IBM

Licensed Program Specifications

IBM DB2 11 for z/OS

Program number 5615-DB2

IBM® DB2® 11 for z/OS® is a relational database management system licensed program for the z/OS environment.

In this document, DB2 11 for z/OS is sometimes referred to as "DB2 for z/OS." In cases where the context makes the meaning clear, DB2 for z/OS is sometimes referred to as "DB2."

Highlights

DB2 for z/OS is a licensed program that supports the relational data model with a high-level language to access DB2 data. DB2 offers many functions in support of traditional database application areas, web and mobile devices, and business intelligence. The highlights of this licensed program and its functions are described below.

- **Relational data model:** DB2 provides a tabular data structure. Users view data as a series of rows and columns. DB2 for z/OS provides hybrid data-server support for both relational and pureXML® storage, with services to support both data structures.

- **Structured query language:** Structured query language (SQL) is a high-level language that is used for data manipulation, data definition, and control. SQL does not depend on data paths, placement, or order when it accesses relational databases. In DB2 11 for z/OS, enhancements to SQL facilitate easier portability of applications from other members of the DB2 family or from other database products.

- **pureXML:** DB2 for z/OS supports XML data. With pureXML, your client applications can manage XML data in DB2 tables. In DB2 11 for z/OS, enhancements to pureXML improve productivity, help optimize performance, and improve consistency across the DB2 family of products. Key enhancements include support for the XML data type for the cross-loader function, improved evaluation of some XPath predicate expressions, and improved performance when loading binary XML data.

- **Access to data:** DB2 provides robust availability and can be accessed by many applications, including:
  - IBM Information Management System (IMS™) Transaction Manager
  - IBM Customer Information Control System (CICS®) Transaction Server
  - IBM Time Sharing Option (TSO) users
  - IBM Data Server Driver Package
  - Web and mobile devices
  - WebSphere® Application Server
  - Batch jobs

  Application programs that run under the control of IMS Transaction Manager or the CICS Transaction Server can also access DB2 data, IMS data, or both. The data sharing function allows a group of DB2 subsystems to have concurrent access to the same data without replication.

  In addition, DB2 can access, or be accessed by, different instances of DB2 or by other database management systems that support Distributed Relational Database Architecture™ (DRDA®). These systems must be connected to the local DB2 subsystem by TCP/IP or Advanced Communication Facility/Virtual Telecommunications Access Method (ACF/VTAM). Each data sharing member or non-data sharing subsystem can have up to 150,000 concurrent connections; up to 20,000 of those connections can be active at one time. Data can be changed and read by more than one subsystem in a single unit of work, and the commit processing of all data is coordinated. Other programs can access the data at the same time.

- **Application programming:** Programmers can use integrated development environments (Java™, WebSphere Studio Enterprise Developer, or Microsoft .NET), many languages, and many access styles to access DB2. Users can access and manipulate DB2 data by using SQL through application programs that are written in Java, JavaScript, C#, APL2®, Perl, PHP, Ruby on Rails, SQL procedural language, REXX, C, C++, COBOL, Fortran, PL/I, or assembler language. C and C++ applications can use embedded SQL or ODBC. Programmers can write applications that are written in the Java programming language and that access DB2 for z/OS data or data on any DRDA server. These applications can access data either dynamically through JDBC or through static embedded SQL by using pureQuery® or SQLJ.

  You can use the following other methods to develop or run applications:
  - Use one of the several types of IBM data server clients and drivers if the application is running on a distributed environment, such as UNIX, Windows, or Linux.
  - Use one of the IBM DB2 Query Management Facility™ (QMF™) licensed programs.
  - Use IBM WebSphere Enterprise Developer to develop applications.
  - Use the IBM Rational® Developer for System z® application development workbench, which provides an integrated set of tools that support end-to-end, model-based development, runtime testing, and rapid deployment of simple and complex applications.
  - Use the integrated set of DB2 Development Add-Ins for Microsoft Visual Studio .NET that are provided through IBM Data Studio to support iterative development of server-side stored procedures and user-defined functions.
  - Use Optim™ Development Studio to develop and test SQL, PL/SQL, and Java database routines, generate and deploy database web services, create and run SQL and XQuery scripts, and develop Java database applications.
  - Use Optim pureQuery Runtime for z/OS to build high-quality, better performing database applications, and then deploy pureQuery or pureQuery-enabled Java applications to production environments.
  - Use the tools that are provided with Optim Query Workload Tuner to analyze queries and to analyze and monitor query workloads that run on data servers.
- **Migration:** DB2 11 for z/OS supports migration from DB2 10 for z/OS. Migration with fallback protection is available for customers who are running on DB2 10 for z/OS in new-function mode. In addition, DB2 Version 10 can coexist with Version 11 in a data sharing environment and in a distributed environment.

