



IBM DB2 UDB Server for OS/390 and z/OS, Version 7 Availability with Enhancements – DB2 Net Search Extender

Overview

The DB2 Universal Database® (UDB) Server for OS/390® and z/OS, Version 7 program delivers improved performance, availability, and scalability for your e-business and data warehouse applications. A new feature, Net Search Extender, delivers the latest in high-speed full-text search technology. Use its powerful in-memory search to provide rapid query responses for your e-business applications.

In DB2® UDB for OS/390 and z/OS, Version 7, the DB2 Family is expanding the capability of the DB2 server by integrating warehouse management. The new DB2 Warehouse Manager feature gives a full set of tools for building and using a data warehouse based on DB2 for OS/390. This feature includes:

- Data Warehouse Center, with a graphical interface for defining and managing the warehouse
- Information Catalog, a common repository for metadata about the objects, for user understanding and access
- QMF™, QMF HPO, and QMF for Windows™, for ease of access and user administration

Several DB2 UDB for OS/390 and z/OS, Version 7 enhancements to DB2 can help improve your existing applications. Take advantage of:

- The ability to change system parameters, without stopping DB2
- Star join optimization for better performance of complex queries
- Index access for small tables

Extend the power and flexibility of your applications with DB2 UDB for OS/390 and z/OS, Version 7 enhancements. You can utilize the following:

- Unicode support to store international data without character conversion
- Scrollable cursors for more flexible access to a result table
- Commit and Rollback from within your stored procedure logic with the use of COMMIT and ROLLBACK
- Subselect within an UPDATE statement
- UNION and UNION ALL within views and nested table definitions
- Row value expression comparison

Now packaged separately, the utility functions deliver more for your DB2 UDB for OS/390 and z/OS, Version 7. New capability includes CopyToCopy, in support of recovery, also significant enhancements to improve your data availability.

With DB2 UDB for OS/390 and z/OS, Version 7, your e-business and business intelligence applications can be synergized with the powerful, highly available environment provided by S/390® and @server zSeries servers running OS/390 and z/OS. You can leverage your existing applications while developing and expanding your electronic commerce for the future. Refer to Software Announcement 200-087, dated April 18, 2000.

Key Prerequisites

- OS/390 Version 2 Release 7 Base Services (5647-A01), or later
- DFSORT™ — an optional priced feature of OS/390 Version 2 Release 7

Planned Availability Date

March, 30, 2001

At a Glance

With Version 7, DB2 UDB Server for OS/390:

- Enhances e-business with the addition of Net Search Extender
- Integrates data warehousing with the introduction of DB2 Warehouse Manager for OS/390
- Delivers the QMF Family with DB2 Warehouse Manager
- Offers migration and fallback support from either Version 5 or 6
- Increases DB2 scalability, availability, and performance with:
 - Changing system parameters, without stopping DB2
 - Scrollable Cursors
 - Support for UNION in Views
 - Improved optimization with support for Star Joins
 - Support for REXX Language

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Description

The DATABASE 2™ UDB Server for OS/390 is IBM's super-server of choice for enterprise-wide data management in the twenty-first century. It is the premier relational database server solution for OS/390. The database server builds upon the momentum of previous releases furthering the themes of user productivity, e-business, business intelligence, high performance, and continuous availability.

Net Search Extender

Net Search Extender is a new member of the DB2 UDB Extender family and complements DB2 Text Extender. Net Search Extender adds a high-speed, scalable Internet text search capability to DB2. This addresses the needs of e-commerce and Web self-service applications. It works seamlessly with text data contained in DB2 and handles the heavy text search demands of large text-intensive Web sites. It rapidly searches data without locking database tables and delivers excellent query performance and scalability using in-memory database technology.

Note: Net Search Extender is ordered as a feature of DB2 UDB for OS/390, Version 6 (5645-DB2) as well as with DB2 UDB for OS/390 and z/OS, Version 7.

Warehouse Integration

DB2 Warehouse Manager, new to DB2 UDB Server for OS/390 in Version 7, delivers a complete warehouse solution along with your DB2 for OS/390. This new offering brings together the tools to build, manage, govern, and access DB2 data warehouses. It is based on proven technologies enhanced to provide additional function and to provide tighter integration among the components. Provided in the optional DB2 Warehouse Manager Feature are:

- DB2 Warehouse Center, which is a GUI that integrates with the DB2 Control Center
- Warehouse agents, which execute process on behalf of the Data Warehouse Center and enable point-to-point data movement
- Warehouse transformers, which are stored procedures or user-defined functions that provide commonly used transformations for building data warehouses
- The Information Catalog, which helps end users find, understand, and access relevant information
- The QMF family of products, which provide easy-to-use query, reporting, and updating and publishing to the Web
- OLAP Starter Kit, which provides integrated OLAP capability combined with the power of DB2

Improved Performance, Availability, and Scalability

Version 7 includes significant new function to DB2 for OS/390. Whether your requirements are to do any of the following, DB2 UDB for OS/390 and z/OS, Version 7 has the power and function you are seeking:

- Become an effective e-business
- Better understand your data with business intelligence applications
- Increase your enterprise effectiveness with CRM and ERP applications
- Derive more results from your operational applications

One of the causes of a planned outage for DB2 arises when there is the need to alter one or more of the system parameters (known as ZPARMS). Now, Version 7 introduces the opportunity to change the value of many of these system parameters without stopping DB2.

Data sharing customers can benefit from a new restart option. Restart Light will allow you to restart DB2 with a smaller storage footprint to quickly recover retained locks, following an abnormal termination. The reduced storage requirement can make a restart for recovery possible on a system that might not have enough resources to start and stop DB2 in normal mode.

Enterprise Application

Version 7 continues to enhance the flexibility of DB2 to support your enterprise applications and to ease the integration to the calling application.

DB2 UDB introduced support for the new object data types. Along with these objects, DB2 Extenders® provided appropriate functions for defining, accessing, storing, and searching data stored as a specific type. New in Version 7 is DB2 XML Extender with support for data using the XML data type. This extender allows you to store an XML object either:

- In an XML column for the entire document
- In several columns containing the fields from the document structure

Scrollable cursors give your application logic ease of movement through the result table using simple SQL and program logic. This frees your application from the need to cache the resultant data or to re-invoke the query in order to reposition within the resultant data.

In the increasingly global world of business and e-commerce, there is a growing need for data arising from geographically disparate users to be stored in a central server. Previous releases of DB2 have offered support for numerous code sets of data in either ASCII or EBCDIC format. However, there was a limitation of only one code set per system. New in Version 7 is support for UNICODE encoded data. This new code set is an encoding scheme that is able to represent the characters (code points) of many different geographies and languages.

Stored procedures introduced in Version 5 have increased program flexibility and portability among relational databases. Now, with Version 7, DB2 for OS/390 will accept COMMIT and ROLLBACK statements issued from within a stored procedure. This enhancement will prove especially useful for applications in which the stored procedure has been invoked from a remote client.

Stored Procedure Access to IMS™ Data: JDBC access to IMS Version 7 (V7) Database Manager (DB) data, initially provided with IMS V7 (available October 27, 2000) for Java™ applications running under control of the IMS Transaction Manager, is being extended through the IMS V7 service process to provide JDBC access to IMS V7 DB data from Stored Procedures running in DB2 UDB for OS/390.

Now, you can take advantage of Precompiler Services to perform the tasks currently executed by the DB2 precompiler. This API can be called by the COBOL compiler. By using this option, you can eliminate the DB2 precompile step in program preparation. You can take advantage of language capabilities that had been restricted by the precompiler, such as nested COBOL programs. Use of the host language compiler enhances DB2 Family compatibility, making it easier to import

applications from other database management systems and from other operating environments.

Greater flexibility and family compatibility comes from several SQL enhancements. Now, you can use a subselect to determine the values used in the SET clause of an UPDATE statement. Also, you can have a self-referencing subselect. The search condition in the WHERE clause can include a subquery in which the object for the subquery and the UPDATE or DELETE is the same. Support is now extended so you can define a view with the operators UNION or UNION ALL. You can also use a row expression to compare with a subselect expression.

DB2 Tools and Utilities Packaging

IBM announced Database Administration Tools and Database Recovery and Replication Tools on September 12, 2000. Refer to Software Announcement 200-307, dated September 12, 2000. With Version 7, the DB2 Utilities are now offered as products in this new family of Data Management Tools for DB2. These new DB2 Utility products deliver improved and powerful tools for your database operation and also for diagnosis and recovery. A complete description of the utility commands available in these new products is provided in a separate announcement. Refer to Software Announcement 201-050, dated March 6, 2001.

Utility Support for your DB2 Catalog Data

DB2 UDB for OS/390 and z/OS, Version 7 delivers the DB2 Utilities Suite in support of your catalog data. DB2 catalog data is critical for all database reference and application design. In order to sustain the high-availability of DB2 for OS/390, this product is delivered with each shipment of DB2 UDB for OS/390 and z/OS, Version 7. Use these powerful management utilities for all of your DB2 catalog data management tasks.

Try and Buy Program

When DB2 UDB for OS/390 and z/OS, Version 7 was first announced, it included reference to a Try and Buy program for selected DB2 tools features. This program is not offered with DB2 UDB for OS/390 and z/OS, Version 7. Instead, refer to the Data Management Tools for DB2 announcements to learn what powerful tools are separately available for use with DB2 UDB for OS/390 and z/OS, Version 7. Refer to Software Announcement 200-307, dated September 12, 2000, and Software Announcement 201-056, dated March 6, 2001.

Euro Currency

These programs are not impacted by euro currency.

Product Positioning

DB2 UDB for OS/390 is the super-server of choice for the twenty-first century, providing enterprise-wide data management for e-business, business intelligence, CRM, and ERP applications such as Siebel, Vantive, Baan, PeopleSoft, and SAP R/3, and operational transaction processing. It offers large data capacity, high transaction performance, and extensive connectivity. It works with the DB2 UDB family to bring a full relational solution to the market place. DB2 supports transactions arising from Web servers, CICS®, IMS transaction management, MVS™ batch jobs, and via distributed connections from remote clients on numerous platforms.

DB2 UDB Server for OS/390 is the relational database server solution for OS/390. It combines the power and reliability of DB2 with additional features such as:

- DB2 Warehouse Manager, including:
 - Data Warehouse Center
 - Information Catalog
 - QMF
 - QMF HPO
 - QMF for Windows
- DB2 Extenders:
 - Text
 - Audio, Video, Image
 - XML
 - Net Search
- Net.Data®
- DB2 REXX Language Support
- DB2 Management Clients Package, including:
 - Control Center
 - DB2 Estimator for Windows
 - DB2 Installer
 - Stored Procedure Builder
 - Visual Explain

DB2 UDB for OS/390 extends the object-relational functions of DB2 UDB to the S/390 environment. Now the full power and capacity of OS/390 and Parallel Sysplex® are available to store object data, which can be delivered to applications originating on the S/390 or connected via DRDA® from a remote requestor or from Internet and intranet applications.

Hardware and Software Support Services

SmoothStart™/Installation Services

IBM Installation Services are provided for DB2 UDB for OS/390 by IBM Global Services or your IBM Business Partner at an additional cost. For additional information, contact your IBM representative and ask for Installation Services for DB2 UDB for OS/390.

DB2 for OS/390 Services Team

The DB2 for OS/390 services team at Silicon Valley Lab delivers fee-based services designed to help you accomplish your business goals. As a part of the DB2 development organization, this team of experienced professionals has the advantage of having direct access to DB2 for OS/390 developers. This services team is also in the unique position of understanding DB2 and being able to influence its future direction.

IBM Silicon Valley Lab DB2 for OS/390 Services team can offer system health checks, performance evaluation, and other custom services to address your special requirements for managing and tuning DB2 for OS/390 and z/OS.

For more information, contact your IBM Global Services representative and ask about DB2 for OS/390 Services or contact Larry Lange at Silicon Valley Lab at lclange@us.ibm.com.

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IBM US Announcement Supplemental Information

March 6, 2001

Features of DB2 UDB Server for OS/390®

DB2® Universal Database® Server for OS/390 extends DB2 for OS/390 by offering features that combine with DB2 to enhance data warehousing, query access, system management, and replication of your data. The optional features of DB2 UDB Server for OS/390 and z/OS, Version 7 include:

- DB2 Warehouse Manager comprising:
 - DB2 UDB Version 7.1 Enterprise Edition (restricted-use license)
 - Data Warehouse Center
 - Information Catalog
 - QMF™
 - QMF HPO
 - QMF for Windows™
- Net Search Extender

Several optional features are available at no additional charge, including:

- DB2 Management Clients Package, comprising:
 - DB2 Connect® Version 7.1 Personal Edition (restricted use license)
 - DB2 Control Center
 - DB2 Estimator
 - DB2 Installer
 - DB2 Stored Procedure Builder
 - Visual Explain
- Net.Data®
- REXX Language Support

Following is a detailed description of each of these features.

