Programming Announcement
June 7, 2006

IBM DB2 Connect V9.1 for Linux, UNIX, and Windows shortens development time and reduces cost

Overview

DB2 Connect® V9.1 for Linux™, UNIX®, and Windows™ delivers new features that address the needs of today's businesses, whether those needs are integrating business data across your organization, reducing IT costs, focusing limited IT resources on creating business value, or providing a secure and resilient information management system for your company's valuable information assets.

DB2 Connect V9.1 is designed to leverage your enterprise information—no matter where it is stored. For those enterprises that have made DB2® on IBM eServer® zSeries® and iSeries™ servers the cornerstone of their On Demand Business solution, DB2 Connect provides application enablement and a robust, highly scalable communications infrastructure for connecting Web, Windows, UNIX, Linux, and mobile applications to data.

DB2 Connect is the industry-leading solution integrating zSeries, iSeries, and other enterprise data with client/server, Web, mobile, and service-oriented architecture applications. The new release of DB2 Connect delivers significant feature enhancements to improve programmer productivity, provide a more robust infrastructure, and enable the deployment of DB2 technology.

Simply application development

An enhanced set of application development tools simplifies database application development and eases application deployment, including a new Developer Workbench and enhanced functionality for Visual Studio 2005. DB2 V9.1 also introduces a unified debugger, rapid application deployment with a lightweight runtime client, and many other features that allow you to save time and develop applications that work across different DB2 data servers. Also, significant enhancements to the IBM DB2 Driver for JDBC and SQLJ have been made that keep developers on the leading edge of Java™ technology. Improvements to DB2 Connect V9.1 federation capabilities simplify the programming challenge by adding support for two-phase commit capabilities for multi-vendor data sources.

Reduce administration costs with advances in performance, manageability, and installation

IBM continues to simplify deployment of DB2 Connect. With new features such as nonadministrator installation on Windows, response file installation enhancements, and support for coexistence of multiple copies of the DB2 database system, DB2 Connect V9.1 allows your IT staff to spend more time supporting your business needs instead of installing and deploying database systems.

Autonomic features such as adaptive self-tuning memory allocation and new Object Maintenance Policy wizards for DB2 UDB for z/OS® reduce the time required to administer and tune your database system.

Key prerequisites

Refer to the Hardware requirements and Software requirements sections.

Planned availability dates

- July 28, 2006 (electronic software delivery)
- September 22, 2006 (media and documentation)

At a glance

DB2 Connect V9.1 is the next-generation hybrid data server with optimized management of both XML and relational data.

Shortens development time lines

- Eclipse based developer workbench
- Tight integration with leading application infrastructures like PHP, Java, and .NET, including .NET Framework 2.0
- Enhanced support for federated data solutions

Reduces cost

- Adaptive, self-tuning memory allocation
- Object Maintenance Policy wizards for DB2 UDB for z/OS

Availability of Programs with encryption algorithm in France is subject to French government approval.

Cryptography in this product is limited to password encryption, authentication or digital signature.

This announcement is provided for your information only. For additional information, contact your IBM representative.

Description

DB2 Connect provides fast and robust connectivity to IBM mainframe databases for On Demand Business and other applications running under UNIX and Windows operating systems. DB2 Connect has several connection solutions, including DB2 Connect Personal Edition, and a number of DB2 Connect server products. A DB2 Connect server is a connectivity server that concentrates and manages connections from multiple desktop clients and Web applications to DB2 servers running on host or iSeries systems.

IBM′s DB2 for iSeries, DB2 UDB for OS/390®, DB2 UDB for z/OS, and DB2 for VSE and VM databases continue to be the systems of choice for managing most critical data for the world′s largest organizations. While these host and iSeries databases manage the data, there is a great demand to integrate this data with applications running on Linux, UNIX, and Windows workstations.

DB2 Connect servers enable local and remote client applications to create, update, control, and manage DB2 databases and host systems using:

- Structured Query Language (SQL)
- DB2 APIs
- ODBC (Open Database Connectivity)
- JDBC (Java Database Connectivity)
- SQLJ (embedded SQL for Java)
- DB2 CLI (call level interface)

Application development enhancements

DB2 Connect V9.1 provides numerous enhancements that simplify database application development. Enhancements include a new Developer Workbench, enhanced functionality for Visual Studio 2005 and DB2 .NET Data Provider, and new application samples. DB2 Connect V9.1 also introduces a unified debugger and many other features that allow you to reduce development time.