Optional features

The features that are described in this section work directly with DB2 for z/OS. Some of these features are available at no additional charge, and others are chargeable.

Chargeable features

IBM Data Server Driver Package: The IBM Data Server Driver Package along with a DB2 Connect™ license includes all of the functionality of IBM Data Server Client and provides the ability to connect to DB2 for z/OS. The following types of IBM data server clients and drivers are available:

- IBM Data Server Driver Package
- IBM Data Server Driver for JDBC and SQLJ
- IBM Data Server Driver for ODBC and CLI
- IBM Data Server Runtime Client

Each of the IBM data server clients and drivers provides a particular type of support.

DB2 Query Management Facility: DB2 Query Management Facility (DB2 QMF) is comprised of two optional features. DB2 QMF is packaged in the following editions:

- **DB2 QMF Enterprise Edition**, which provides the following licensed programs that support the entire DB2 QMF family of products:
  - DB2 QMF for TSO/CICS
  - DB2 QMF High Performance Option (HPO)
  - DB2 QMF Analytics for TSO
  - DB2 QMF for Workstation
  - DB2 QMF for WebSphere
- **DB2 QMF Classic Edition**, which provides the DB2 QMF for TSO/CICS program to support users who access DB2 databases entirely from traditional mainframe terminals and emulators.

Features available with no additional charge

z/OS Application Connectivity to DB2 for z/OS:z/OS Application Connectivity to DB2 for z/OS is a DB2 feature that provides a type 4 JDBC driver that is licensed for installation and use solely on z/OS. This driver is designed to deliver high performance and scalable remote connectivity for z/OS Java-based enterprise applications on z/OS to a remote DB2 for z/OS database server.

IBM DB2 Accessories Suite for z/OS: IBM DB2 Accessories Suite for z/OS provides DB2 for z/OS with expanded capabilities in the areas of spatial support, text search support, and Unicode support. This suite includes the following components:

- IBM Spatial Support for DB2 for z/OS
- IBM Text Search for DB2 for z/OS
- IBM International Components for Unicode for DB2 for z/OS
- Support for JSON capability, which bundles the necessary components that enable DB2 for z/OS to be used as a JSON document store

Specified operating environment

DB2 11 for z/OS has hardware and software requirements for the operating environment.

Hardware requirements

This section describes the supported processors, auxiliary storage requirements, supported data communication devices, and function-specifc hardware requirements for DB2 11 for z/OS.

Processors

DB2 11 for z/OS operates on z10™ or later processors that are running z/OS V1R13, or later.

The processor must have enough real storage to satisfy the combined requirements of the following items:

- DB2 11 for z/OS
- z/OS
- The appropriate DFSMS storage management subsystem components, access methods, telecommunications, batch requirements, and other customer required applications

DB2 11 for z/OS is expected to require increased real storage as compared to DB2 10 for z/OS.

The configuration must include sufficient I/O devices to support the requirements for system output, system residence, and system data sets. Sufficient disk storage must be available to satisfy the users'

information storage requirements. Disk storage can consist of any direct-access facility that is supported by the system configuration and the programming system.

Auxiliary storage

DB2 for z/OS is independent of both disk and tape device type. The customer can use any magnetic, optical, or tape device that is supported by the data facilities component of DFSMS or by the DB2 data sets. Tape products are not supported for databases but can be used for the DB2 archive log and utility functions.

The following DB2 data sets are supported by the following device types:
- Active recovery log data sets: disk
- Archive recovery log data sets: disk or tape
- Image copy data sets: disk or tape
- Bootstrap data sets: disk
- User data sets: disk or tape (if migrated by HSM)
- DB2 catalog data sets: disk
- Work data sets (for utilities): disk or tape

If these data sets are on a disk device that is shared with other z/OS systems, use global resource serialization to prevent concurrent access by more than one z/OS system.