DB2 Warehouse Manager Feature

Use DB2 Warehouse Manager to simplify and speed your warehouse prototyping, development, and deployment to production. Benefits include better control of query resources through query governance, cost management, and usage tracking. Integration with the Information Catalog enables you to satisfy user requirements for finding, understanding, and accessing the right data. QMF gives you the ability to satisfy common reporting requirements, whatever the size of your enterprise.

DB2 UDB Version 7.1 Enterprise Edition: The data warehouse management infrastructure and OLAP Starter Kit is delivered as elements of DB2 UDB Version 7.1 Enterprise Edition. This copy of DB2 is included, with a restricted-use license, to permit delivery and utilization of the Windows-based components of the DB2 Warehouse Manager for OS/390.

Data Warehouse Center: The Data Warehouse Center gives you a graphical control facility, fully integrated with DB2 Control Center. Now you can more easily accomplish the diverse tasks of warehouse creation and management:

- Registering and accessing data sources for your warehouse
- Defining data extraction and data transformation steps
- Directing the population of your data warehouses
- Automating and monitoring the warehouse management processes
- Managing your metadata utilizing standards-based metadata interchange

The Information Catalog: The Information Catalog helps end users to find, understand, and access information they need for making decisions. It:

- Populates the catalog through metadata interchange with the DB2 Warehouse Center and other tools including: QMF, Lotus® 1-2-3®, Brio, Business Objects, Cognos, Excel, Hyperion, and others
- Allows your users to directly register shared information objects including tables, queries, reports, spreadsheets, Web pages, and others
- Provides navigation and search across the objects to locate relevant information
- Displays object metadata such as name, description, contact, currency lineage, and tools for rendering the information
- Can invoke the defined tool in order to render the information in the object for the end user

OS/390 Agents and Transformers: The warehouse agent for OS/390 executes OS/390-based processes on behalf of the Data Warehouse Center. It permits data to be processed in your OS/390 environment without the need to export it to an intermediate platform environment, allowing you to take full advantage of the power, security, reliability, and availability of DB2 and OS/390.

Warehouse transformers are stored procedures or user-defined functions that provide commonly used transformations for building data warehouses. These transformers provide complex transformations commonly used in warehouse development including:

- Date manipulation
- Data cleaning
- Key generation
- Statistical calculations

These transformers augment the rich transformations available with SQL built-in functions including:

- String manipulation
- Boolean operations
- Mathematical calculations

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- Data type conversions
- Utility invocations

DB2 OLAP Starter Kit: The DB2 OLAP Starter Kit is a limited user license of DB2 OLAP Server™ and the OLAP Integration Server. Use them to quickly build and deploy OLAP applications in a Windows-based environment. The DB2 OLAP server for OS/390 is separately available. You can order and use it for OLAP applications to be run natively on OS/390.

DB2 Query Management Facility (QMF) Family: QMF, the tightly integrated, powerful, reliable, query and reporting tool set for the DB2 relational database management system family, provides new capabilities for the workstation environment and enhancements for the mainframe that help you access and present mission-critical data better than ever before. QMF Version 7 enables you to work with data all over the enterprise from DB2 for OS/390, DB2 for VSE and VM, DB2 for AS/400® to workstation servers running OS/2®, Windows NT™, AIX®, and other UNIX® operating systems to massively parallel processors. QMF coupled with the DB2 DataJoiner® product allows access to non-relational and other vendor data sources as well.

The DB2 Warehouse Manager feature delivers the following QMF Family of integrated tools:

- QMF for OS/390
- QMF High Performance Option (HPO) feature
- QMF for Windows feature

They offer a comprehensive data access and governing solution including:

- Accessing large amounts of data
- Sharing central repositories of queries and enterprise reports
- Implementing tightly controlled distributed or client/server solutions

They also provide for report publishing to the Web for viewing with your favorite Web browser.

The QMF HPO Version 7 includes QMF HPO/Manager and QMF HPO/Compiler.

The QMF HPO/Compiler lets you convert automatically queries and reports into efficient programs in OS/VS COBOL or COBOL II. This reduces CPU consumption, DB2 catalog contention, DB2 Optimizer overhead, and security concerns as converted programs use static Structured Query Language (SQL) in place of dynamic SQL.

The QMF HPO/Manager consists of a group of functions that improves governing and object management capabilities, including a preemptive governor to analyze QMF queries. The governing capabilities allow you to establish controls that protect valuable resources. Among the many conditions available for governing are:

- Time of day
- Day of week
- Maximum number of rows to fetch
- Allow/disallow SQL verbs and QMF commands
- Resource consumption based on the use of QMF commands and SQL statements

For customers with DB2 databases of many sizes, QMF for Windows provides a Windows-based, point-and-click query tool that gives you many benefits, including an intuitive GUI “quick start” user interface and a Java™-based query capability. Using QMF for Windows, you can automate tasks and develop powerful native

Windows applications. The tool includes a powerful Windows-based API to automate database querying, updating, and report distribution tasks, so you can centralize control over resource consumption. QMF for Windows also gives you support for TCP/IP, static SQL, create and edit QMF forms and procedures, and a full-screen table editor for updating enterprise data.

QMF for Windows can connect to the DB2 family of products including:

- DB2 UDB for OS/390
- DB2 UDB for AS/400
- DB2 UDB on UNIX, Windows, and OS/2
- DB2 for VSE and VM

QMF for Windows connectivity options include SNA, TCP/IP, and CLI.

QMF for OS/390 Enhancements

- New default Edit codes for current DB2 Date (DD) and Time (TT) format. For QMF Version 7, these are the new default edit codes for date and time columns. Current QMF Forms default edit codes remain in effect.
- New SHOW HOME QMF command.
- Comprehensive command defaults for object type:
 - Commands include CONVERT, EDIT, ERASE, EXPORT, PRINT, RESET, RUN, and SAVE
- Improved command prompting (better human factors) less typing, defaults preloaded in prompts.
- Text option in the MSG command is extended — double quotes no longer need to be added when the text of a message has single quotes.
- New DB2 data types:
 - ROWID and LOB data type support. There are LOB length restrictions for the QMF Table Editor. Refer to the *Using QMF* manual for more information.
- Support for DB2 for VSE DRDA® RUOW Application Requestor (in CICS®) and DB2 for AS/400, Version 4 Release 4 (or later) server support.
- Install improvements:
 - QMF is enabled to bind packages into each supported DB2 server for each supported QMF platform. That is, you can more easily use one QMF install base and simply bind (QMF) on other platforms.

QMF High Performance Option (HPO) Enhancements

- Enhanced tracking of QMF objects to support very large numbers of simultaneous QMF users.
- QMF processes can be preemptively governed based on estimated ASU time.
- QMF batch processes can now be preemptively governed by QMF HPO/Manager.
- Programs generated by QMF HPO/Compiler can be bound into packages in addition to or instead of plans.

QMF for Windows Enhancements

- Ease of Use
 - Point-and-click/drag-and-drop interface to QMF Form creation
 - Aggregation and grouping and formatting performed in the query result

- Enhanced sorting
 - Sort results of a query on more than one non-contiguous column
- Enhanced object list window
 - Add Windows tree control for more intuitive navigation and location of QMF objects
- Windows "Personal Portal" download now built into the product
- Java-based Query from a browser
- Human factors enhancements
 - Menu of items displayed with query results
 - More toolbar buttons
- Option to use DB2 Forms when Table Editor invoked
- Support for Windows NT password function (remembers pwd)
- Database/Connectivity for DB2 OS/390, DRDA, and CLI
 - Support stored procedures that return multiple results sets via the CLI interface
 - Large object support (over CLI and DRDA connections)
 - Enhancements to the server load-balancing algorithm (to support DB2's process of sending back addresses not available for connection)
- QMF Host Compatibility
 - Procedures with REXX logic (All types of QMF host procedures now supported)
 - Support of Form Detail variations
 - Support of Form Column Definitions
 - Support of RESET GLOBAL command
 - New toolbar/window in which single QMF commands can be entered and executed (analogous to the command line in QMF host)
- National Languages
 - UNICODE support
 - Arabic BIDI
 - Traditional Chinese
- CLI Connectivity Enhancements
 - Add CLI-specific information to the Connection Details dialog box, if connecting to the database server via CLI
 - Add CLI tracing to the trace types supported; only valid for CLI connections

For more information on the QMF Family of integrated tools, including a QMF Family demo and a QMF for Windows Try and Buy download, access the QMF Web site at:

<http://www.ibm.com/qmf>

Net Search Extender

Net Search Extender is a new member of the DB2 UDB Extender family and complements DB2 Text Extender. Net Search Extender adds high-speed, scalable Internet text search capability to DB2 by combining in-memory database technology with text search technology. This addresses the needs of e-commerce and Web self-service

applications. It works seamlessly with text data contained in DB2 and handles the heavy text search demands of large text-intensive Web sites. It rapidly searches data without locking database tables and delivers excellent query performance and scalability.

Key Features: Net Search Extender key features include:

- Indexing
 - Use the command line interface to create your search indexes in main memory. Flexible index options permit the use of the same text column in one or more indexes. Net Search Extender indexes proceed without placing locks on the text data.
- Searching
 - Invoke text searches via a stored procedure interface on your server. The powerful search algorithms permit searching by word, phrase, stem, or by fuzzy search. Tags can be used to define limited sections of the text document to restrict the range of the search. You can combine conditions for the search argument, using Boolean expression and wildcard operations.
- Search Results
 - You can specify sort definitions for the search results during index creation. Use result subsets and limits on search terms for your search to manage search performance where large data volumes may be involved. Cursor positioning permits you to navigate through the result set.

In-memory Technology: At index creation time, Net Search Extender allows you to specify parts of the table that can be stored in main memory, such as the sorting of a text index using table columns. For example, you could presort a text index on a book abstract column by the value in the price column.

At run time, DB2 involvement can be as slight as just a call to invoke the stored procedure. A query such as "get the author and price for all books about relational databases and order by price" can be satisfied by:

- Net Search issues the text query "relational databases" against the index
- The search engine preserves the order specified during index creation
- Net Search Extender returns corresponding results from the main memory table — beginning with the lowest priced books

Net Search Extender and Text Extender: In contrast to Text Extender, which offers text search functionality fully integrated into SQL, Net Search Extender provides a single stored procedure.

The Text Extender uses functions to provide SQL language with text search functionality. These can be used inside SQL statements like the built-in SQL functions, such as "length" or "concat." The stored procedure offered by Net Search Extender can be exploited in any Net.Data, Java, or DB2 CLI client application. This allows you to use DB2 interfaces between your application and the DB2 server. If you require rich linguistic functionality, proximity search (word "aa" in the same sentence or paragraph as word "bb"), XML document support, thesaurus support, or integrated multimedia searches (images) then Text Extender is the recommended search solution.

However, for text-only queries, with an expectation of high levels of concurrent queries, Net Search Extender is the recommended solution.

DB2 Management Clients Package

The DB2 Management Clients Package is a no-charge feature of DB2 for OS/390, Version 7. The Management Clients Package is a collection of workstation-based tools you can use to work with and manage your DB2 for OS/390 environment. The elements of the DB2 Management Clients Package Feature are:

- DB2 Control Center
- DB2 Stored Procedures Builder
- DB2 Installer
- DB2 Visual Explain
- DB2 Estimator

DB2 Control Center: Users of DB2 for OS/390 can now manage data in a new way. The Control Center capability of DB2 UDB Version 6 for Windows, UNIX, and OS/2 first extended support to DB2 for OS/390, with Version 6. As a Java-based tool, the Control Center can run on many types of workstations and on many different operating systems. Users can now use the same tool, with its easy-to-use GUI, to manage DB2 databases on OS/390, and on workstation servers. The GUI supports DB2 for OS/390 SQL statements (such as CREATE and ALTER), DB2 commands (such as DISPLAY, START, and STOP), and utilities (such as REORG and LOAD).

With the Control Center, users can manage the family of DB2 databases on many different operating systems. DB2 for OS/390 objects are displayed on the Control Center main window along with objects of other members of the DB2 UDB family. To initiate an action or utility to manage these objects, users select the object. For example, a user can list the table spaces of a particular database and perform the following actions, and others, on one of the selected table spaces:

- Alter (ALTER TABLESPACE statement)
- Drop (DROP statement)
- Copy (COPY utility)
- Run statistics (RUNSTATS utility)
- Check data (CHECK DATA utility)
- Get a report (REPORT utility)
- Modify (MODIFY utility)
- Load data (LOAD utility)
- Reorganize (REORG utility)
- Recover (RECOVER utility)
- Display (DISPLAY command)

The Control Center can run either as a Java application or as an application on your Web server that your Web browser can access. DB2 Control Center is part of the DB2 Application Development Client on Windows, delivered with all editions of DB2 UDB and DB2 Connect products on Linux, OS/2, UNIX, and Windows. Because the Control Center requires DB2 Connect, the DB2 Management Clients Package provides a restricted-use copy of DB2 Connect Version 7 to satisfy this functional dependency.

The Control Center approach to managing DB2 is now extended to the S/390® platform. Sites that have multiple DB2 subsystems, on the same or different operating systems, can use the Control Center as a central point of administration. Users who are more experienced in the workstation environment can manage DB2 for OS/390 more easily as a result of the GUI.

