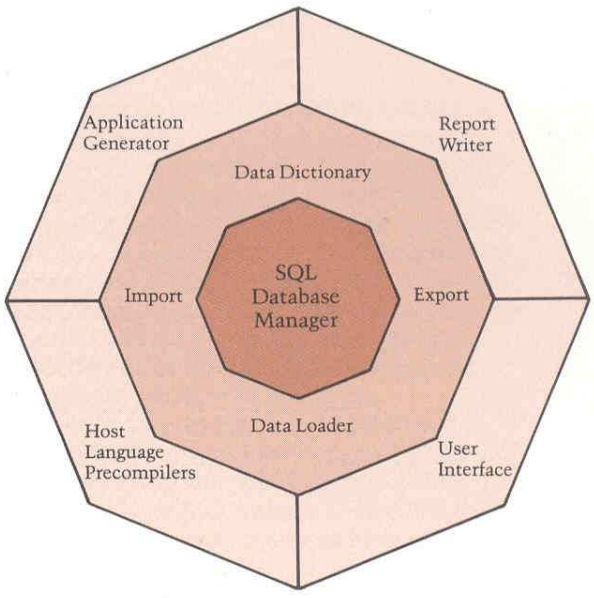
Product Bulletin

PRIME

Prime ORACLE Relational Database Management System

Features

- Compatible with IBM relational database products
- Based on the SQL database language
- Integrated software tools for application development
- Comprehensive security
- Full recovery
- Powerful database administration facilities
- Compatible with Prime® languages and development tools
- Available for all 50 Series™ computer systems



Description

Prime ORACLE software is a relational database management system built on the SQL database language. As a relational system, Prime ORACLE is easy to understand and extremely flexible. It presents data to users in simple tables and is modified and updated easily. Because IBM developed the SQL language, Prime ORACLE is highly compatible with IBM relational database products.

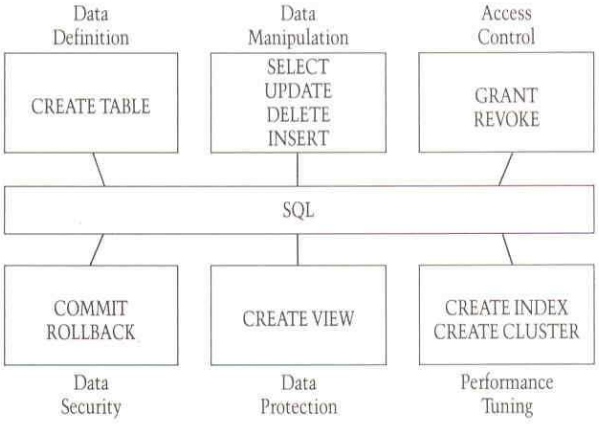
In addition to database management, Prime ORACLE offers a complete set of tools for both data processing professionals and end users. Programmers benefit from the many Prime ORACLE application development tools, and end users can create and maintain their own data for a variety of business uses.

With Prime ORACLE, Prime users have the advantages of an emerging industry-standard relational database management system, application development tools for both data processing professionals and end users, portable applications, and compatibility with IBM products.

The SQL Database Language

The foundation of Prime ORACLE is the SQL database language. SQL consists of several layers of increasing complexity. Casual users learn only the simplest query features, while data processing professionals are offered a complete set of facilities. Despite the range of complexity, all users learn the same language. All SQL facilities can be used directly from a terminal or embedded in programming languages such as COBOL, FORTRAN and C.

While maintaining upward compatibility with other IBM SQL-based relational database systems, Prime ORACLE has extended functions which make it more powerful. Prime ORACLE functions include data definition, data manipulation, access control, data security, data protection and performance tuning.



Database Utilities

Data Dictionary

The data dictionary contains valuable database administration and maintenance information. It consists of several Prime ORACLE tables that users can query, manipulate and modify with the SQL language. Every time a user adds, deletes or modifies a Prime ORACLE database table definition, the data dictionary is updated automatically.

Data Loader

The Prime ORACLE data loader (ODL) loads data from PRIMOS® operating system sequential files into the Prime ORACLE database. The ODL reads the user's input data; performs the mapping from the data to a database table; and loads the records into a database table.

Import/Export

The Export facility lets users copy some or all of the database to a backup file. The Import utility restores the archived data into a Prime ORACLE database.

Data Independence

Prime ORACLE stores information that mirrors the activities of an organization. As the organization grows and changes, the database is flexible enough to adapt to the changes, while preserving the established methods of using data.

Prime ORACLE's SQL commands add new database tables, new columns to existing tables, and make existing columns wider. The change takes place immediately without requiring database reorganization.

As the structure of the database is revised, it is important that existing programs not become obsolete. To prevent this, Prime ORACLE allows old and new views of the same data to exist simultaneously.

Multiple views of the same data allow existing programs to continue to run without modification by using the old view of the data, while the new applications take advantage of the new view of the data. This insulation between what the user sees and how the data is stored provides data independence.

Host Language Interfaces (HLI)

Users can gain access to database information by entering SQL statements interactively. Another way to gain access to Prime ORACLE data is through user-written programs using the HLI Precompiler Interface. Programmers can embed SQL statements within COBOL, FORTRAN and C programs for developing more complex applications.