BINARY, VARBINARY, and DECFLOAT data type support in .NET and CLI client applications

The data types BINARY and VARBINARY have been added to DB2 for z/OS V9, and support for the types has been added to DB2 CLI and DB2 .NET Data Provider.

- DB2 CLI support of BINARY and VARBINARY
- DB2 .NET Data Provider support of BINARY and VARBINARY
- DB2 CLI support of DECFLOAT
- DB2 .NET Data Provider support of DECFLOAT

Client support for trusted connections to DB2 for z/OS databases

DB2 CLI and DB2 Driver for JDBC and SQLJ now support making trusted connections to DB2 data servers that support trusted contexts. If the database server is configured to allow it to do so, a client can create trusted connections using ODBC, XA, or new Java methods. The user name associated with the trusted connection can then be switched without the database server having to fully authenticate the new name.

Trusted contexts are currently supported only on DB2 for z/OS.

Command-line processor (CLP) 64 KB limit for SQL statements removed

A CLP limit of 64 KB for SQL statements and for CLP commands that contain SQL statement components has now been removed. In previous releases, SQL statements generated by other DB2 tools for use within SQL procedures or routines were not valid for use within the CLP when they exceeded the old CLP 64 KB limit. The new CLP limit of approximately 2 MB is comparable with the limits on the other DB2 tools.

DB2 .NET Data Provider enhancements and support for the .NET Framework 2.0

The DB2 .NET Data Provider now supports the Microsoft™ .NET Framework V2.0 and has additional new features to help you develop more powerful .NET applications.

- Support for the System.Data.Common base classes
- Scrollable and updatable result sets
- Data paging capability
- Bulk data copy
- Update batch size

Developer Workbench replaces the Development Center

The Development Center from DB2 UDB for Linux, UNIX, and Windows V8 is replaced in DB2 V9.1 by an Eclipse based tool called Developer Workbench. The Developer Workbench includes functionality comparable to the Development Center. In addition to existing Development Center functionality, new features include:

- New Developer Workbench information center and tutorials
- Ability to migrate existing Development Center projects
- Ability to compare routines
- Ability to deploy routines to unlike servers
- Binary deploy
- Ability to launch Visual Explain
- Ability to develop SQLJ applications
- Team support
- Multiple JAR support
- SQL procedure versioning for z/OS
- Package variation support for SQL and SQLJ Java stored procedures
- Table data editing
- Data extract and load
- Stored procedure debugger
- XML support

IBM Database Add-Ins for Microsoft Visual Studio 2005 enhancements

The IBM Database Add-Ins for Microsoft Visual Studio 2005 provides tools for rapid application development, database schema development, and debugging.

- Database activity is now performed in the Microsoft Server Explorer. The IBM Server Explorer has been removed from the IBM Database Add-Ins for Microsoft Visual Studio 2005 but still remains for IBM Database Add-Ins for Microsoft Visual Studio 2003.
- You can build Windows applications and Web sites for the DB2 Connect server without writing any code.

- Support is included to generate and deploy IBM Web Services on DB2 Embedded Application Server and for Microsoft Web Services using Microsoft Web service projects. Web services can be created and deployed without writing a single line of code. Support includes the ability to deploy and alter Web services, test-run Web services, and browse previously deployed Web services. All DB2 data server products are supported: DB2 Database for Linux, UNIX, and Windows; DB2 Universal Database® for iSeries; and DB2 Universal Database for z/OS.
- New IBM designers provide an easier way for you to work with database objects.
- You can run scripts before and after you run procedures and functions, and you can save input or in-out parameter values across Visual Studio sessions. You can commit or roll back transactions.
- A new user interface gives you the ability to view single or multiple result sets for a procedure. Where possible, you can discover result sets automatically, and you can manually define or customize a result set definition.
- You can seamlessly debug SQL procedures on Linux, UNIX, and Windows or zSeries servers.

Java routine class loader enhancements

Application developers who develop Java routines can now utilize multiple Java classes that have the same name by including them in separate JAR files and by explicitly identifying them in routine create statements.