The minimum disk space requirement, which is based on installing DB2 with the panel default values, is approximately 1.3 GB. Users need more disk space for their data.

For subsystems that use dual logging and tape for the log archiving device, at least two tape drives are needed.

Data communications devices

DB2 operations can be controlled from the following devices:
- The system console
- Authorized IMS Transaction Manager terminals
- Authorized CICS terminals
- TSO terminals (by authorized users)

For information about the data communication devices that are supported by IMS Transaction Manager, CICS, and z/OS, refer to the documentation for these products.

Function-dependent hardware requirements

Certain functions of DB2 11 for z/OS have associated hardware requirements, as specified in the following list. If you do not use these DB2 functions, the hardware requirements do not apply.
- **DRDA AES user ID password encryption:** DRDA AES user ID password encryption uses the following ICSF APIs: CSNEOWH, CSNERNG, CSNFPKB, CSNFPKE, CSNESYE, and CSNESYD. For more information about these APIs, including hardware requirements, see the *z/OS ICSF Application Programmer's Guide*.
- **DSNLEUSR stored procedure:** DSNLEUSR uses the following ICSF APIs: CSNBCKM, CSNBENC, and CSNEDEC. For more information about these APIs, including hardware requirements, see the *z/OS ICSF Application Programmer's Guide*.
- **Encryption and decryption functions:** Built-in functions for encryption and decryption require cryptographic hardware but can optionally use a cryptographic coprocessor, cryptographic accelerator, or set of cryptographic instructions.

- **Group buffer pool write-around support:** Group buffer pool write-around support requires coupling-facility control code (CFCC) and z/OS cross-system extended services (XES) support. The CFCC support is delivered in CFLEVEL 18 and rolled back to level 17. The z/OS XES support is delivered in z/OS Version 2 Release 1 and rolled back to z/OS Version 1 Release 12 and z/OS Version 1 Release 13. For more information about Coupling Facility (CF) levels, see www.ibm.com/systems/z/advantages/pso/cftable.html
- **2-GB frame size for buffer pools:** A 2-GB frame size requires a zEnterprise® EC12 processor.
- **Pageable 1-MB large pages:** Pageable 1-MB large pages require a zEnterprise EC12 processor and the Flash Express® feature (FC 0402).
- **DRDA data stream encryption:** DRDA data stream encryption uses the following ICSF APIs: CSNECKM, CSNERNG, CSNFPKB, CSNFPKE, CSNEENC, and CSNEDEC. For more information about these APIs, including hardware requirements, see the *z/OS ICSF Application Programmer's Guide*.

> **Note:** Where possible, the recommended method to secure connections is by using the z/OS Communications Server IP Application Transparent Transport Layer Security (AT-TLS).

Software requirements

This section lists licensed programs, or specific elements and features of licensed programs, that are required in the DB2 11 for z/OS environment. You can use later versions or releases of the programs unless stated otherwise. For example, z/OS Version 2.1 works with all currently supported DB2 for z/OS versions. This section also identifies the requirements that are associated with specific DB2 capabilities and optional programs that you can use with DB2 11 for z/OS. See the following websites for the most current information:

- Support Lifecycle: www.ibm.com/software/data/support/lifecycle/
- IBM Support Portal: www.ibm.com/software/data/db2/zos/support.html

Operating system and support programs

DB2 11 for z/OS requires the function that is provided by the following licensed programs or their equivalents, including later versions or releases:

- z/OS Version 1 Release 13 Base Services (5694-A01) with the following base and optional elements:
  - DFSMS Version 1 Release 13
  - Language Environment® Base Services
  - z/OS Version 1 Release 13 Security Server (RACF®)
- IRLM Version 2 Release 3 (delivered with DB2 11 for z/OS) plus APARs PM84765 and PM85053

  If DB2 11 for z/OS is installed with IRLM Version 2 Release 3 into the same SMP zone as any version of IMS with IRLM Version 2 Release 2, IRLM Version 2 Release 2 is deleted during the SMP/E installation of IRLM Version 2 Release 3.
- z/OS Unicode Services and appropriate conversion definitions.
- Version 11 of the DB2 Utilities Suite for z/OS (5655-W87) or an equivalent alternative function that provides some of the basic operation of a DBMS (including backup, recovery, reorganization, loading, and unloading of data, gathering of statistics, and checking of data, indexes, and large objects).