DB2 Stored Procedure Builder: The DB2 Stored Procedure Builder (SPB), an element of the DB2

Management Clients Package, provides an easy-to-use development environment for creating, installing, and testing stored procedures. With the DB2 SPB, you can focus on creating your stored procedure logic rather than on the details of registering, building, and installing stored procedures on a DB2 server. The SPB provides a single development environment that supports the entire DB2 family ranging from the workstation to S/390. With DB2 SPB, you can develop stored procedures on one operating system and deploy them on other server operating systems.

The DB2 SPB has a GUI that guides you through the tasks with the help of basic design patterns, SQL assistants, and costing information. Use the SPB to perform a variety of tasks associated with stored procedures, such as:

- Viewing existing stored procedures
- Modifying existing stored procedures
- Creating new stored procedures
- Running existing stored procedures
- Copying and pasting stored procedures across connections
- One-step building of stored procedures on target databases
- Customizing the settings to enable remote debugging of installed stored procedures

DB2 SPB is part of the DB2 Application Development Client on Windows, delivered with all editions of DB2 UDB and DB2 Connect products on Linux, OS/2, UNIX, and Windows. Because SPB requires DB2 Connect, the DB2 Management Clients Package provides a restricted-use copy of DB2 Connect Version 7 to satisfy this functional dependency.

DB2 Installer: DB2 Installer is a workstation client delivered as an element of the DB2 Management Clients Package. DB2 Installer enhances your productivity whether you are installing DB2 for OS/390 for the first time or you are an experienced installer. From your workstation, you can:

- Install, migrate, or update DB2 for OS/390 from a graphical interface. The graphical interface illustrates the overall installation process and keeps a graphical record of how each subsystem is defined.
- Customize your DB2 subsystem as much or as little as you need. You can define a basic subsystem quickly, or you can customize every installation option. The main windows display those parameters you must specify, and secondary windows display the advanced options.
- Easily control DB2 parameters and run SMP/E, installation, migration, update, fallback, and sample jobs if you have a TCP/IP connection to the DB2 UDB Server for OS/390. You receive job status dynamically, and you can edit JCL and examine job output from the workstation.

Enhancements in Version 7 include:

- Support real time DB2 subsystem parameters as input on migration or update
- Run the DB2 Installer application for the Windows 95, and Windows 2000 platforms, as well as OS/2 and Windows NT
- Improved usability in many dialog windows

Visual Explain: DB2 Visual Explain, a workstation client that is an element of the DB2 Management Tools Package, is an easy-to-use workstation tool that presents the output from DB2 EXPLAIN and dynamic EXPLAIN in a graphical format. Relationships between database objects, such as tables and indexes, are instantly clear as are various operations, such as table space scans and sorts. DB2 Visual Explain also includes a browser for viewing DB2 subsystem parameters. With Visual Explain you can:

- View statement costs in milliseconds and service units. The graph of the access page includes the DB2-estimated cost. You can include the cost when viewing explainable statements, and then you can either sort your statements by cost or filter out statements based on their costs.
- Filter explainable SQL statements from multiple plans and packages. You can list explainable statements from many plans and packages and filter them by criteria that you specify. The criteria include statement cost, access path steps (such as table space scans and sorts), and tables or indexes that your SQL statements reference. You can save filter criteria specifications for later retrieval or modification.
- Quickly generate customized reports. The report wizard lets you create customized reports on one or more explainable statements. You choose how detailed a report you want — including the statement cost, a description of the access path, and catalog statistics on the indexes and tables. You can print the report or save it as a text file.
- Specify your own qualifier for catalog tables. You can avoid using your DB2 catalog for Visual Explain queries by copying the catalog tables. Then you can specify your own qualifier to access the copied tables when Visual Explain retrieves DB2 catalog information.

As a result of enhancements to Visual Explain Version 7, you can:

- See the relationship between the diagrams within a graph
- Filter plan table, statement table, and function table information using a LIKE predicate
- Visualize SQL enhancements, such as UNION in views and row value expression
- Obtain improved graphical display for query blocks, through support for the new PLAN_TABLE column PARENT_QBLOCKNO
- Have greater platform flexibility with support for Windows 95 and Windows 2000

If you are using Control Center, you can launch Visual Explain directly from the Control Center. Because DB2 Visual Explain requires DB2 Connect, the DB2 Management Clients Package provides a restricted-use copy of DB2 Connect Version 7 to satisfy this functional dependency.

DB2 Estimator: DB2 Estimator is an easy-to-use, stand-alone tool for estimating the performance of applications for DB2 for OS/390. DB2 Estimator is one of the elements of the DB2 Management Clients Package. Run it on your desktop personal computer, or take it with you on your portable notebook computer.

With DB2 Estimator, you can model a partial DB2 application or a complete real or planned DB2 application without requiring an actual DB2 system. From simple table sizings to a detailed performance analysis of an entire DB2 application, DB2 Estimator saves time, lowers

costs, and reduces risk. You can use DB2 Estimator to investigate the impact to your production system of new or modified applications before you implement them. You can do what-if analysis to assess the impact of changes you're considering. You can also answer many questions, such as:

- What is the impact on my system if the transaction volume doubles?
- What is the impact if my databases increase in size?
- What is the effect on response time if I use a faster processor?
- Is my batch window large enough for my utilities?
- How much storage do I need for the new table and its indexes?

Use DB2 Estimator during all life-cycle phases of a DB2 application. During the initial design phase, you can easily:

- Determine whether your design is optimal and feasible
- Investigate alternative database designs
- Assess the impact of using triggers and different ways of structuring queries and transactions

When creating database objects, use the models you specified in DB2 Estimator as a guide for naming columns and for specifying attribute values. You can model your system using actual DB2 information by importing information from the DB2 catalog and, if available, from EXPLAIN or DB2 Performance Monitor. Thereby eliminating problems early in the design phase.

When your application is in production, use DB2 Estimator with tools such as DB2 PM to solve application performance problems. You can evaluate alternative SQL designs, without any risk to your production environment, before changing any production database objects. DB2 Estimator also helps you determine the impact of hardware or workload changes.

You can use DB2 Estimator for Versions 5, 6, and 7 of DB2 for OS/390. It runs in any environment that supports Windows (Windows 95, Windows 98, Windows 2000, and Windows NT). Use DB2 Estimator on any data imported from DB2 for OS/390, or you can model an application for which none of the tables, SQL, transactions, or configuration exist.

In Version 7, DB2 Estimator expands support for utilities and SQL statements to help you approximate your working environment more closely. Enhancements in Version 7 include:

- UNLOAD utility
- Scrollable Cursors
- Enhanced LOAD utility parallelism
- SELECT as source of UPDATE SET
- Selected other DB2 Version 7 line-items affecting performance estimates
- Usability enhancements of bulk-object handling

Net.Data Feature

The Net.Data Version 7 feature provides high-performance access to DB2 data from the World Wide Web. Net.Data for OS/390, Version 7 exploits the S/390's capabilities as a premier platform for electronic commerce and Internet technology.

Businesses are finding many reasons to provide Internet and intranet connectivity from the World Wide Web to their business information. Businesses want to build business-critical Web applications to reach the global marketplace. With Net.Data, your business can have interactive Web sites with dynamic data from the sources you have in your business today: relational data on OS/390 and a variety of other platforms. Whether you are building interactive catalogs of products, allowing customers to track orders, or conducting electronic commerce, your Net.Data-driven application gets your data to (and from) a worldwide audience.

IBM Net.Data delivers a powerful framework for Web applications. In addition to connecting to diverse data sources, Net.Data provides for:

- High performance
- Robust application development function
- Exploitation of existing business logic

Net.Data provides native access to the data you need in your business environment:

- DB2 on all platforms
- Other heterogeneous data sources through DB2 DataJoiner
- HFS flat file data

In addition, Net.Data can call DB2 stored procedures for additional performance from static SQL.

Net.Data has extensive application development functionality, including:

- A rich macro language
- Conditional logic
- Support for HTML, XML, and a variety of markup languages
- Support for embedding client-side scripts and applications

Net.Data for OS/390, Version 7 adds enhancements for performance and usability. With Net.Data for OS/390, Version 7, your high-performance, business-critical Web applications can more efficiently utilize the data in your enterprise.

- Enhancements for Performance
 - Net.Data can now run as FastCGI processes. These processes offer a performance comparable to Net.Data, when configured for GWAPI.
 - Net.Data performance with DB2 may be improved by exploiting DB2 support for dynamic statement caching. DTW_USE_DB2_PREPARE_CACHE takes advantage of your frequently reused DB2 SQL statements.
 - You can now directly execute your COBOL applications from Net.Data applications using a Net.Data COBOL interface.
- Enhancements for Usability
 - Use Net.Data XML blocks to generate XML-compliant documents for display or for use with other XML-aware applications.
 - Net.Data supplies sample XSL style sheets (ndTable.xsl, ndObject.xsl, ndRecord.xsl) for generated Net.Data-specific tags.

- Execute recursive SQL by calling SQL functions from within REPORT and ROW blocks of other SQL functions.
- Use new flat-file interface functions in your Net.Data applications to copy files, check to see if a file exists, read a file into a Net.Data variable or write a Net.Data variable to a file.

Refer to the Net.Data Web pages for documentation, sample programs, and customer applications. You can find the Net.Data home page at:

<http://www.software.ibm.com/data/net.data/>

REXX Language Support Feature

REXX Language Support lets your REXX programs access DB2 data. You can use this facility to enable your REXX execs or REXX stored procedures to issue calls directly to DB2 for OS/390.

Technical Information

Hardware Requirements

Processors: DB2 for OS/390 operates on any processor supported by OS/390 Version 2 Release 7 and supports the architectural level set. In this version, DB2 for OS/390 intends to use ESA/390 architectural enhancements that were implemented on selected S/390 servers.

DB2 UDB for OS/390 and z/OS, Version 7 can run only on servers that implement the architectural enhancements, and cannot run on any servers that have not implemented them. The following IBM servers implement the architectural enhancements:

- Models of the S/390 Parallel Enterprise Servers except for Release 1 models
- All models of the S/390 Multiprise® 2000 and 3000
- All models of the S/390 Application StarterPak Type 3000
- All PC Server S/390 servers and RS/6000® with S/390 Server-on-Board models
- All S/390 Integrated Servers

DB2 UDB for OS/390 and z/OS, Version 7 cannot run on the following IBM servers, because they do not implement the architectural enhancements:

- ES/9000® Processor Unit 9021, 9121, or 9221
- ES/3090™ Models
- ES/4381™ Models
- S/390 Parallel Transaction Server 9672 E or P models
- S/390 Parallel Enterprise Server™ 9672 Release 1 models

Architectural enhancements provide a variety of performance and reliability improvements. For more information about the specific enhancements in ESA/390, refer to Software Announcement 299-234, dated August 24, 1999, or the product manuals for ESA/390.

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

- DB2
- OS/390
- Appropriate Data Facility Product

- Appropriate access methods
- Telecommunications
- Batch requirements
- Other customer required applications

The configuration must include sufficient I/O devices to support the requirements for system output, system residence, and system data sets. Sufficient direct access storage (DASD) must be available to satisfy the user's information storage requirements and can consist of any direct access facility supported by the system configuration and the programming system.

Auxiliary Storage: DB2 is independent of DASD and tape device type. The customer can use any magnetic or tape device supported by the data facilities component of OS/390 or z/OS for the DB2 data sets. The following DB2 data sets are supported by the following device types:

- Active recovery log data sets: disk
- Archive recovery log data sets: disk, tape
- Image copy data sets: disk, tape
- Bootstrap data sets: disk
- User data sets: disk
- DB2 catalog data sets: disk
- Work data sets (for utilities): disk, tape

If these data sets are on a disk shared with other OS/390 or z/OS systems, you should use global resource serialization to prevent concurrent access by more than one OS/390 or z/OS system.

The minimum DASD space requirement, based on installing DB2 using the Installation Panels default values, is approximately 600 MB. You will need additional DASD space for your data.

If you use dual logging and tape for the log archiving device, you need at least two tape drives.

Data Communications Devices: DB2 operations can be controlled from:

- System console
- Authorized IMS/ESA® Transaction Manager terminals
- Authorized CICS terminals
- TSO terminals (by authorized users)

For the data communication devices supported by IMS/ESA Transaction Manager, CICS, and TSO, refer to the documentation for these products.

Function-Dependent Hardware Requirements

- UNLOAD Utility: Use of the FLOAT IEEE option requires the basic floating-point extensions facility (G5 processor or above).

Software Requirements: This section lists licensed programs required in the DB2 UDB for OS/390 and z/OS, Version 7 environment. You can use subsequent versions or releases of the programs, unless stated otherwise. This section also identifies the requirements associated with specific DB2 capabilities, as well as optional programs that you can use with DB2 UDB for OS/390 and z/OS, Version 7.

Operating System and Support Programs: For an OS/390 environment, DB2 requires the function provided by the following licensed programs or their equivalents; later versions or releases of any product are acceptable.