The DB2 Driver for JDBC and SQLJ contains the following major enhancements for DB2 Connect:

- Compliance with the JDBC 3.0 specification
- Support for the new DB2 for z/OS BINARY, VARBINARY, BIGINT, and DECFLOAT column data types
- Support for the new XML column data type
- New DB2-only methods to support trusted connections
- Support for progressive streaming for retrieval of LOBs and XML data
- Support for heterogeneous pooling and connection reuse
- SSL support
- Tolerable errors
- sendDataAsIs property

Client and connectivity enhancements

DB2 Connect V9.1 client and connectivity enhancements include new features such as IPv6 communication protocol support, new support for running ODBC and CLI applications without a DB2 client, and connection timeout support. These enhancements and others ensure that you have flexible and effective methods of accessing data from client systems and applications.

Connection timeout support for database applications

You can now set a connection timeout value for DB2 database connections in .NET, CLI, ODBC, and OLE DB applications. Setting a connection timeout is useful in case the database server is inaccessible. In this situation, it can take a long time for connection requests to fail and return. Setting a connection timeout enables you to set a limit to the amount of time your applications should wait for a connection.

A single client for application development and administration

Prior to Version 9, there were two similar clients, the DB2 Application Development Client and the DB2 Administration Client. The Version 9 DB2 Client merges these two clients.

Enhancements in this version include:

- On Windows, the DB2 client can also be installed from a server installation image (or CD). This benefits customers who want to use the same CD to install the DB2 server on a server computer and the DB2 client on workstations used by administrators or developers. It is no longer necessary to use the separate client CD to install only the DB2 client.
- On Windows, the server fix pack now contains the fix packs for both the server and the DB2 client. If you have both a DB2 client and server installed on the same computer, you need to download and apply a single fix pack image to upgrade both the server and client. If you have only a DB2 client on a computer, client fix pack images are still available.

Enhancements to other parts of the product also benefit the DB2 client.

- Multiple copies of a client can be installed on the same computer. These copies can be the same or different versions; for example, V8.2, V9.1.100, and V9.1.300.
- When migrating a client from Version 8, you now have the choice of replacing the existing client or adding the client while keeping the existing version.

DB2 Runtime Client enhancements (Windows)

Prior to Version 9, there were two similar clients on Windows, the DB2 Runtime Client and the DB2 Run-Time Client Lite. The Version 9 Runtime Client on Windows has evolved from the Version 8 Run-Time Client Lite.

The following enhancements to DB2 Runtime Client are included in this release:

- It is licensed so it can be redistributed freely with applications that are sold to other companies.
- It is available in a 64-bit version.
- It can coexist with other DB2 products on the same computer.

Enhancements to other parts of the product also benefit the DB2 Runtime Client:

- Multiple copies of a client can be installed on the same computer. These copies can be the same or different versions; for example, V8.2, V9.1.100, and V9.1.300.
- Version 9 introduces a new application driver for ODBC or CLI applications. Some customers who used a runtime client in the past may prefer this option as it provides an even smaller application deployment footprint.

New support for running ODBC and CLI applications without a DB2 client

The DB2 Driver for ODBC and CLI can now be installed and used to run ODBC and CLI applications without a DB2 client. When the driver is installed without a DB2 client, it still provides runtime support for ODBC and CLI, and it now also provides connectivity for ODBC and CLI applications.

Various install options are available for the IBM DB2 Driver for ODBC and CLI:

- You can install the driver on a machine that already has a DB2 client installed.
- You can have multiple installations of this driver on a single machine.

Being able to install the DB2 Driver for ODBC and CLI without a DB2 client makes deploying database applications easier:

- You can include the driver in your database application installation package.
- Distribution size, installation footprint, and memory footprint are all reduced.

Federated enhancements

A federated system is a special type of distributed database management system. With federation, you can send distributed requests to multiple data sources within a single SQL statement.

Plug-in for retrieving user mappings from an external repository or LDAP server

A federated server uses a user mapping to enable a connection to many data sources. By default, the user mappings are stored in the DB2 database, which has certain limitations. A sample plug-in is now provided that allows you to retrieve the user mappings from an external repository; for example, a Lightweight Directory Access Protocol (LDAP) server. User mappings that are stored in an LDAP server offer the following benefits:

- Lower maintenance
- Increased security

Statement-level isolation

For statements that use nicknames, the isolation-clause only statement has an effect on nicknames that access the DB2 data sources.