Application Development Tools

A relational DBMS simplifies, but does not replace, application programs. Additional software development tools are required to maintain and develop applications. Prime ORACLE provides these tools.

User-Friendly Interface

The User-Friendly Interface utility gives the user online, interactive access to all Prime ORACLE functions. It lets users execute SQL commands interactively, and also provides facilities for creating and spooling reports.

Interactive Application Facility

The Prime ORACLE Interactive Application Facility lets nonprogrammers develop simple applications which provide structured, full-screen interaction with a Prime ORACLE database. The facility consists of an application processor and an application generator.

Users can enter, retrieve and update data with the application processor while performing a full range of data and operation validation checks. In this administered environment, users with little or no data processing experience can easily gain access to the database.

The application generator helps create new applications by conducting an interactive, question-and-answer dialogue with the designer. The designer specifies:

- field names, positions, default values, prompts and help messages
- edit criteria for input data
- SQL statements for calculation, data manipulation, validation and operator support

As the dialogue progresses, it is stored in a file. Existing applications can be modified and new, similar applications can be created by editing the response file.

Report Writer

Prime ORACLE provides two methods for generating reports: the User-Friendly Interface, which gives users online access to the database for queries; and the Prime ORACLE Report Writer for generating custom and complex reports. Report Writer functions include: side-by-side placement of disjointed reports; printing of nested reports; and conditionally-printed portions of reports. The Report Writer also offers facilities for text processing to let users produce documents containing both text and variable data from the database.

Easy Database Administration

In addition to security, recovery and performance tuning, database administrators also have capabilities to Import/Export and load data through various Prime ORACLE utilities. Database administration is enhanced, because the Prime ORACLE data dictionary stores all information about tables, applications and reports. The dictionary itself is stored as a part of the Prime ORACLE database; therefore, the user can use all Prime ORACLE facilities to gain access to it. As new tables, applications and reports are added to the database, Prime ORACLE keeps the dictionary up to date automatically.

Performance Features

Prime ORACLE is equipped with an array of performance features that allow administrators to tune their systems for maximum performance. Unlike other data management systems which require users to learn many interfaces to administer and control their systems, Prime ORACLE has a single interface, the SQL language.

Multi-Table Clustering

A relational DBMS separates what users see from how data is actually stored on physical disk devices. While users always see data in individual tables, a relational DBMS does not have to store each table in its own separate physical space or file. All relational DBMS products store each table separately, but Prime ORACLE can store data from different tables on the same physical disk page (the physical area on disk storage devices that contains the data). This technique, called multi-table clustering, permits users to access data from multiple tables in one disk read operation. Other relational systems require many disk read operations to access data from multiple tables. Clustering improves Prime ORACLE performance.

Indexing

Creating indices on data helps Prime ORACLE locate specific rows on database pages in much the same way an index in a book helps the reader to locate specific information quickly. With larger tables, indices improve query performance.

Prime ORACLE indices are either compressed or uncompressed B-Trees. Compressed indices require a minimum of disk storage space; uncompressed indices allow Prime ORACLE to optimize certain queries, such as group functions, by processing them entirely in the index.

In addition to improving query performance, indices are used to enforce the data integrity rule, or the assertion that a column or a table may contain only unique values. Prime ORACLE permits the creation of as many indices on a table as desired.

Content-Sensitive Security

In a Prime ORACLE database, the information stored in the created tables is private unless the user explicitly permits others to gain access to it. Users, working with the SQL language, can let others view, update or delete their data. Additionally, the user can grant any or all of these privileges on an entire table or on specific rows or columns of that table. Since Prime ORACLE security is content-sensitive, the user can grant access on a conditional basis. For example, it could be specified that a manager can look at any employee's salary only if the manager's salary is greater than the employee's salary. Prime ORACLE security facilities protect users' data by controlling other users' access to it.

Recovery

Prime ORACLE automatically records all changes to the database in recovery logs to protect against user program, system hardware, system software or disk media failures.

With user program failure, Prime ORACLE automatically restores the database to a consistent state by undoing or rolling back all changes to the database made by the failed application.

Similarly, after a system hardware or software failure, restarting Prime ORACLE will cause all update transactions ongoing at the time of the failure to be rolled back to the point at which each transaction began.

In the event of a disk media failure, the system administrator restores the most recent backup copy of the database, and Prime ORACLE brings it up to date by redoing, or rolling forward, all changes since the backup copy was made. As with performance tuning and security, these capabilities are controlled through the SQL language.

Support and Training

Prime provides comprehensive education covering all aspects of application development, operation and administration for Prime ORACLE users. In addition to classroom courses, a self-instruction package is available on tape for novice users to learn Prime ORACLE at their own pace. With the purchase of Prime ORACLE, customers also receive a complete set of documentation.

Customer Service

Prime services are designed to complement and enhance the overall effectiveness of our products. Software service is available to all customers who sign a standard software maintenance contract. A telephone hotline (toll-free in the U.S.) is available for customer assistance. Software support options include installation, software update service, and problem reporting and escalation.

PRIME®

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