- z/OS Version 1 Release 1 (5694-A01) (refer to Software Announcement 200-352, dated October 3, 2000)

- OS/390 Version 2 Release 7 System Services (5647-A01)
- DFSORT™, part of the OS/390 Version 2 Release 7 Application Enablement Services optional feature

Virtual Storage Requirements: The amount of space needed for the common service area (CSA) below the 16 MB line is less than 40 KB for each DB2 subsystem and 24 KB for each IRLM. High concurrent activity, parallelism, or high contention can require more CSA.

Most of the DB2 common data resides in the extended common service area (ECSA). Most modules, control blocks, and buffers reside in the extended private area. A DB2 subsystem with 200 concurrent users and 2,000 open data sets should need less than 2 MB of virtual storage below the 16 MB line.

Function-Dependent Program Requirements: The following functions of DB2 require specific licensed programs, or features of licensed programs, before they can be used:

- **Application Execution:** Applications written in high-level programming languages, such as applications or stored procedures written in the C language and using the ODBC or CLI interfaces to DB2, require the Application Enablement Services element of OS/390 at run time. Applications or stored procedures written in Java, such as those using the JDBC or SQLJ interfaces to DB2, require Java for OS/390 (5655-A46) at run time, and are only supported on OS/390 Version 2 Release 8, or later.

- **Migration/Fallback/Coexistence for DB2 OS/390, Versions 5 and 6:** Before migrating from DB2 for OS/390, Version 5 or Version 6, APAR PQ34467 must be installed to enable support for fallback or coexistence with Version 7.

- **Extenders**

- **Audio, Image, Video and Net Search Extenders:** Use of these extenders requires Language Environment®, which is part of the Application Enablement Services element of OS/390.

- **Text Extender:** Use of the Text Extender requires the IBM Text Search Engine, which is part of the e-business Services element of OS/390 Version 2 Release 7, or later, as well as Language Environment, which is part of the Application Enablement Services element of OS/390. Specifically, the following functions require OS/390 Version 2 Release 9, or later, and the associated Text Search Engine:

- XML support
- The ability to specify multiple document model files for structured documents
- Support for CCSIDs 13488 (Unicode UCS2), and 1208 (Unicode UTF8), except for NGRAM indexes

The DB2 Connect product provides an optional administration client for the DB2 for OS/390 Text Extender. A license for one of the following products is required for this capability:

- DB2 Connect Personal Edition Version 7.1 (11K7622)
- DB2 Connect Enterprise Edition Version 7.1 (41L2987)

- **XML Extender:** Use of the XML Extender requires Language Environment, which is part of the OS/390

Application Enablement Services element, and the IBM XML Parser for OS/390, C++ Edition, to be available at run time. The required parser is provided with Release 2 of the IBM XML Toolkit for OS/390 (5655-D44) (refer to Software Announcement 200-144, dated May 16, 2000). Use of either the XMLFile type or the "Getting Started" material requires the UNIX System Services element of OS/390 to be available.

- **Support for Unicode:** Use of Unicode data storage and manipulation capabilities requires OS/390 Version 2 Release 8 (5647-A01), or later (with APAR OW44581 applied), plus the OS/390 R8/R9/R10 Support for Unicode. Refer to:

<http://www.ibm.com/downloads>

To obtain the code and program directory, visit:

<http://www.s390.ibm.com/os390/bkserv/v2r10books.html>

For OS/390 Version 2 Release 9, or later, this capability is further complemented by the Language Environment support in the Application Enablement Services element of OS/390.

- **Windows Kerberos Security:** DB2 UDB for OS/390 and z/OS, Version 7 supports authentication using Kerberos with the following required software:
 - Server support: DB2 for OS/390 requires the SecureWay® Security Server, an optional feature of OS/390 Version 2 Release 10, which includes the Network Authentication and Privacy Service based on MIT Kerberos Version 5, and RACF® Program Control enhancements (refer to Software Announcement 200-145, dated May 16, 2000).
 - Client support: DB2 UDB for OS/390 and z/OS, Version 7 requires a client able to perform Kerberos authentication over DRDA, such as DB2 Connect Version 7 for Windows. The client must provide support for single sign-on using Kerberos security in Windows 2000 (refer to Software Announcement 200-091, dated April 18, 2000).

Optional Program Requirements: The following functions are enabled with the specified optional licensed programs when used together with DB2:

- **DRDA Connectivity:** DB2 UDB for OS/390 and z/OS, Version 7 supports the following IBM relational database products:
 - DB2 Connect for Linux for S/390 and zSeries
 - DB2 Connect for Linux, UNIX, Windows, OS/2, Version 6 or 7
 - DB2 UDB for AS/400, Version 4 Release 2
 - Operating System/400® (OS/400®) Version 4 Release 1 with DB2 for AS/400 (5769-SS1)
 - DB2 Server for VSE & VM, Version 7 (5697-F42)
 - DB2 Server for VSE & VM, Version 6 (5648-158)
 - DB2 DataJoiner Version 2 Release 1.1 (5231-200)
 - Any other DRDA-compliant relational DBMS

DRDA requires the Communications Server of OS/390. Support over TCP/IP for OS/390 Version 2 Release 7 requires APAR PQ34286.

- **Web Connectivity:** The following products provide connectivity to DB2 for OS/390, Version 7 from the Web:

- WebSphere™ Application Server Version 3 Release 2 (5655-A98), or later (refer to Software Announcement 200-155, dated May 30, 2000).
- Net.Data for OS/390, a feature of DB2 UDB for OS/390 and z/OS, Version 7
- Net Search Extender, a feature of DB2 UDB for OS/390 and z/OS, Version 7

- **DL/I Connectivity:** DL/I access to IMS™ DB from DB2 Stored Procedures requires:

- IMS Version 7 (5655-B01)
- IMS/ESA Version 6 (5655-158)

JDBC access to IMS DB in Stored Procedures requires IMS Version 7 (5655-B01).

- **Capacity Planning:** DB2 Estimator for Windows, an element of the DB2 Management Clients Package feature of DB2 UDB for OS/390 and z/OS, Version 7, works with DB2 data to estimate application feasibility, to model application cost and performance, and to estimate required CPU and I/O capacity.

- **Transaction Management:** The following transaction management products work with DB2:

- Information Management System (IMS)
 - IMS Version 7 (5655-B01)
 - IMS/ESA Version 6 (5655-158)
 - IMS/ESA Version 5 (5698-176)
- Customer Information Control System (CICS)
 - CICS Transaction Server for OS/390, Release 1 (5655-147)
 - CICS/ESA® Version 4 (5655-018)

- **Query Support:** The following programs work with DB2:

- DB2 Extenders® for Text, Audio, Video, Image, and XML, which are elements of DB2 UDB for OS/390 and z/OS, Version 7
- The Query Management Facility (QMF) family, which is an element of the DB2 Warehouse Manager feature of DB2 UDB for OS/390 and z/OS, Version 7, and includes:
 - QMF for OS/390
 - QMF for Windows
 - QMF High Performance Option

- **Application Development Tools and Programming Languages:** The DB2 Stored Procedure Builder, which is part of the Software Developer's Kit (SDK) on Windows, AIX, and Solaris is delivered with all editions of DB2 UDB and DB2 Connect products. A restricted-use copy of DB2 Connect for Windows is provided in the DB2 Management Clients Package feature of DB2 UDB for OS/390 and z/OS, Version 7 to satisfy this functional dependency.

The following application development tools and programming languages work with DB2:

- **Assembler:** High Level Assembler Release 3 (5696-234), part of the System Services element of OS/390
- **C/C++:** Any of the following:
 - C/C++ (with or without Debug Tool), part of the Application Enablement Services optional feature of OS/390

- IBM C/C++ for MVS/ESA™, Version 3 Release 2 (5655-121)
- AD/Cycle® C/370™ Release 2 (5688-216)
- **COBOL:** Any of the following:
 - IBM COBOL for OS/390 & VM, Version 2 (5648-A25) optionally with VisualAge® COBOL Enterprise Version 2.2 (04L6579)
 - IBM COBOL for MVS™ & VM, Release 2 (5688-197)
 - VS COBOL II Release 4 (5668-958, 5688-023, or 5688-022)

Use of the DB2 Precompiler Services requires the DB2 Coprocessor provided with IBM COBOL for OS/390 & VM (5648-A25), Version 2 Release 2. (Refer to Software Announcement 200-331, dated September 26, 2000).

- **FORTRAN:** VS FORTRAN Version 2 (5668-806, 5688-087, or 5668-805)
- **Java:** Applications or stored procedures written in Java, such as those using the JDBC or SQLJ interfaces to DB2, require Java for OS/390 (5655-A46) at run time, and are only supported on OS/390 Version 2 Release 8, or later.

For more information, visit:

<http://www.ibm.com/s390/java/>

- **PL/I:** Any of the following:
 - VisualAge PL/I for OS/390, Version 2 Release 2 (5655-B22)
 - IBM PL/I for MVS & VM, Release 1.1 (5688-235)
 - OS PL/I Version 2 Release 3 (5668-909, 5668-910, or 5668-911)
- **REXX:** Any of the following:
 - REXX Version 1 Release 3 (5695-013 or 5695-014)
 - IBM TSO Extensions for MVS REXX, which is part of OS/390
- **SQL Procedure Language:** A C language compiler is required on OS/390 to develop stored procedures using the SQL procedure language.

- **Operational Support:** The following programs provide operational support for DB2:
 - DFSMS features, part of the Systems Management optional feature of OS/390; specifically,
 - DFSMSShsm™ for archiving
 - DFSMSDss™ for concurrent copy in Utilities
 - RACF functions provided by the Security Server optional feature of OS/390
 - IBM Softcopy Reader or Library Readers, included on the CD-ROMs for BookManager® books
 - The IBM Tools for Database Recovery and Replication Management, including the following tools (refer to Software Announcement 200-299, dated September 12, 2000):
 - DB2 DataPropagator™ for OS/390, Version 7 (5655-E60)
 - IBM IMS DataPropagator Version 2 (5696-705)
 - DB2 Recovery Manager for OS/390 (5697-F56)

- DB2 Row Archive Manager for OS/390 (5655-E65)

- The IBM Tools for Database Application Environments, including the following tools (refer to Software Announcement 200-300, dated September 12, 2000):
 - DB2 Bind Manager (5655-D38)
 - DB2 Web Query Tool (5655-E71)

- **Database Administration and Systems Management Support:** The following tools support data administration and systems management for DB2:

- The DB2 Management Clients Package, a feature of DB2 UDB for OS/390 and z/OS, Version 7 includes:
 - DB2 Control Center
 - DB2 Stored Procedure Builder
 - DB2 Installer
 - DB2 for OS/390 Visual Explain
 - DB2 Estimator

The Control Center and Stored Procedure Builder are delivered with all editions of DB2 UDB and DB2 Connect products. A restricted-use copy of DB2 Connect Personal Edition (11K7622) for Windows is provided in the DB2 Management Clients Package feature of DB2 UDB for OS/390 and z/OS, Version 7 to satisfy this functional dependency.

- The IBM Tools for Database Administration, including the following tools (refer to Software Announcement 200-302, dated September 12, 2000):
 - DB2 Administration Tool Version 2 (5655-E70)
 - DB2 Forms Version 3 (5697-G52)
 - DB2 High Performance Unload (5655-E69)
 - DB2 Automation Tool (5655-E72)
 - DB2 Log Analysis Tool (5655-E66)
- The IBM Tools for Database Performance Management, including the following tools (refer to Software Announcement 200-298, dated September 12, 2000):
 - DB2 Performance Monitor for OS/390, Version 7 (5655-E61)
 - DB2 SQL Performance Analyzer for OS/390 (5697-F57)
 - DB2 Query Monitor for OS/390 (5655-E67)

Function-Dependent Requirements for Features of DB2 UDB Server for OS/390: DB2 UDB for OS/390 and z/OS, Version 7 includes the following features, some of which have requirements of their own, above and beyond what the base DB2 product requires. This section identifies the requirements for using these features, but does not repeat the requirements for DB2 UDB for OS/390 and z/OS, Version 7.

Recommendation: Before using these features, refer to the installation information for these features to ensure you have all required and recommended products.

- **DB2 Installer** is an element of the DB2 Management Clients Package, which is a feature of DB2 UDB for OS/390 and z/OS, Version 7.

- *Hardware Requirements:* DB2 Installer requires:
 - A workstation capable of running Windows or OS/2
 - A monitor capable of displaying 800 X 600 resolution
 - 25 MB of disk space on the target drive and 2 MB of disk space for each subsystem defined
- *Software Requirements:* DB2 Installer can run in either of the following environments:
 - Microsoft™ Windows 2000, Windows NT 4.0, or Windows 95
 - OS/2 Warp® 4, optionally with either TCP/IP for OS/2, Version 3.0, or OS/2 Warp Connect

These environments require TCP/IP in any of the following circumstances:

- To run jobs from the workstation
- To use the copy-jobs-to-host function from the workstation

If you do not have TCP/IP, you may still use DB2 Installer to customize your installation jobs on your workstation. However, you will need to use a method outside of DB2 Installer to move jobs from the workstation to OS/390 for execution.