New functions are available only in new-function mode, unless explicitly stated otherwise in the product documentation. A general exception exists for optimization and virtual storage.

Virtual storage requirements

Most DB2 data resides in the shared memory of the DB2 address spaces, which is above the bar. DB2 11 for z/OS requires 1 TB of contiguous 64-bit shared private storage above the 2 GB bar for each DB2 subsystem. This storage is virtual and is controlled by the z/OS parameters HVSHARE and HVCOMMON in IEASYS*xx*. This storage is not physically assigned (or "backed") as it is allocated; it is

backed only as it is used. Most control blocks and buffers reside in the extended private area above the 2 GB bar. Modules and some data reside above the 16 MB line, but below the 2 GB bar.

The amount of space that is needed for the common service area (CSA) below the 16 MB line is approximately 40 KB for each DB2 for z/OS subsystem and approximately 24 KB for each IRLM subsystem. High concurrent activity, parallelism, or high contention can require more CSA. The amount of 64-bit above-the-bar common storage that is needed for each DB2 subsystem is a minimum of 6 GB of contiguous storage and is controlled by the z/OS parameter HVCOMMON in IEASYS*xx*.

Function-dependent program requirements

The following functions of DB2 11 for z/OS require specific licensed programs, or features of licensed programs, before they can be used in the context of application execution:

- Applications that are written in high-level programming languages, such as applications or stored procedures that are written in the C language and that use the ODBC or CLI interfaces to DB2, require Language Environment at run time.
- Applications or stored procedures that are written in Java, such as those procedures that use the JDBC or SQLJ interfaces to DB2, require IBM SDK for z/OS, Java 2 Technology Edition, Version 5 or later, at run time.

Optional program requirements

To enable the following functions for use with DB2 for z/OS, use of the specified optional licensed products is required. This section describes which versions of these associated products are tolerated by DB2 11 for z/OS.

Connectivity

> For DB2 database applications that run on Linux, UNIX, or Windows operating systems, customers can use DB2 Connect and then perform one of the following actions:
>
> - Install the IBM Data Server Driver package and deploy one of the client drivers to access DB2 for z/OS through a DB2 Connect Server.
> - Install the IBM Data Server Driver package and deploy one of the provided client drivers to access DB2 for z/OS directly.
>
> Both of these approaches (access through a DB2 Connect Server or direct access) provide runtime support to access DB2 by applications that use ODBC, CLI, .NET, OLE DB, PHP, Ruby, JDBC, pureQuery, JPA, SQLJ, Python, Perl, and more. These approaches can be used alone or in combination, as needed.
>
> To choose the appropriate IBM Client Package for your needs, see the documentation for the DB2 Connect product.
>
> DB2 for z/OS supports DRDA as an open interface that allows access from any client. If you desire a seamless migration where your remote applications must continue to operate throughout the migration process, DB2 Connect Version 10.1 Fix Pack 2 or DB2 Connect Version 9.7 Fix Pack 6 or later are recommended clients to help support such a seamless migration when you migrate your DB2 data sharing group.
>
> DB2 Connect Version 10.5 Fix Pack 2 exploits DB2 11 features. All versions can access DB2 11 for z/OS but Version 10.5 Fix Pack 2 or higher is needed to exploit some of the DB2 11 features such as the following features:
>
> - Array support
> - Autocommit performance improvements for procedures and cursors
> - Data sharing support for global variables
> - Longer client information fields
>
> DB2 11 for z/OS acting as a client supports the following relational database products:
>
> - IBM DB2 for Linux, UNIX, and Windows 9.5 (5765-F41), or later

- – DB2 Enterprise Server (ESE) for Linux, UNIX, and Windows, Version 9.5 (5765-F41), or later
- – DB2 Express Edition for Linux, UNIX, and Windows, Version 9.5 (5724-E49), or later
- – Database Enterprise Developer Edition Version 9.5 (5724-N76), or later
- IBM DB2 for iSeries® Version 6 Release 1 (5761-SS1), or later
- DB2 Server for VSE and VM Version 7 Release 3 (5697-F42), or later
- Any other DRDA-compliant relational DBMS server

Any in-service level of DB2 Connect drivers or DB2 Connect server supports DB2 11 for z/OS conversion mode and new-function mode.

