



## SQL-Explorer for Oracle®

### Key Features

- > Automates the expert task of tuning SQL for busy DBAs and deadline driven developers
- > Accelerates the testing and analysis of newly written programs and purchased commercial applications
- > Works with other BMC tools and utilities to give a holistic vision and solution to database administration and programming

These features deliver the following capabilities:

- > Capture of SQL with no performance impact on the database
- > Analysis of captured SQL and database objects and suggestions for improvements
- > Quick identification and resolution of performance problems with DBXray and PATROL
- > Analysis in context of entire application or subsets
- > Identification of how to best access Oracle data

Today's complex database and platform environments require scalable solutions to ensure high data availability and the ability to tune complex SQL programs to gain optimum performance. The SQL-Explorer product automates the expert task of tuning SQL for the busy DBAs.

### BUSINESS CHALLENGE

Your company's success—and your own—is tied directly to the delivery and availability of business-critical applications. The performance of these business-critical applications hinges on the efficiency of SQL statements and objects that they access.

The task of individually analyzing each SQL statement in an application program is time-consuming and requires expert knowledge of the RDBMS. Deadlines loom and emergencies crop up everywhere. The time to test and tune the heart of these applications is rarely available. The paradox is that the people with the most experience tuning SQL are the DBAs who don't write the SQL to begin with, but they have to make certain that it works. Whether it is an internally developed application or a commercial CRM system, the program must be made to perform. When it comes to the database, it is the DBA who typically receives that first angry phone call. Developers live under looming deadlines and must know a dozen protocols and several languages. SQL is yet another skill they must master but the reality of schedules doesn't allow for the kind of time necessary for enough focus. Having to constantly puzzle through the database's behavior without impacting the

running application is frequently an exercise in futility. Maintaining existing systems in today's economy where resources are scarce makes the challenge even greater.

### SOLUTION: SQL-Explorer for Oracle

BMC Software offers the most advanced SQL tuning technology in the industry, allowing you to improve your business application performance by proactively analyzing, diagnosing, managing, and tuning databases and applications offline while preserving application and business availability.

The idea is to improve application performance. Slowing down the database in order to tune it is not acceptable. SQL-Explorer captures more than just subsets of activity—it reports all of the SQL being run in your database, all without burdening the target system. If it is important to capture SQL lightly, then testing new SQL for effectiveness should not place a burden on the system either. SQL-Explorer alone has the advanced simulation technology available to perform those tests when you want to without loading the actual application. The application remains the focus. SQL-Explorer can focus on the SQL and database objects associated with the application and tune it in total, showing you the system impact rather than just a statement-by-statement impact. Furthermore, the analysis and improvement of indexes is performed with no load on the system itself. The suggested rewrites and index changes are

not the end. SQL-Explorer lets you know what kind of results you will see from these changes without having to test them repeatedly in your runtime environment.

### Value proposition

SQL-Explorer strengthens your applications from their beginnings through their success in production. Developers get the SQL coding advice they lack and the testing the applications need. The DBA can get a better view of the applications running on the database without impacting performance while automating the tuning needed as databases grow with application use.

### Increase quality

SQL-Explorer increases quality by:

- > Helping the developer write better SQL and test it before it goes into production
- > Capturing and suggesting SQL and index changes to the vendor for commercial applications
- > Allowing the DBA to simulate SQL execution without impacting production

### Enhance productivity

SQL-Explorer enhances DBA, developer, and end-user productivity by:

- > Reducing downtime from poorly written SQL
- > Reducing the time required to develop and tune SQL
- > Ensuring that applications perform as expected with automatic expert tuning recommendations
- > Freeing the DBA to concentrate on other critical database concerns
- > Making SQL analysis and tuning quick and easy to learn by using an intuitive graphical user interface

### Improve Performance

SQL-Explorer enhances performance while maintaining application availability during tuning by generating several tuned SQL alternatives for you to evaluate and optimize offline.

SQL-Explorer enables DBAs and application developers to identify, model, and correct problematic SQL statements throughout the application life cycle. The product's depth of functionality, flexibility, and ease of use make tuning SQL easy, regardless of the user's level of expertise. Programmers can use the product as an ad hoc tuning tool as they develop SQL statements. This allows them to correct performance problems before the

application reaches production. DBAs can use SQL-Explorer to identify SQL performance bottlenecks in existing production applications.

### Save money

When faced with reduced budgets and head count, getting the most out of your existing systems becomes critical. All too often, poorly performing SQL and databases have their performance problems addressed with expensive and interruptive hardware upgrades. While finding the right skills and room in your head count can be equally expensive, this is where SQL-Explorer can add particular value. Studies have shown that performance and availability issues are four times as likely to be application and database issues rather than hardware-related. To make your hardware and personnel budget extend that much farther without burning out either, a tool such as SQL-Explorer can truly make the difference.