- **DB2 UDB for OS/390 Visual Explain** is an element of the DB2 Management Clients Package, which is a feature of DB2 UDB for OS/390 and z/OS, Version 7.

- *Hardware Requirements:* DB2 for OS/390 Visual Explain requires:
 - A workstation capable of running Windows or OS/2
 - A monitor capable of displaying 1024 X 768 resolution
 - Approximately 12 MB of disk space
- *Software Requirements:* Visual Explain can run in either of the following environments:
 - Microsoft Windows 2000, Windows NT Version 4.0, or Windows 95
 - OS/2 Warp 4

DB2 Connect Personal Edition Version 6, or later, must be installed on the DB2 for OS/390 Visual Explain workstation. In addition, DB2 for OS/390 Visual Explain requires one of the following communication protocols:

- TCP/IP part of the Communications Server element of OS/390 (for OS/390 Version 2 Release 7, APAR PQ34286 required)
- SNA communications using a product such as Communication Server Version 5.0, SNA Server Version 4.0, or the integrated SNA support in DB2 Connect Personal Edition

DB2 for OS/390 Visual Explain includes a browser that lets users view current values of subsystem parameters. To use this browser, your DB2 for OS/390 subsystem must have the DSNWZP stored procedure enabled.

- **DB2 Estimator** is an element of the DB2 Management Clients Package, which is a feature of DB2 UDB for OS/390 and z/OS, Version 7.

- *Hardware Requirements:*
 - A workstation capable of running Windows
 - A monitor capable of displaying 800 X 600 resolution
 - Approximately 27 MB of disk space
- *Software Requirements:* DB2 Estimator runs in any of the following environments:
 - Microsoft Windows 2000, Windows NT Version 4.0, Windows 98, or Windows 95

- **Net.Data for OS/390** a feature of DB2 UDB for OS/390 and z/OS, Version 7, has the following requirements:

- *Software Requirements:* Net.Data requires an HTTP server to be installed on the same server as Net.Data. To configure Net.Data to execute as a Servlet, the following additional products are required:
 - WebSphere Application Server for OS/390, Version 3 Release 2 (5655-A98), or later (refer to Software Announcement 200-155, dated May 30, 2000)
 - JDK 1.1.8 for OS/390, or later

- **DB2 Warehouse Center** is an element of the DB2 Warehouse Manager, which is a feature of DB2 UDB for OS/390 and z/OS, Version 7.

- *Software Requirements:* The DB2 Warehouse Manager for OS/390 uses the warehouse server component of DB2 UDB Enterprise Edition Version 7 for Windows, which supports Microsoft Windows 2000 and Windows NT. A restricted-use copy of DB2 UDB Enterprise Edition is provided in the DB2 Warehouse Manager for OS/390 package to satisfy this functional dependency. The DB2 Warehouse Manager for OS/390 uses the warehouse administrative client component of DB2 UDB Enterprise Edition Version 7; the administrative client supports Windows, AIX, and Sun Solaris operating environments (for details, refer to Software Announcement 200-098, dated April 18, 2000).

Data Warehouse Center provides agents for OS/390. These agents require:

- UNIX Systems Services element of OS/390
- TCP/IP, part of the Communications Server element of OS/390 (for OS/390 Version 2 Release 7, APAR PQ34286 required)
- DB2 Java stored procedure enablement

Data Warehouse Center can support target data warehouses built on any of the following DB2 for OS/390 versions:

- DB2 UDB for OS/390 and z/OS, Version 7 (5675-DB2)
- DB2 UDB for OS/390, Version 6 (5645-DB2)
- DB2 for OS/390, Version 5 (5655-DB2)

- **QMF, QMF HPO, and QMF for Windows**, all of which are elements of the DB2 Warehouse Manager, which is a feature of DB2 UDB for OS/390 and z/OS, Version 7.

- *Hardware Requirements:* The following QMF functions have hardware dependencies:
 - QMF for OS/390 requires a display station supported by GDDM®.

- QMF High Performance Option (HPO) requires a display station supported by ISPF.
- QMF for Windows requires a workstation that supports: a workstation capable of running Windows; network connectivity; approximately 10 MB of disk space.
- *Software Requirements:* The following QMF features have software program dependencies:
 - Use of QMF forms calculations requires a Windows 32-bit operating system and IBM Object REXX Interpreter Edition (5639-B73).
 - QMF for Windows and the QMF for Windows Administrator module require a 32-bit Windows operating system. QMF for Windows requires network communication software on each user machine, plus one or both of the following programs: an SNA product that provides a CPI-C interface; a TCP/IP product that provides a WinSock Version 1.1 interface.
 - Use of QMF for Windows with English Wizard natural language query requires English Wizard Release 3.1 from Linguistic Technologies.

Compatibility

DB2: DB2 UDB for OS/390 and z/OS, Version 7 is upwardly compatible with prior releases of DB2 for OS/390 and DB2 for MVS/ESA. Migration with full fallback protection is available for customers running on either DB2 for OS/390, Version 5 or DB2 UDB for OS/390, Version 6. Thus, existing customers should ensure they are successfully running on DB2 for OS/390, Version 5, or later, before migrating to DB2 UDB for OS/390 and z/OS, Version 7.

User Group Requirements: This announcement satisfies or partially satisfies 63 requirements from one or more of the worldwide user group communities. Groups include Australasian SHARE/GUIDE (ASG), COMMON, COMMON Europe, GUIDE International, G.U.I.D.E. Europe, Japan GUIDE/SHARE (JGS), Guide Latin American (LAG), SHARE EUROPE, and SHARE Incorporated. Requirements satisfied include:

- REQ00033987 DB2 Unload Utility
- REQ00048887 Unload utility
- REQ00073656 DB2 UTILITY REORG UNLOAD EXTERNAL INCONVENIENT TO USE
- REQ00075995 REORG UNLOAD Enhancements
- REQ00039320 COPY with filtering of Table Space Names
- REQ00039857 Image Copy by Database
- REQ00039323 Thread Termination Without Rollback
- REQ00041522 Terminate Thread without Backout
- REQ00072841 Command to Cancel Backout and Recover Objects
- REQ00075829 CANCEL THREAD NO ROLLBACK
- REQ00069335 Online REORG Switch Phase Takes Too Long to Complete
- REQ00039774 Support scrollable cursor
- REQ00023873 Fetch previous row
- REQ00039114 DB2 Unpredictable Results when using Index instead of Temporary
- REQ00039450 ENSURE PREDICTABLE RESULTS WHEN FETCHING A ROW FROM A CURSOR
- REQ00025551 Provide an option to make a CURSOR insensitive to updates
- REQ00039634 Select max on the first column in a unique index in DB2
- REQ00039540 Enhance DB2 to walk backwards

- REQ00026448 through an INDEX
- REQ00028200 DB2-Precompiler support for SQL statements in nested program
- REQ00039163 Embedded SQL within VS COBOL II Nested Programs
- REQ00039758 Extra DB2 precompiler option to suppress generated code
- REQ00039798 Support Subscripted Host-Variable Reduce Initialization overhead for SQL in programs containing SQL
- REQ00029770 Dynamic Alteration of DB2 System Parameters
- REQ00037642 DB2 — Provide dynamic ZPARM update capability
- REQ00039026 DB2 system parameters: dynamic reconfiguration
- REQ00039704 DSNZPARM
- REQ00039772 Capability of Dynamically changing to DSNZPARM parameters
- REQ00062092 Dynamic Assignment of DSNZPARM
- REQ00062114 Dynamic Updating of DSNZPARM
- REQ00068708 DB2 DSNZPARM, ZPARM, changing while DB2 is running
- REQ00068708-1 DB2 DSNZPARM, ZPARM, changing while DB2 is running
- REQ00072132 ZPARM Alteration Function While Running DB2 System
- REQ00072836 Dynamic change for DSNZPARM parameters
- REQ00072848 Dynamic Modification of Unittyp for Archive Logs
- REQ00074416 Improvement of DB2 subquery performance
- REQ00029459 Allow DB2 Delete From Table with Subselect From Same Table
- REQ0007521 Reduce recovery time in datasharing environments
- REQ00065739 Online Utilities
- REQ00073348 LOAD RESUME with OLTP concurrency/generic insert bmp capability
- REQ00039004 COMMENT ON for all DB2 objects
- REQ00039628 Only a few tables have remark columns. All of the tables ought to.
- REQ00039640 Get DSNTINST values from running DSNZPARM
- REQ00075134 DB2 Optimizer
- REQ00075699 Catalog column for immedwrite bind parameter
- REQ00039011 Prize-list
- REQ00039296 Adding new statement "SELECT FIRST (n)"
- REQ00040253 ALLOW A LIMIT TO BE PLACED ON THE NUMBER OF ROWS RETRIEVED
- REQ00074553 LIMIT THE NUMBER OF ROWS RETURNED ON A SELECT STATEMENT
- REQ00068551-1 Increase of acceptable values for QUERYNO in Plan_table
- REQ00068551 Increase of acceptable values for QUERYNO in Plan_table
- REQ00069866 Top Secret DB2 Interface
- REQ00070041 Authorization exit needs to pass DATABASE name for ALTER and DROP
- REQ00034332 Allow DBADM to create view with different qualifier
- REQ00039156 DB2 — Enhance DBADM authority
- REQ00041745 DBADM authority to create views
- REQ00045374 SPECIFY A OWNER IN CREATE VIEW
- REQ00058505 DBADM-Authority for CREATE VIEW
- REQ00065735 DBADM-Authority for CREATE VIEW
- REQ00074704 Full RACF DB2 Security Management
- REQ00072517 Accounting traces running a full day

Planning Information

Customer Responsibilities: Customers should review the sections in this announcement that describe the hardware and software dependencies for DB2 UDB for OS/390 and z/OS, Version 7.

DB2 UDB for OS/390 and z/OS, Version 7 has support for migration from Version 5 or 6. Customers not yet on Version 5, should plan to migrate to DB2 for OS/390, Version 5, or later, as preparation for a migration to Version 7.

Migration Considerations: IBM added many universal database capabilities in DB2 UDB for OS/390, Version 6 and removed support for some functions. As you prepare to migrate your subsystems, you should be aware of the following changes:

- Type 1 indexes are no longer supported. DB2 for OS/390 requires type 2 indexes for every index. Convert all indexes to type 2 before migrating to Version 6 or 7.
- Data set password protection is no longer supported. DB2 subsystems should protect data sets by using a security subsystem, such as RACF, which is an element of the OS/390 Security Server, rather than by passwords. Remove all passwords from all indexes and table spaces before migrating to Version 6 or 7.
- Shared read-only data is replaced by more substantial, more usable data sharing. Another alternative is to use distributed data. Convert or drop all shared read-only databases before migrating to Version 6 or 7.
- Host variables in SQL statements now require a preceding colon. In previous releases of DB2 for OS/390, the colons are optional. Ensure all host variable references include a preceding colon before migrating to Version 6 or 7.
- RECOVER INDEX is renamed to REBUILD INDEX. Versions 4 and 5 of DB2 for OS/390 provide an alias REBUILD INDEX so you can prepare for the change. Convert utility jobs to use the REBUILD INDEX syntax before migrating to Version 6 or 7.
- Using prior releases of DB2 for OS/390, you register stored procedures in the SYSIBM.SYSPROCEDURES catalog table. You control access by using the AUTHID and LUNAME of the caller. Using Version 6, you register stored procedures in a new catalog table by using the CREATE PROCEDURE statement. You can map your stored procedure definitions that use AUTHID to the schema and CURRENT PATH support. You must eliminate rows that control access with LUNAME prior to migrating to Version 6 or 7.

For more detailed information on migrating to Version 7, refer to the *DB2 UDB for OS/390 and z/OS, Version 7 Installation Guide* (GC26-9636).

Installability: Customers should refer to the planning sections of the following publications available from an IBM representative, as well as the Program Directory shipped with the product:

- Release Planning Guide (SC26-9943)
- Installation Guide (GC26-9936)
- Data Sharing: Planning and Administration (SC26-9935)

Packaging: The DB2 UDB Server for OS/390, except as noted below, will be shipped on 9-track magnetic tapes

(written at 6,250 bpi), 3480 cartridges, or 4-mm DAT cartridges.

Also included will be a Program Directory, and under separate cover, one copy of the entitled publications.

The workstation client functions of DB2 Management Clients Package and DB2 Extenders will be shipped on CD-ROM.

The QMF for Windows product CD-ROM also contains all supported national languages and all U.S. English and translated publications, in softcopy format. Two publications are shipped:

- Getting Started with QMF for Windows
- Installing and Managing QMF for Windows

Security, Auditability, and Control

DB2 UDB for OS/390 and z/OS, Version 7 uses the security and auditability features of the host OS/390 systems. It also provides facilities for the protection and control of its resources. These facilities include controls for:

- System access
- Data access and control
- Concurrent access
- Data recovery
- Accounting

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. 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

New Licensees

Orders for new licenses can be placed now.

Shipment will not occur before March 30, 2001.

Unless a later date is specified, orders entered before March 30, 2001, will be assigned a schedule date of one week following this date.