Web connectivity is provided by any of the DB2 Connect clients that use one of the IBM Data Server clients or drivers.

JDBC   DB2 11 for z/OS supports the following JDBC application programming interface specification levels:
- JDBC 3.0 API requires one of the following Software development kits (SDKs) at run time:
  - – IBM 31-bit SDK for z/OS, Java 2 Technology Edition, Version 5 (SDK5) (5655-N98), or later
  - – IBM 64-bit SDK for z/OS, Java 2 Technology Edition, Version 5 (SDK5) (5655-N99), or later
- JDBC 4.0 API requires one of the following SDKs at run time:
  - – IBM 31-bit SDK for z/OS, Java Technology Edition, Version 6 (SDK6) (5655-R31), or later
  - – IBM 64-bit SDK for z/OS, Java Technology Edition, Version 6 (SDK6) (5655-R32), or later

For more information about IBM Java Standard Edition Products, see www.ibm.com/servers/eserver/zseries/software/java/.

Transaction management

The following transaction management products work with DB2 11 for z/OS:
- Information Management System (IMS) (any of the following versions):
  - – IMS Version 13 (5635-A04)
  - – IMS Version 12 (5635-A03)
  - – IMS Version 11 (5635-A02)
- Customer Information Control System (CICS) (any of the following versions):
  - – CICS Transaction Server for z/OS, Version 5 Release 1 (5655-Y04)
  - – CICS Transaction Server for z/OS, Version 4 Release 1 and Version 4 Release 2 (5655-S97), or later
  - – CICS Transaction Server for z/OS, Version 3 Release 1 and Version 3 Release 2 (5655-M15), or later

    For Version 3 Release 1 and Version 3 Release 2, you also need APAR PM01880 to return the correct version and release number for DB2 11.

Query support

The following query programs work with DB2 11 for z/OS:
- IBM DataQuant for z/OS Version 1 Release 2 (5697-N64) or later
- The DB2 Query Management Facility (QMF) Version 9, Version 10, and Version 11 family of products
- Cognos® BI Server, Version 10 Release 2 (5724-W12)

Data warehouse support

Warehouse management capabilities for DB2 11 for z/OS is provided by InfoSphere® Warehouse on System z, Version 9 Release 5.2 (5724-E34), or later.

Programming languages:

The following application development programming languages can be used to build applications for DB2 11 for z/OS:

- Building applications by using the DB2 precompiler:
  - **Assembler:** High Level Assembler, which is part of the System Services element of z/OS.
  - **C/C++:** C/C++ (without Debug Tool), which is an optional priced feature of z/OS.
  - **COBOL:** Enterprise COBOL for z/OS Version 3 Release 4 (5655-G53), or Enterprise COBOL for z/OS Version 4 Release 1 (5655-S71), or later.
  - **Fortran:** VS Fortran Version 2 Release 6 (5668-806, 5688-087, 5668-805); data types and SQL functions that are new as of DB2 Version 9.1 for z/OS are not supported.
  - **PL/I:** Enterprise PL/I for z/OS Version 3 Release 9 (5655-H31), or later, or Enterprise PL/I for z/OS Version 4 Release 1 (5655-W67), or later.
- Building applications by using the DB2 coprocessor:
  - **C/C++:** C/C++ for z/OS (without Debug Tool), which is an optional priced feature of z/OS.
  - **COBOL:** Enterprise COBOL for z/OS Version 3 Release 4 (5655-G53), or Enterprise COBOL for z/OS Version 4 Release 1 (5655-S71), or later.
  - **PL/I:** Enterprise PL/I for z/OS Version 3 Release 9 (5655-H31), or later, or Enterprise PL/I for z/OS Version 4 Release 1 (5655-W67), or later.
- Building applications that are supported with processes other than the precompiler or coprocessor:
  - **Java:** Applications or stored procedures that are written in Java, such as those that use the JDBC or SQLJ interfaces to DB2 for z/OS have certain requirements. They require IBM 31-bit SDK for z/OS, Java 2 Technology Edition Version 5 (5655-N98), or later, at run time. Optionally, for Java applications other than stored procedures, you can instead use IBM 64-Bit SDK for z/OS, Java 2 Technology Edition, Version 5 (SDK5) (5655-N99), or later, at run time. 5655-N98 and 5655-N99 are independent products and can co-exist on the same z/OS system.
  - **REXX:** z/OS Version 1 Release 13.0 TSO/E REXX Reference (5694-A01)
  - **SQL procedural language:**
    - Native SQL procedural language.
    - External SQL procedural language: A C language compiler is required on z/OS to develop stored procedures by using the external SQL procedural language.
  - **APL2:**
    - Mainframe APL2 Version 2 Release 2 (5688-228) (full APL2)
    - APL2 Application Environment Version 2 Release 2 (5688-229)