For all other uses of nicknames to relational data sources, the federated server maps its current isolation level to a corresponding isolation level at the data source, at each connection to the data source. After a connection is made to a data source, the isolation level for duration of the connection cannot be changed.

Two-phase commit for multi-vendor data sources

Federated two-phase commit is now available for the supported data sources of the WebSphere® Information Integrator federated server. Two-phase commit combines updates to multiple sources in one transaction so that all sources involved are updated or none are updated. This strategy ensures that the sources remain synchronized.

DB2 Connect users may be interested in two-phase commit capabilities for multi-vendor data sources offered by the WebSphere Information Integrator federated server.

Installation, migration, and fix pack considerations

With new features and enhancements such as coexistence of multiple DB2 Connect versions and fix packs on Windows, manual installation enhancements, and support for concurrent copies of DB2 Connect servers on Linux and UNIX, DB2 Connect V9.1 allows your IT staff to spend more time supporting business goals instead of installing and configuring database systems.

DB2 Connect can be installed using a nonadministrator user ID (Windows)

Anyone who does not want to use an administrator ID when installing DB2 Connect on Windows, now has another option. You can use the Windows operating system elevated privileges feature to perform the installation with a Windows Power User ID or a Restricted User ID.

Installation and coexistence of multiple DB2 Connect versions and fix packs

DB2 V9 on Windows introduces the ability to install multiple DB2 Connect servers and client copies on the same system. Each DB2 Connect installation copy can either be at the same level or at a different level of DB2 Connect. On Linux and UNIX, this support does not require the use of an alternate fix pack.

When installing DB2 Connect on a machine that already has a DB2 product copy installed, you can install a new DB2 copy or work with and update an existing DB2 copy.

Manageability enhancements

In this section, the following products are referred to collectively as DB2 UDB for z/OS:

- DB2 UDB for z/OS, V8
- DB2 UDB for OS/390 and z/OS, V7

Automated evaluation of object maintenance policies by the DB2 UDB for z/OS health monitor

The Control Center′s Create and Change Object Maintenance Policy wizards now allow you to automate the evaluation of object maintenance policies by the DB2 UDB for z/OS health monitor. On the z/OS system, a DB2 UDB for z/OS health monitor is started as a task for each DB2 subsystem to be monitored.

EXEC SQL utility support for loading data into DB2 UDB for z/OS tables

- DB2 UDB for z/OS, V8
- DB2 UDB for OS/390 and z/OS, V7

The Control Center′s Load Table and Load on Table Space notebooks now support the INCURSOR option of the LOAD utility. The Control Center uses the EXEC SQL utility control statement to declare a cursor, and the result table from the declared cursor is used as input to the LOAD utility.

Version 9 incompatibilities with previous releases

- Type 3 JDBC support is discontinued.
- Vendor load API (sqluvtld) is discontinued.
- VSE/VM objects are no longer supported in the DB2 Control Center.
- Data Links Manager is no longer supported.
- Data Warehouse Center is no longer included.
- Audio, Image, and Video Extenders are no longer supported.
- Autoloader utility (db2atld) is no longer supported.
- The db2reg2large utility for converting DMS table space size is discontinued.
- The DB2_SCATTERED_IO registry variable is discontinued.
- The desktop icon and folder making utility is no longer supported (Linux).
- The Extended Storage option for buffer pools is discontinued.
- The NetBios and SNA communication protocols are no longer supported.

- DB2 Administration Tools are discontinued on some platforms. The DB2 Administration Tools are supported only on Windows x86, Windows x64 (AMD64/EM64T), 32-bit Linux on x86, and Linux for AMD64 and Intel® EM64T.
- Text Extender is no longer supported.

Product positioning

DB2 Connect Personal Edition

DB2 Connect Personal Edition provides the API drivers and connectivity infrastructure to enable direct connectivity from Windows and Linux desktop applications to mainframe and iSeries database servers. This product is specifically designed and licensed for enabling two-tier client/server applications running on individual workstations and, as such, is not appropriate for use on servers.