Shipment will begin on March 30, 2001.

New users of DB2 UDB Server for OS/390 and z/OS, Version 7 should specify 5675-DB2.

Basic License: To order a basic license, specify the program number and feature number 9001 for asset registration.

Entry Support License (ESL): To order an ESL license, specify the program number, feature number 9001 for

asset registration, and the applicable ESL OTC feature number. Also specify the feature number of the desired distribution medium.

Description	Program Number	OTC Feature Number
DB2 UDB for OS/390 and z/OS ESL Optional Features	5675-DB2	0029
DB2 Warehouse Manager ESL		0083
QMF for OS/390 ESL		0128
QMF for Windows ESL (Requires QMF)		0236
QMF for Windows ESL (No Requirement)		0274
DB2 Net Search Extender ESL		0515
DB2 UDB for OS/390, Version 6 Optional Feature	5645-DB2	
DB2 Net Search Extender ESL		0350

Application StarterPak License (ASPL): This program product is eligible for ASPL charges. The appropriate ASPL charge is determined by the 3000 model on which the programs are preloaded. The ASPL license charge feature numbers are as follows:

Program Name	3000-A10 ASPL MLC ¹ Feature Number	3000-A20 ASPL MLC Feature Number
5675-DB2		
DB2 UDB for OS/390 Optional Features	0016	0017
DB2 Warehouse Manager	0087	0088
QMF for OS/390	0132	0133
QMF for Windows (Requires QMF)	0231	0232
QMF for Windows (Without QMF Requirement)	0269	0270
DB2 Net Search Extender	0516	0517
DB2 UDB for OS/390, Version 6 Optional Feature		
DB2 Net Search Extender	0351	0352

¹ Monthly license charge.

Customers must sign the Attachment for IBM S/390 Application StarterPak License (Z125-5597) to the IBM Customer Agreement (ICA) or to its equivalent depending on the geography. ASPL charges apply to the programs listed above when these programs are licensed for use on an IBM 3000 Model A10 or A20 processor. If ASPL is not available for a particular program, the applicable license charges apply. For the IBM 3000 Model A10, Group 38 or 6 MSUs apply. For the IBM 3000 Model A20, Group 40 or 11 MSUs apply.

ESL machines can be determined by referring to the IBM Entry End User/390 Attachment (Z125-4379).

Parallel Sysplex® License Charge (PSLC) Basic License: To order a basic license, specify the program number and feature number 9001 for asset registration. Specify the PSLC Base feature. If applicable, specify the PSLC Level A and PSLC Level B, and PSLC Level C, PSLC Level D features and quantity.

If there is more than one program copy in a Parallel Sysplex, the charge for all copies is associated to one license by specifying the applicable PSLC feature

numbers and quantity represented by the sum of the Service Units in Millions (MSUs) in your Parallel Sysplex. For all other program copies, specify the PSLC No-Charge (NC) Identifier feature on the licenses.

Also, specify the feature number of the desired distribution medium.

DB2 UDB for OS/390 (PSLC)

MSU Capacity	PSLC Feature Number	Basic License MLC Feature Description
1	0001	Base, 1 MSU
2	0002	Base, 2 MSUs
3	0003	Base, 3 MSUs
4 - 45	0004	Level A, 1 MSU
	0005	Level A, 42 MSUs
46 - 175	0006	Level B, 1 MSU
	0007	Level B, 10 MSUs
	0008	Level B, 50 MSUs
176 - 315	0009	Level C, 1 MSU
	0010	Level C, 10 MSUs
	0011	Level C, 50 MSUs
316 or more	0012	Level D, 1 MSU
	0013	Level D, 50 MSUs
Not Applicable	0014	NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

- 0003 — quantity 1
- 0004 — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0003 — quantity 1
 - 0005 — quantity 1
 - 0006 — quantity 5
 - 0007 — quantity 1
- PSLC no-charge license #2:
 - 0014 — quantity 1

DB2 Warehouse Manager Feature (PSLC)

MSU Capacity	PSLC Feature Number	Basic License MLC Feature Description
1	0062	Base, 1 MSU
2	0063	Base, 2 MSUs
3	0064	Base, 3 MSUs
4 - 45	0065	Level A, 1 MSU
	0066	Level A, 42 MSUs
46 - 175	0067	Level B, 1 MSU
	0068	Level B, 10 MSUs
	0069	Level B, 50 MSUs
176 - 315	0070	Level C, 1 MSU
	0071	Level C, 10 MSUs
	0072	Level C, 50 MSUs
316 or more	0073	Level D, 1 MSU
	0074	Level D, 50 MSUs
Not Applicable	0075	NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

0064 — quantity 1
 0065 — quantity 8

QMF for Windows Feature of QMF (PSLC): Requires QMF for OS/390

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0064 — quantity 1
 - 0066 — quantity 1
 - 0067 — quantity 5
 - 0068 — quantity 1
- PSLC no-charge license #2:
 - 0075 — quantity 1

QMF for OS/390 Feature (PSLC)

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
1	0107	Base, 1 MSU
2	0108	Base, 2 MSUs
3	0109	Base, 3 MSUs

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
4 - 45	0110	Level A, 1 MSU
	0111	Level A, 42 MSUs
46 - 175	0112	Level B, 1 MSU
	0113	Level B, 10 MSUs
	0114	Level B, 50 MSUs
176 - 315	0115	Level C, 1 MSU
	0116	Level C, 10 MSUs
	0117	Level C, 50 MSUs
316 or more	0118	Level D, 1 MSU
	0119	Level D, 50 MSUs
Not Applicable	0120	NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

0109 — quantity 1
 0110 — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0109 — quantity 1
 - 0111 — quantity 1
 - 0112 — quantity 5
 - 0113 — quantity 1
- PSLC no-charge license #2:
 - 0120 — quantity 1

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
1	0217	Base, 1 MSU
2	0218	Base, 2 MSUs
3	0219	Base, 3 MSUs
4 - 45	0220	Level A, 1 MSU
	0221	Level A, 42 MSUs
46 - 175	0222	Level B, 1 MSU
	0223	Level B, 10 MSUs
	0224	Level B, 50 MSUs
176 - 315	0225	Level C, 1 MSU
	0226	Level C, 10 MSUs
	0227	Level C, 50 MSUs
316 or more	0228	Level D, 1 MSU
	0229	Level D, 50 MSUs
Not Applicable	0230	NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

0219 — quantity 1
 0220 — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0219 — quantity 1
 - 0221 — quantity 1
 - 0222 — quantity 5
 - 0223 — quantity 1
- PSLC no-charge license #2:
 - 0230 — quantity 1

QMF for Windows Feature (PSLC): Without QMF for OS/390 requirement

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
1	0255	PSLC Base, 1 MSU
2	0256	PSLC Base, 2 MSUs
3	0257	PSLC Base, 3 MSUs
4 - 45	0258	PSLC Level A, 1 MSU
	0259	PSLC Level A, 42 MSUs
46 - 175	0260	PSLC Level B, 1 MSU
	0261	PSLC Level B, 10 MSUs
	0262	PSLC Level B, 50 MSUs
176 - 315	0263	PSLC Level C, 1 MSU
	0264	PSLC Level C, 10 MSUs
	0265	PSLC Level C, 50 MSUs
316 or more	0266	PSLC Level D, 1 MSU
	0267	PSLC Level D, 50 MSUs
Not Applicable	0268	PSLC NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

0257 — quantity 1
 0258 — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0257 — quantity 1
 - 0259 — quantity 1
 - 0260 — quantity 5
 - 0261 — quantity 1
- PSLC no-charge license #2:
 - 0268 — quantity 1

DB2 Net Search Extender Feature (PSLC)

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
1	0501	Base, 1 MSU
2	0502	Base, 2 MSUs
3	0503	Base, 3 MSUs
4 - 45	0504	Level A, 1 MSU
	0505	Level A, 42 MSUs
46 - 175	0506	Level B, 1 MSU
	0507	Level B, 10 MSUs
	0508	Level B, 50 MSUs

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
176 - 315	0509	Level C, 1 MSU
	0510	Level C, 10 MSUs
	0511	Level C, 50 MSUs
316 or more	0512	Level D, 1 MSU
	0513	Level D, 50 MSUs
Not Applicable	0514	NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

- 0503 — quantity 1
- 0504 — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0503 — quantity 1
 - 0505 — quantity 1
 - 0506 — quantity 5
 - 0507 — quantity 1
- PSLC no-charge license #2:
 - 0514 — quantity 1

DB2 Net Search Extender Feature (PSLC): Optional feature of 5645-DB2, DB2 UDB for OS/390, Version 6

MSU Capacity	PSLC Feature Number	PSLC Basic License MLC Feature Description
1	0336	Base, 1 MSU
2	0337	Base, 2 MSUs
3	0338	Base, 3 MSUs
4 - 45	0339	Level A, 1 MSU
	0340	Level A, 42 MSUs
46 - 175	0341	Level B, 1 MSU
	0342	Level B, 10 MSUs
	0343	Level B, 50 MSUs
176 - 315	0344	Level C, 1 MSU
	0345	Level C, 10 MSUs
	0346	Level C, 50 MSUs
316 or more	0347	Level D, 1 MSU
	0348	Level D, 50 MSUs
Not Applicable	0349	NC Identifier

Example 1: For a single machine with 11 MSUs, the PSLC features would be:

- 0338 — quantity 1
- 0339 — quantity 8

Example 2: For two machines in a Parallel Sysplex, which have an aggregation of 60 MSUs, the PSLC features would be:

- PSLC chargeable license #1:
 - 0338 — quantity 1
 - 0340 — quantity 1
 - 0341 — quantity 5
 - 0342 — quantity 1
- PSLC no-charge license #2:
 - 0349 — quantity 1

Variable Workload License Charge (WLC) Basic License: To order a basic license, specify the program number and feature number 9001 for asset registration. Specify the WLC base feature. If applicable, specify the WLC Level 1, WLC Level 2, WLC Level 3, and WLC Level 4 features with the appropriate quantity.

Also, specify the feature number of the desired distribution medium.

The Variable WLC requires the use of the IBM License Use Management (LUM) tool. A PTF will be made available to implement the LUM tool on DB2 UDB for OS/390 and z/OS, Version 7.

Variable WLC Aggregation: When z/OS is installed on two or more S/390 or @server zSeries 900 (z900) machines comprising a sysplex, Variable WLC aggregation applies to z/OS and the S/390 software programs that have Variable WLC.

Whether there is only one license or more than one license of the program in the sysplex, the charge for all licenses is associated to the “aggregation license” by specifying the applicable WLC feature numbers and quantity represented by the sum of the MSUs (millions of service units) in the sysplex. The “aggregation license” is an additional program license that is ordered and serialized, although there is no shipment associated with it.

For the actual licenses, the charge is reflected as \$0 by specifying the applicable "registration" Variable WLC feature numbers and the quantity equal to the MSUs of that license running on the designated machine.

For DB2 UDB Server for OS/390 and z/OS, Version 7 (5675-DB2), the Variable WLC feature numbers are as follows:

DB2 UDB for OS/390 (WLC)

Machine MSU Capacity	PSLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0431	Base, 45 MSUs
46 - 175	0432	Level 1, 1 MSU
176 - 315	0435	Level 2, 1 MSU
316 - 575	0437	Level 3, 1 MSU
	0439	Level 3, 50 MSUs
576 or more	0441	Level 4, 1 MSU
	0443	Level 4, 50 MSUs

MSU Capacity	WLC Feature Number	WLC Basic License No-Charge Registration Feature Description
0 - 1	0433	Base, 1 MSU Reg
2 - 175	0434	Level 1, 1 MSU Reg
176 - 315	0436	Level 2, 1 MSU Reg
316 - 575	0438	Level 3, 1 MSU Reg
	0440	Level 3, 50 MSUs Reg
576 or more	0442	Level 4, 1 MSU Reg
	0444	Level 4, 50 MSUs Reg

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

- 0431 — quantity 1
- 0432 — quantity 130
- 0435 — quantity 45

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0433 — quantity 1
 - 0434 — quantity 174
 - 0436 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0433 — quantity 1
 - 0434 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0431 — quantity 1
 - 0432 — quantity 130
 - 0435 — quantity 140
 - 0437 — quantity 15

DB2 Warehouse Manager Feature (WLC)

MSU Capacity	WLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0445	Base, 45 MSUs
46 - 175	0446	L1, 1 MSU
176 - 315	0449	L2, 1 MSU
316 - 575	0451	L3, 1 MSU
	0453	L3, 50 MSUs
576 or more	0455	L4, 1 MSU
	0457	L4, 50 MSUs

MSU Capacity	WLC Feature Number	WLC Basic License No-Charge Registration Feature Description
0 - 1	0447	Base, 1 MSU Reg
2 - 175	0448	Level 1, 1 MSU Reg
176 - 315	0450	Level 2, 1 MSU Reg
316 - 575	0452	Level 3, 1 MSU Reg
	0454	Level 3, 50 MSUs Reg
576 or more	0456	Level 4, 1 MSU Reg
	0458	Level 4, 50 MSUs Reg