Operational support

DFSMS features, which are part of the Systems Management optional feature of z/OS, can provide operational support for DB2 11 for z/OS. DFSMS includes the following features:
- DFSMShsm for archiving
- DFSMSdss for concurrent copy in utilities

Tools support

Refer to the IBM Data Management Tools website (www.ibm.com/software/data/db2imstools) for the complete list of IBM database tools.

Refer to the Information Management Tools and DB2 11 compatibility website for applicable tools service requirements to support DB2 11: www.ibm.com/support/docview.wss?uid=swg21609691

The following IBM tools support DB2 11 for z/OS:
- IBM tools for replication management, including IBM InfoSphere Data Replication for DB2 for z/OS, Version 10 (5655-DRP)
- IBM tools for database recovery, including the following tools:
  - IBM DB2 Change Accumulation Tool for z/OS, Version 3 Release 1 (5697-P45), plus APAR PM75396

- IBM DB2 Recovery Expert for z/OS, Version 3 Release 1 (5655-W78), plus APARs PM75735 and PM82261
- IBM DB2 Log Analysis Tool for z/OS Version 3 Release 4 (5655-T56)
- IBM tools for database application management, including the following tools:
  - IBM DB2 Table Editor for z/OS, Version 4 Release 4 (5697-G65), plus APAR PM75144
  - IBM DB2 Bind Manager for z/OS, Version 2 Release 4 (5655-E43), plus APAR PM78883
  - IBM DB2 Path Checker for z/OS, Version 4 Release 1 (5697-Q01), plus APAR PM82461
- IBM tools for database administration and system management support, including the following tools:
  - DB2 Administration Tool for z/OS, Version 10 Release 2 (5655-W34)
  - DB2 Object Comparison Tool for z/OS, Version 10 Release 2 (5655-W36), plus APAR PM81174
  - InfoSphere Optim pureQuery Runtime for z/OS, Version 3 Release 3 (5655-W92)
  - InfoSphere Optim Configuration Manager for DB2 for z/OS, Version 3 Release 1 (5655-AA3)
  - IBM Data Studio Version 4, available at www.ibm.com/developerworks/downloads/im/data/learn.html
  - InfoSphere Guardium® Data Encryption for DB2 and IMS Databases, Version 1 Release 2 (5655-P03)
- IBM tools for utilities management, including the following tools:
  - DB2 Automation Tool for z/OS, Version 4 Release 1 (5655-E37), plus APAR PM75391
  - DB2 Cloning Tool for z/OS, Version 3 Release 1 (5655-N15), plus APAR PM76594
  - DB2 Utilities Suite for z/OS, Version 11 Release 1 (5655-W87)
  - DB2 Utilities Enhancement Tool for z/OS, Version 2 Release 2 (5655-T58), plus APARs PM77500 and PM80231
  - DB2 High Performance Unload for z/OS, Version 4 Release 2 (5655-AA1), plus APARs PM78638 and PM85014
  - DB2 Sort for z/OS, Version 1 Release 3 (5655-W42)
- IBM tools for database performance management, including the following tools:
  - InfoSphere Optim Query Workload Tuner for DB2 for z/OS, Version 4 Release 1 (5655-AA4)
  - IBM Tivoli® OMEGAMON® XE for DB2 Performance Expert on z/OS Version 5 Release 1 (Modification Level 1) (5655-W37)
  - DB2 Query Monitor for z/OS, Version 3 Release 1 (5655-V42), plus APAR PM75732
  - DB2 SQL Performance Analyzer for z/OS, Version 4 Release 1 (5655-W60), plus APAR PM59925
- Other IBM tools, including the following tools:
  - IBM Tools Base for z/OS, Version 1 Release 3 (5655-V93)
  - InfoSphere Optim pureQuery Runtime for z/OS, Version 3 Release 2 (5655-W94)

Other vendor software tools support DB2 11 for z/OS. Contact the independent software vendors for more information.

