[®] • IBM z13s™ • IBM zEnterprise[®] EC12 (zEC12) • IBM zEnterprise BC12 (zBC12)
<p>Optional licensed programs (continued) :</p> <ul style="list-style-type: none"> • IBM Application Performance Analyzer for z/OS 14.2 (5655-Q49) • IBM IMS 15 (5635-A06) • IBM IMS Transaction Manager Value Unit Edition 15 (5655-TM4) • IBM Developer for z/OS 15 (5724-T07) • IBM Developer for z/OS 14.2 (5724-T07) • IBM VS FORTRAN 2 (5688-087) • IBM Application Delivery Foundation for z/OS 3.3 (5655-AC6) • IBM Application Delivery Foundation for z/OS 3.2 (5655-AC6) • For XL C/C++ with Enterprise PL/I, you must use the XL C/C++ feature of z/OS 2.4 (5650-ZOS), or later. 	

Chapter 5. Ordering information

Upgrade to the latest Enterprise PL/I compiler and get more out of your IBM Z investment and stay ahead of competitors on the technology curve.

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).

Shopz is available in the US, Canada, and several countries in Europe. In countries where Shopz is not available yet, contact your IBM representative (or IBM Business Partner) to handle your order through the traditional IBM ordering process.

- 5655-PL6 is the ordering Product ID (PID) for Enterprise PL/I for z/OS 6.
- 5655-EPL is the ordering Product ID for Enterprise PL/I Value Unit Edition for z/OS 6.
- 5655-EPS is the ordering Product ID for Enterprise PL/I Value Unit Edition for z/OS Subscription and Support.

Enterprise PL/I for z/OS is available through the Shopz website: www.ibm.com/software/shopzseries

Chapter 6. For more information

To learn more about IBM Enterprise PL/I for z/OS 6.1, contact your IBM representative or IBM Business Partner, or visit [Enterprise PL/I for z/OS](#).

To learn more about IBM Developer for z/OS software, visit www.ibm.com/software/rational/products/developer/systemz/

Chapter 7. Notices

References in this document to IBM products, programs, or services do not imply that IBM intends to make these available in all countries in which IBM operates. Any reference to an IBM program product in this publication is not intended to state or imply that only IBM's program product may be used. Any functionally equivalent program may be used instead.

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