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

- 0445 — quantity 1
- 0446 — quantity 130
- 0449 — quantity 45

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0447 — quantity 1
 - 0448 — quantity 174
 - 0450 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0447 — quantity 1
 - 0448 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0445 — quantity 1
 - 0446 — quantity 130
 - 0447 — quantity 140
 - 0448 — quantity 15

MSU Capacity	PSLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0459	Base, 45 MSUs
46 - 175	0460	Level 1, 1 MSU
176 - 315	0463	Level 2, 1 MSU
316 - 575	0465	Level 3, 1 MSU
	0467	Level 3, 50 MSUs
576 or more	0469	Level 4, 1 MSU
	0471	Level 4, 50 MSUs

Machine MSU Capacity	PSLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0487	Base, 45 MSUs
46 - 175	0488	Level 1, 1 MSU
176 - 315	0491	Level 2, 1 MSU
316 - 575	0493	Level 3, 1 MSU
	0495	Level 3, 50 MSUs
576 or more	0497	Level 4, 1 MSU
	0499	Level 4, 50 MSUs

MSU Capacity	WLC Feature Number	WLC Basic License MLC Feature Description
0 - 1	0461	Base, 1 MSU Reg
2 - 175	0462	Level 1, 1 MSU Reg
176 - 315	0464	Level 2, 1 MSU Reg
316 - 575	0466	Level 3, 1 MSU Reg
	0468	Level 3, 50 MSUs Reg
576 or more	0470	Level 4, 1 MSU Reg
	0472	Level 4, 50 MSUs Reg

MSU Capacity	WLC Feature Number	WLC Basic License No-Charge Registration Feature Description
0 - 1	0489	Base, 1 MSU Reg
2 - 175	0490	Level 1, 1 MSU Reg
176 - 315	0492	Level 2, 1 MSU Reg
316 - 575	0494	Level 3, 1 MSU Reg
	0496	Level 3, 50 MSUs Reg
576 or more	0498	Level 4, 1 MSU Reg
	0500	Level 4, 50 MSUs Reg

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

- 0459 — quantity 1
- 0460 — quantity 130
- 0463 — quantity 45

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

- 0487 — quantity 1
- 0488 — quantity 130
- 0491 — quantity 45

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0461 — quantity 1
 - 0462 — quantity 174
 - 0464 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0461 — quantity 1
 - 0462 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0459 — quantity 1
 - 0460 — quantity 130
 - 0463 — quantity 140
 - 0465 — quantity 15

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0489 — quantity 1
 - 0490 — quantity 174
 - 0492 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0489 — quantity 1
 - 0490 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0487 — quantity 1
 - 0488 — quantity 130
 - 0491 — quantity 140
 - 0493 — quantity 15

QMF for Windows Feature (WLC): Without QMF for OS/390 requirement

Machine MSU Capacity	WLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0473	Base, 45 MSUs
46 - 175	0474	Level 1, 1 MSU
176 - 315	0477	Level 2, 1 MSU
316 - 575	0479	Level 3, 1 MSU
	0481	Level 3, 50 MSUs
576 or more	0483	Level 4, 1 MSU
	0485	Level 4, 50 MSUs

MSU Capacity	WLC Feature Number	WLC Basic License No-Charge Registration Feature Description
0 - 1	0475	Base, 1 MSU Reg
2 - 175	0476	Level 1, 1 MSU Reg
176 - 315	0478	Level 2, 1 MSU Reg
316 - 575	0480	Level 3, 1 MSU Reg
	0482	Level 3, 50 MSUs Reg
576 or more	0484	Level 4, 1 MSU Reg
	0486	Level 4, 50 MSUs Reg

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

- 0473 — quantity 1
- 0474 — quantity 130
- 0477 — quantity 45

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0475 — quantity 1
 - 0476 — quantity 174
 - 0478 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0475 — quantity 1
 - 0476 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0473 — quantity 1
 - 0474 — quantity 130
 - 0477 — quantity 140
 - 0479 — quantity 15

DB2 Net Search Extender Feature (WLC)

Machine MSU Capacity	WLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0521	Base, 45 MSUs
46 - 175	0522	Level 1, 1 MSU
176 - 315	0525	Level 2, 1 MSU

Machine MSU Capacity	WLC Feature Number	WLC Basic License MLC Feature Description
316 - 575	0527	Level 3, 1 MSU
	0529	Level 3, 50 MSUs
576 or more	0531	Level 4, 1 MSU
	0533	Level 4, 50 MSUs

MSU Capacity	WLC Feature Number	WLC Basic License No-Charge Registration Feature Description
0 - 1	0523	Base, 1 MSU Reg
2 - 175	0524	Level 1, 1 MSU Reg
176 - 315	0526	Level 2, 1 MSU Reg
316 - 575	0528	Level 3, 1 MSU Reg
	0530	Level 3, 50 MSUs Reg
576 or more	0532	Level 4, 1 MSU Reg
	0534	Level 4, 50 MSUs Reg

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

- 0521 — quantity 1
- 0522 — quantity 130
- 0525 — quantity 45

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0523 — quantity 1
 - 0524 — quantity 174
 - 0526 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0523 — quantity 1
 - 0524 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0521 — quantity 1
 - 0522 — quantity 130
 - 0525 — quantity 140
 - 0527 — quantity 15

DB2 Net Search Extender Feature (WLC): Optional feature of 5645-DB2, DB2 UDB for OS/390, Version 6

MSU Capacity	WLC Feature Number	WLC Basic License MLC Feature Description
0 - 45	0356	Base, 45 MSUs
46 - 175	0357	Level 1, 1 MSU
176 - 315	0360	Level 2, 1 MSU
316 - 575	0362	Level 3, 1 MSU
	0364	Level 3, 50 MSUs
576 or more	0366	Level 4, 1 MSU
	0368	Level 4, 50 MSUs

MSU Capacity	WLC Feature Number	WLC Basic License No-Charge Registration Feature Description	Description	Feature Number
0 - 1	0358	Base, 1 MSU Reg	ULC 0 to 0.25 MSU Base	0018
2 - 175	0359	Level 1, 1 MSU Reg	ULC 0.26 to 0.5 MSU Base	0019
176 - 315	0361	Level 2, 1 MSU Reg	ULC 0.51 to 1.0 MSU Base	0021
316 - 575	0363	Level 3, 1 MSU Reg	ULC Level A (2 to 11 MSUs)	0022
	0365	Level 3, 50 MSUs Reg	ULC Level B (12 to 44 MSUs)	0023
576 or more	0367	Level 4, 1 MSU Reg	ULC Level C (45 to 78 MSUs)	0024
	0369	Level 4, 50 MSUs Reg	ULC Level D (above 78 MSUs)	0025
			ULC Level D (above 78 MSUs)	0026
			NC Identification Feature	0020

Example 1: For a single machine with the program running at 220 MSUs, the Variable WLC features would be:

0356 — quantity 1
0357 — quantity 130
0360 — quantity 45

Example 2: If there are two machines in a sysplex, and a program is running on machine #1 at 190 MSUs and on machine #2 at 140 MSUs, the Variable WLC feature numbers and quantities to be ordered would be:

- License on machine #1 for 190 MSUs:
 - 0358 — quantity 1
 - 0359 — quantity 174
 - 0361 — quantity 15
- License on machine #2 for 140 MSUs:
 - 0358 — quantity 1
 - 0359 — quantity 139
- Aggregation license for a total of 330 MSUs:
 - 0356 — quantity 1
 - 0357 — quantity 130
 - 0360 — quantity 140
 - 0362 — quantity 15

S/390 Usage Pricing (Usage License Charge) Basic License: To order a basic license, specify the appropriate program and feature number, if required, for asset registration. Specify the applicable S/390 Usage Pricing feature. Also, specify the feature number of the desired distribution medium.

Charges will be based upon the Peak MSUs. Usage reported between thresholds of features 1, 2, or 3, will be rounded up to the next MSU level. Above 1.0 MSU, usage will be rounded up to the nearest whole MSU. For example, 2.4 MSUs would round to 2.0 MSUs for pricing, and 2.5 MSUs would round to 3.0 MSUs for pricing.

The customer pricing will be determined by selecting either:

- Feature 1 (if usage is below 0.25 MSU)
- Feature 2 (if usage is between 0.26 and 0.50)
- Feature 3 (if usage is between 0.51 and 1.0)
- Feature 3+ (# MSUs from 2-11 times the charge associated with feature number 4) + (# MSUs from 12-44 times the charge associated with feature number 5) + (# MSUs from 45-78 times the charge associated with feature number 6) + (# MSUs above 78 times the charge associated with feature number 7 — if applicable)

Description

Description	Feature Number
ULC 0 to 0.25 MSU Base	0018
ULC 0.26 to 0.5 MSU Base	0019
ULC 0.51 to 1.0 MSU Base	0021
ULC Level A (2 to 11 MSUs)	0022
ULC Level B (12 to 44 MSUs)	0023
ULC Level C (45 to 78 MSUs)	0024
ULC Level D (above 78 MSUs)	0025
ULC Level D (above 78 MSUs)	0026
NC Identification Feature	0020

Examples for ordering

- A customer with a measured usage (from the IBM Measured Usage report) of 0.3 MSU would:
 - Order quantity 1 of the 0.26 to 0.5 MSU base feature
- A customer with 6.6 MSUs (from the IBM Usage report) would:
 - Be rounded up to 7.0 MSUs
 - Order quantity 1 of the “0.51 to 1.0 MSU” base feature
 - Order quantity 6 of the Level A 1 MSU feature
- A customer with 15 MSUs (from the IBM Usage report) would:
 - Order quantity 1 of the “0.51 to 1.0 MSU” base feature
 - Order quantity 10 of the Level A 1 MSU feature
 - Order quantity 4 of the Level B 1 MSU feature
- A customer with 50 MSUs (from the IBM Usage report) would:
 - Order quantity 1 of the “0.51 to 1.0 MSU” base feature
 - Order quantity 10 of the Level A 1 MSU feature
 - Order quantity 33 of the Level B 1 MSU feature
 - Order quantity 6 of the Level C 1 MSU feature
- A customer with 85 MSUs (from the IBM Usage report) would:
 - Order quantity 1 of the “0.51 to 1.0 MSU” base feature
 - Order quantity 10 of the Level A 1 MSU feature
 - Order quantity 33 of the Level B 1 MSU feature
 - Order quantity 34 of the Level C 1 MSU feature
 - Order quantity 7 of the Level D 1 MSU feature

Growth Opportunity License Charge (GOLC): To order GOLC software, specify the program number, feature number 9001 for asset registration, and the GOLC monthly charge feature number from the table below. Also, specify the feature number for the desired distribution medium.

GOLC Category	GOLC Feature Number	Description	9/6250 Tape	3480 Cartridge	4-mm DAT	CD-ROM
DB2 UDB For OS/390						
		Net.Data Version 7 (No-charge) Feature	5891	5892	6009	
GOLC H30	0030	Net Search Extender (Priced) Feature	6182	6180	6181	
GOLC H50	0031	QMF for OS/390 (Priced) Feature	5949	5950	6010	
GOLC H70	0032	QMF for Windows (Priced) Feature (Requires QMF)				5829
DB2 Warehouse Manager Feature						
GOLC H30	0084	QMF for Windows (Priced) Feature (Requires QMF)				5809
GOLC H50	0085	QMF for Windows (Priced) Feature (Without QMF Requirement)				
GOLC H70	0086	REXX Language Support (No-charge) Feature	5962	5963	6011	
QMF Feature						
GOLC H30	0129	DB2 UDB for OS/390, Version 6 (5645-DB2): Optional Feature Net Search Extender (Priced) Feature				
GOLC H50	0130					
GOLC H70	0131					
QMF for Windows Feature (Requires QMF)						
GOLC H30	0233	<i>NLS Features:</i> DB2 UDB Server for OS/390 NLV support features will become available on the same date the release code becomes available.				
GOLC H50	0234					
GOLC H70	0235					
QMF for Windows Feature						
Without Requirement of QMF						
GOLC H30	0271	The NLS features for DB2 UDB Server for OS/390 and z/OS, Version 7 are:				
GOLC H50	0272					
GOLC H70	0273					
DB2 Net Search Extender Feature						
GOLC H30	0518	DB2 UDB Server Feature				
GOLC H50	0519		OS/390 and z/OS Japan — Kanji (DBCS)	6155	6153	6154
GOLC H70	0520					
DB2 Net Search Extender Feature						
Optional Feature of 5645-DB2, DB2 UDB for OS/390, Version 6						
GOLC H30	0353	Management Clients				
GOLC H50	0354		Spanish	6167	6165	6166
GOLC H70	0355		French	6164	6162	6163
		Japan — Kanji (DBCS)	6170	6168	6169	
		Korean	6173	6171	6172	
DB2 Warehouse Manager — Includes all QMF Features						
		Arabic	6148	6146	6147	
		Simplified Chinese	6055	6053	6054	
		Traditional Chinese	6067	6065	6066	
		Danish	6052	6050	6051	
		Swiss German	6019	6017	6018	
		German	6046	6044	6045	
		English Upper Case SBCS	6022	6020	6021	
		Spanish	6025	6023	6024	
		French	6034	6032	6033	
		Belgian French	6016	6014	6015	
		Canadian French	6058	6056	6057	
		Swiss French	6028	6026	6027	
		Italian	6049	6047	6048	
		Swiss Italian	6064	6062	6063	
		Japan — Kanji (DBCS)	6031	6029	6030	
		Korean	6040	6038	6039	
		Brazilian Portuguese	6043	6041	6042	
		Portuguese	6061	6059	6060	
		Swedish	6037	6035	6036	
Net.Data Version 7						
		Japan — Kanji (DBCS)	6158	6156	6157	
		Korean	6161	6159	6160	