Requirements for dependent functions of DB2

This section describes DB2 11 for z/OS functions that have requirements that are in addition to the requirements for the base DB2 for z/OS product.

Before using these functions, refer to the relevant installation information to ensure that you have all required and recommended products.

- **System level point-in-time backup and recovery function:** This utility function requires the following prerequisites:

- DFSMShsm
- DFSMSdss
- FlashCopy® Version 1
- FlashCopy Version 2 (required for object-level recovery from system-level backup and FlashCopy image copy)

- **Encryption and decryption functions:** Built-in functions for encryption and decryption require the z/OS Cryptographic Services Integrated Cryptographic Service Facility (ICSF).
- **DRDA data stream encryption:** DRDA data stream encryption can optionally use the z/OS Cryptographic Services Integrated Cryptographic Service Facility (ICSF).
- **Group buffer pool write-around support:** Group buffer pool write-around support requires APARs OA40966, OA37550 for z/OS Version 1 Release 13.
- **2-GB frame size for buffer pools:** A 2-GB frame size requires APAR OA40967 for z/OS Version 1 Release 13.
- **Pageable 1-MB large pages:** Pageable 1-MB large pages require z/OS V1R13 RSM Enablement Offering (FMID JBB778H).
- **z/OS Workload Manager (WLM) support:** The ability to establish z/OS performance objectives with larger values for individual DDF server threads requires z/OS Version 2.
- **DDF synchronous receive:** Performance improvements for DDF synchronous receive operations require z/OS Version 1 Release 13 with APAR PM80004 or z/OS Version 2.
- **QMF:** For QMF Version 11, the following releases of DB2 are supported:
  - 5615-DB2, DB2 11 for z/OS
  - 5605-DB2, DB2 10 for z/OS (all modes except CM8, CM8*, ENFM8, ENFM8*), with APAR PM50434
  - 5635-DB2, DB2 Version 9.1 for z/OS (new-function mode) with APAR PM45482

All other operating requirements for QMF Version 11 can be found at http://www.ibm.com/support/docview.wss?uid=swg27039374.

Compatibility

DB2 11 for z/OS is upwardly compatible with earlier releases of DB2 for z/OS. Migration with full fallback protection is available for customers who are running on DB2 10 for z/OS. Existing customers should ensure that they are successfully running on DB2 10 for z/OS (new-function mode) before migrating to DB2 11.

Licensed program materials availability

Restricted materials - No. This licensed program is available without source licensed program materials. It is available in object code.

Supplemental terms

Designated machine identification

Designated machine identification is required.

The machine identification requirement prohibits copying platform-independent components that are delivered with this product, such as JDBC drivers, to other machines or operating systems unless specifically permitted by this document.

Limited-use license for z/OS Application Connectivity to DB2 for z/OS

The z/OS Application Connectivity to DB2 for z/OS feature, a type 4 JDBC driver, is licensed for installation and use solely on z/OS. The sole authorized use of z/OS Application Connectivity to DB2 for z/OS is limited to connecting an application that runs on z/OS to Version 7, 8, 9, 10, or 11 of DB2 for z/OS that is running in a separate partition on the same server as the application is running or on a different z/OS server. You can also connect applications to a subsequent supported version of DB2 for z/OS. Authorized use does not extend to applications that run on Linux or on any other platform or operating system.

QMF Enterprise Edition and accompanying program licenses

QMF Enterprise Edition consists of the following licensed programs:
- DB2 QMF for TSO/CICS
- DB2 QMF High Performance Option (HPO)
- DB2 QMF Analytics for TSO
- DB2 QMF for Workstation
- DB2 QMF for WebSphere

The QMF for Workstation and QMF for WebSphere programs contain third party code that IBM, not the third party, licenses to Licensee under the terms of the IBM Customer Agreement. Notices for the third party code are included for information only. These notices can be found in the Program's NOTICES file(s). Information on how to obtain source code for certain third party code can be found in the Program's NOTICES file(s).

Although QMF Version 11 can be used with earlier versions of DB2 for z/OS, you must have a license for DB2 11 to use QMF Version 11 with any supported version of DB2.

Usage restriction

Not applicable.

Type and duration of program services

IBM Software Support will be provided until discontinued by IBM with a minimum of six months written notice.

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