Unlike server-based products (DB2 Connect Enterprise Edition, Application Server Edition, and Unlimited Edition), DB2 Connect Personal Edition does not provide the advanced functions such as Mobility on Demand, federated database support, server-based monitoring or connection concentrator, and associated load-balancing and failover support.

DB2 Connect Enterprise Edition

DB2 Connect Enterprise Edition is a combination of DB2 Connect server and DB2 client software designed to address the needs of organizations that require robust connectivity from a variety of desktop systems to mainframe and iSeries database servers. DB2 client software is deployed on desktop systems and provides API drivers that connect client/server applications running on these desktop systems to a DB2 Connect server. Designed to provide connectivity for client/server applications in large-scale, demanding environments, DB2 Connect server provides connection pooling and connection concentrator functions to maximize application availability while minimizing mainframe resource usage.

DB2 Connect Enterprise Edition licensing terms are geared towards addressing the needs of two-tier client/server applications. License charges for the DB2 Connect Enterprise Server Edition product are based on the number of users of the product. Two types of licensing users are provided: concurrent users and registered users.

Because charges for the DB2 Connect Enterprise Edition are based on the number of users (registered or concurrent) and because determining the number of concurrent users in mobile and Web-based applications is very difficult or even impossible, DB2 Connect Application Server Edition and DB2 Connect Unlimited Edition are preferred licensing options for such environments.

DB2 Connect Application Server Edition

DB2 Connect Application Server Edition is identical to the DB2 Connect Enterprise Server in its technology. Just like the DB2 Connect Enterprise Edition, it is designed for large-scale, demanding environments. However, its licensing terms and conditions are meant to address specific needs of multitier client/server applications as well as applications that utilize Web technologies. DB2 Connect Application Server Edition license charges are based on the size or the number of processors available to the application servers where the application is running. License charges are not affected by the number of users of the application, the size of the DB2 Connect server itself, or the size of the mainframe database server.

For example, an application that runs on three 2-CPU application servers (like WebSphere Application Server) requires a 6-CPU license (3*2=6 CPUs) for the DB2 Connect Application Server Edition, regardless of how many CPUs DB2 Connect is run on.

DB2 Connect Unlimited Edition for zSeries

DB2 Connect Unlimited Edition is ideal for organizations with extensive usage of DB2 Connect, especially where multiple applications are involved. This product provides program code of the DB2 Connect Personal Edition as well as program code identical to the DB2 Connect Application Server Edition for unlimited deployment throughout an organization.

DB2 Connect Unlimited Edition license fees are based on the size of the DB2 for OS/390 and z/OS database server (measured in MSUs) and are not affected by either the number of processors available to the DB2 Connect servers or the number of processors available to application servers where the application is running. This makes DB2 Connect Unlimited Edition an ideal choice for organizations where multiple applications are utilizing DB2 Connect, or organizations with a mix of two-tier, multitier client/server, Web-based, and mobile applications.

DB2 Connect Unlimited Edition for iSeries

DB2 Connect Unlimited Edition is ideal for organizations with extensive usage of DB2 Connect, especially where multiple applications are involved. This product provides program code of the DB2 Connect Personal Edition as well as program code identical to the DB2 Connect Application Server Edition for unlimited deployment throughout an organization. DB2 Connect Unlimited Edition for iSeries license fees are based on the number of processors allocated to the data source running on i5/OS® or OS/400® operating systems. Charges for the program are not based on the number of processors attached or available to the DB2 Connect Unlimited Edition for iSeries itself. Unlimited users are permitted. This makes DB2 Connect Unlimited Edition for iSeries an ideal choice for organizations where multiple applications are utilizing DB2 Connect or organizations with a mix of two-tier, multitier client/server, Web-based, and mobile applications.

Reference information

Programming Announcement letter ZP04-0371 dated August 17, 2004.

Availability of national languages

Product description	Language	GA date
DB2 CEE V9.1.0	English US, French, German	September 22, 2006
DB2 CUE for iSeries V9.1.0	English US	September 22, 2006
DB2 Connect App Server V9.1.0	English US	September 22, 2006
DB2 Connect PE V9.1.0	English US, French, German	September 22, 2006
DB2 Connect UE V9.1.0	English US	September 22, 2006