Description	9/6250 Tape	3480 Car- tridge	4-mm DAT	CD-ROM
Net Search Extender				
Japan — Kanji (DBCS)	6188	6186	6187	
Brazilian Portuguese	6185	6183	6184	

QMF for OS/390

Simplified Chinese	6100	6098	6099	
Danish	6130	6128	6129	
Swiss German	6070	6068	6069	
German	6094	6092	6093	
English Upper Case SBCS	6103	6101	6102	
Spanish	6073	6071	6072	
French	6082	6080	6081	
Canadian French	6145	6143	6144	
Swiss French	6076	6074	6075	
Italian	6097	6095	6096	
Japan — Kanji (DBCS)	6079	6077	6078	
Korean	6088	6086	6087	
Brazilian Portuguese	6091	6089	6090	
Swedish	6085	6083	6084	

QMF for Windows — Requires QMF

Arabic	6152
Simplified Chinese	6122
Traditional Chinese	6124
Danish	6121
Swiss German	6111
German	6119
Spanish	6112
French	6115
Belgian French	6110
Canadian French	6123
Swiss French	6113
Italian	6120
Swiss Italian	6150
Japan — Kanji	6114
Korean	6117
Brazilian Portuguese	6118
Portuguese	6151
Swedish	6116

QMF for Windows — Without QMF Requirement

Arabic	6149
Simplified Chinese	6109
Traditional Chinese	5879
Danish	6108
Swiss German	5889
German	6106
Spanish	5899
French	5983
Belgian French	5849
Canadian French	5859
Swiss French	5957
Italian	6107
Swiss Italian	5869
Japan — Kanji (DBCS)	5970
Korean	6104
Brazilian Portuguese	6105
Portuguese	5839
Swedish	5996

DB2 UDB for OS/390, Version 6 (5645-DB2): Optional Feature Net Search Extender Japan — Kanji (DBCS)	5720	5718	5719
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Customization Options: Select the appropriate feature numbers to customize your order to specify the delivery options desired. These features can be specified on the initial or MES orders.

Example: If publications are not desired for the initial order, specify feature number 3470 to ship media only. For future updates, specify feature number 3480 to ship media updates only. If, in the future, publication updates are required, order an MES to remove feature number 3480; then, the publications will ship with the next release of the program.

Description	Feature Number
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Initial Shipments

Serial number only (suppresses shipment of media and documentation)	3444
Ship media only (suppresses initial shipment of documentation)	3470
Ship documentation only (suppresses initial shipment of media)	3471
Satellite Electronic Delivery	3450

Update Shipments

Ship Media updates only (suppresses update shipment of documentation)	3480
Ship documentation only (suppresses update shipment of media)	3481
Suppress updates (suppresses update shipment of media and documentation)	3482

Expedite Shipments

Local IBM office expedite (for IBM use only)	3445
Customer expedite process charge (\$30 charge for each product)	3446

Expedite shipments will be processed to receive 72-hour delivery from the time IBM Software Delivery and Fulfillment (SDF) receives the order. SDF will then ship the order via overnight air transportation.

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

Title	Order Number	Additional Copies Feature Number
DB2 UDB for OS/390 and z/OS, Version 7		
Command Reference	SC26-9934	8069
Installation Guide	GC26-9936	8064
Licensed Program Specifications	GC26-9938	8066
Messages and Codes	GC26-9940	8067
Utility Guide and Reference	SC26-9945	8072
Online Books: Licensed Library Collection (includes licensed and unlicensed material)	LK3T-6999	8002

Title	Order Number	Additional Copies Feature Number	Title	Order Number
DB2 UDB for OS/390 and z/OS, Version 7				
Supplied when DB2 Warehouse Manager or QMF for OS/390 optional feature is ordered:			Command Reference	SC26-9934
			Installation Guide	GC26-9936
QMF for OS/390, Version 7			Messages and Codes	GC26-9940
Installing and Managing QMF on OS/390	GC27-0719	8098	Utility Guide and Reference Administration Guide	SC26-9945
QMF Messages and Codes	GC27-0717	8092	Application Programming Guide and Reference for Java	SC26-9931
QMF High Performance Option User's Guide for OS/390	SC27-0724	8091	Application Programming & SQL Guide	SC26-9932
Getting Started with QMF for Windows	SC27-0723	8079	Data Sharing: Planning and Administration	SC26-9935
Installing and Managing QMF for Windows	GC27-0722	8074	Data Sharing Quick Reference	SX26-3846
			Image, Audio, and Video Extenders Administration and Programming	SC26-9947
Supplied when DB2 Net Search Extender optional feature is ordered:			Master Index	SC26-9939
Net Search Extender for OS/390 and z/OS Administration and Programming	SC27-1171	8071	ODBC Guide and Reference	SC26-9941
			Reference for Remote DRDA Requesters and Servers	SC26-9942
			Reference Summary	SX26-3847
			Release Planning Guide	SC26-9943
			SQL Reference	SC26-9944
			Text Extender Administration and Programming	SC26-9948
			What's New?	GC26-9946
			XML Extender Administration and Programming	SC26-9949
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Title	Order Number	Additional Copies Feature Number	Title	Order Number
DB2 UDB for OS/390 and z/OS, Version 7				
Administration Guide	SC26-9931	8009	Displayable Softcopy Publications: DB2 UDB Server for OS/390 publications are offered in displayable softcopy form. All unlicensed manuals are included. The displayable manuals are part of the basic machine-readable material. The files are shipped on CD-ROM.	
Application Programming Guide and Reference for Java	SC26-9932	8020		
Application Programming & SQL Guide	SC26-9933	8015		
Data Sharing: Planning and Administration	SC26-9935	8013		
Data Sharing Quick Reference	SX26-3846	8029		
Image, Audio, and Video Extenders Administration and Programming	SC26-9947	8028		
An Introduction to DB2 for OS/390	SC26-9937	8011		
Master Index	SC26-9939	8026		
ODBC Guide and Reference	SC26-9941	8024		
Reference for Remote DRDA Requesters and Servers	SC26-9942	8022		
Reference Summary	SX26-3847	8030		
Release Planning Guide	SC26-9943	8040		
SQL Reference	SC26-9944	8017		
Text Extender Administration and Programming	SC26-9948	8031		
What's New?	GC26-9946	8003		
XML Extender Administration and Programming	SC26-9949	8032		
QMF for OS/390, Version 7:				
Introducing QMF	GC27-0714	8034		
QMF Reference	SC27-0715	8055		
Using QMF	SC27-0716	8056		
Developing QMF Applications	SC27-0718	8095		
Additional copies of unlicensed publications are available by March 30, 2001. These copies may be ordered via direct order or you may contact your IBM representative.				
The following DB2 UDB for OS/390 publications can be ordered using bill-of-forms number SBOF-7730.				
Title	Order Number	Additional Copies Feature Number	Title	Order Number
DB2 UDB for OS/390 and z/OS Version 7				
			Diagnosis Guide and Reference	LY37-3740 8000
			Diagnostic Quick Reference	LY37-3741 8001
			Online Books: Licensed Library Collection (includes licensed and unlicensed material)	LK3T-6999 8002
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.				

The following publications will be available after availability:

Title	Order Number	Title	Order Number
DB2 UDB for OS/390, Version 7		Spanish	
German		Introduction to DB2 for OS/390	SC10-3600
What's New?	GC12-2947	Master Index	SC10-3601
Introducing QMF	GC12-2858	Text Extender Administration and Programming	SC10-3602
QMF Reference	SC12-2849	What's New?	GC10-3599
Using QMF	SC12-2850	XML Extender Administration and Programming	SC10-3593
Installing and Managing QMF for Windows	GC12-2859	Introducing QMF	GC10-3530
Getting Started with QMF for Windows	SC12-2847	QMF Reference	SC10-3531
		Using QMF	SC10-3532
		Getting Started with QMF for Windows	SC10-3533
Japan (DBCS)		Brazilian Portuguese	
Administration Guide	SC88-8761	Introducing QMF	S517-6997
Application Programming Guide and Reference for Java	SC88-8762	QMF Reference	S517-6998
Application Programming and SQL Guide	SC88-8763	Using QMF	S517-6999
Command Reference	SC88-8764	Getting Started with QMF for Windows	S517-7008
Data Sharing: Planning and Administration	SC88-8765	Egyptian	
Image, Audio and Video Extenders Administration and Programming	SC88-8775	Getting Started with QMF for Windows	SB20-2151
Introduction to DB2 for OS/390 Installation Guide	SC88-8767	Korean	
Messages and Codes	GC88-8766	Introducing QMF	GA30-1047
ODBC Guide and Reference	SC88-8769	QMF Reference	SA30-1048
Reference for Remote DRDA Requestors and Servers	SC88-8770	Using QMF	SA30-1049
Release Planning Guide	SC88-8771	QMF Messages and Codes	GA30-1050
SQL Reference	SC88-8772	Developing QMF Applications	SA30-1051
Text Extender Administration and Programming	SC88-8776	Getting Started with QMF for Windows	SA30-1046
Utility Guide and Reference	SC88-8773	French	
What's New?	GC88-8774	Introducing QMF	GC11-1685
XML Extender Administration and Programming	SC88-8777	Using QMF	SC11-1687
Introducing QMF	GC88-8618	Getting Started with QMF for Windows	SC11-1694
QMF Reference	SC88-8619	Italian	
Using QMF	SC88-8620	Introducing QMF	GC13-2904
QMF Messages and Codes	GC88-8621	QMF Reference	SC13-2905
Developing QMF Applications	SC88-8622	Using QMF	SC13-2906
Installing and Managing QMF for OS/390	GC88-8623	Getting Started with QMF for Windows	SC13-2907
Installing and Managing QMF for Windows	GC88-8669	Portuguese	
Getting Started with QMF for Windows	SC88-8670	Getting Started with QMF for Windows	SC17-5378
Traditional Chinese		<hr/>	
Installing and Managing QMF for Windows	GC40-0530	Terms and Conditions	
Getting Started with QMF for Windows	SC40-0531	<hr/>	
Simplified Chinese		Licensing: ICA	
Installing and Managing QMF for Windows	SB84-0252	Variable Charges Apply: No	
Getting Started with QMF for Windows	SB84-0253	Indexed Monthly License Charge (IMLC) Applies: No	
		Installation License or Location License Applies: No	
		Usage Restriction Applies: No	

Educational Allowance: Yes, a 15% education allowance applies to qualified education institution customers.

Volume Discount: Not applicable

Replaced Program	Replacement Program	Single-Version Charging Applies
DB2 Version 1 5740-XYR	DB2 UDB Version 7 5675-DB2	Yes
DB2 Version 2 5665-DB2	DB2 UDB Version 7 5675-DB2	Yes
DB2 Version 3 5685-DB2	DB2 UDB Version 7 5675-DB2	Yes
DB2 Version 4 5695-DB2	DB2 UDB Version 7 5675-DB2	Yes
DB2 Version 5 5655-DB2	DB2 UDB Version 7 5675-DB2	Yes
DB2 Version 6 5645-DB2	DB2 UDB Version 7 5675-DB2	Yes
DB2 Version 7 5675-DB2	To a follow-on program, if any.	N/A
QMF Feature		
QMF Version 1 5668-972	DB2 UDB Version 7 5675-DB2	Yes ²
QMF Version 2 5668-721	DB2 UDB Version 7 5675-DB2	Yes ²
QMF Version 3 5706-254	DB2 UDB Version 7 5675-DB2	Yes ²

QMF for Windows Feature

QMF for Windows, Version 3.3 5697-D27	DB2 UDB Version 7 5675-DB2	Yes ²
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¹ Note 3 of DAWN-0040 applies.

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Authorization to use this copy of DB2 Connect is to enable access to DB2 for OS/390 data by the following workstation tools only:

- DB2 Control Center
- Stored Procedure Builder
- Visual Explain

For all other remote connections to DB2 for OS/390 provided through DB2 Connect, or for any use of DB2 Connect not specifically described above, you must obtain a separate license for DB2 Connect from IBM.

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Authorization to use this copy of DB2 UDB Enterprise Edition is to enable database management of DB2 for OS/390 data warehouse control databases by the following workstation tools only:

- Data Warehouse Center
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- DB2 OLAP Starter Kit

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- Object Code Only (OCO): All

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- Support Center applies: Yes, access is available through the IBM Support Center.
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APAR Processing
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San Jose, CA 95161-9023
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