### Technology

SQL-Explorer includes the following key features:

#### High Speed Data Collector

The High Speed Data Collector (HSDC) captures SQL as it is being executed without querying the database, and saves it to a repository for later analysis. Enhanced collection includes system ID, process ID, program, OS, user, and machines. The HSDC runs as a server-side process, continuously capturing user sessions and their currently executing SQL statements, related performance data, and key system data that influences the access path and performance of the SQL. The capture stream is fed on demand to a client-side collector and can either be viewed in real-time or stored in historical tables. This technology gathers data directly from Oracle's memory without impact to the database and with minimal overhead to the host system. Parameters enable the client-side collector to filter data based on user, SQL type, and object name in addition to specifying collection duration and the sampling frequency. The level of detail collected may need to vary based on the relative cost of collecting the data. You can specify the level of granularity needed for a specific collection interval. The following categories of data are collected:

- > SQL text
- > SQL performance data
- > Instance performance data
- > Sort data
- > Locking data

- > Statement execution plan
- > Execution bind variables
- > User identification data

#### Virtual instance and SQL simulation

A virtual instance is a calibrated statistical model of a real Oracle instance.

The virtual instance enables you to get simulated SQL execution statistics without executing the query in a production database instance. The virtual instance returns the information needed to properly tune SQL without impacting production data, applications, and users.

An exclusive function that only SQL-Explorer provides is the simulation of Init.ora parameter changes. This allows you to evaluate the impact of changing block sizes without impacting the production system.

The goal for the SQL-Explorer Get Simulated Stats feature is to provide an efficient way to relatively evaluate tuning alternatives for long-running or resource-intensive queries and to complete that evaluation without re-execution of the trials on the production instance.

The tuning results pane displays the increase or decrease in runtime as a percentage. You can choose the tuned SQL that performs the best.

#### Automated SQL tuning

SQL-Explorer takes SQL rewriting to its highest level via the most intelligent rewrite engine available. What is normally considered a specialist's art has been automated to

reflect best practices rewrites by means of both broad and deep analysis for the kinds of rewrites that will only change your performance, not your intended result set.

#### Application analysis

SQL-Explorer enables you to tune at the application level by identifying a group of data dictionary objects or files associated with an entire application. These objects and files are analyzed as a group. Problem statements can then be reviewed and tuned individually.

The application analysis results make it easy to identify all objects in a given application, their relationships in the application, and any unused indexes in the application. The result is a holistic understanding of the tuning impact on the application as a whole and not just an ad hoc reaction.

#### Index advisor

SQL-Explorer provides intelligent recommendations on indexing schemas based on your application's SQL.

The index advisor provides a solution for locating and classifying indexes, solving index inefficiencies, and recommending schema level indexes. Optimizing your indexes is useful for situations in which you may be unable to change the SQL statements being issued, but can change the indexing strategy on the database tables. The index advisor provides index recommendations for specified tables based on the SQL statements being issued against those tables. The following categories of information are obtained from the index advisor:

- > Probable missing objects or constraints
- > Existing indexes required for data integrity
- > Existing indexes justified by usage
- > Existing indexes that are not used
- > Existing indexes clearly unjustified
- > Existing indexes not justified by usage
- > Recommended index operation

The index advisor gives an overall evaluation of your indexing strategy for a schema.

#### Integration with PATROL

Use the PATROL product, the successful Oracle monitoring tool from BMC Software, to initiate automated tuning activity.

PATROL, has the ability to capture running SQL, which is the cause of 80% of most performance issues. Because SQL-Explorer interacts with PATROL, you can get that same

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problematic SQL-Explorer tuning tool to alleviate the performance problem. This accelerates the capture and resolution of the most common performance issues with the least amount of time investment.

#### Integration with SQL-Programmer

Database administrators and developers can now work together to ensure well-tuned applications. The intuitive user interface and extensive toolset of the SQL-Programmer product enable easy creation, management, and testing of all programmable objects, such as stored procedures, triggers, functions, views, and indexes. By using SQL-Programmer, database developers and administrators can increase productivity, find and fix bugs quicker, improve the quality of applications, and better manage business-critical information. Developers using the SQL-Programmer product for Oracle can proactively tune SQL in a Virtual Instance in SQL-Explorer before releasing application code to production. This integration removes the need for reactive tuning.

#### Integration with SmartDBA Performance Solutions

SmartDBA Performance Solutions is a set of integrated expert DBA tools, and SQL-Explorer provides the SQL tuning component of this total solution.

The solution starts with the web-based SmartDBA Cockpit console and includes space management, SQL tuning, and monitoring tools that share data and services to provide seamless, task-oriented work flow, regardless of what kind of problem is ultimately being diagnosed. They also share information with enterprise management environments to provide a total enterprise performance management solution.

#### About BMC Software

BMC Software delivers the solutions IT needs to increase business value through better management of technology and IT processes. Our industry-leading Business Service Management solutions help you reduce cost, lower risk of business disruption, and benefit from an IT infrastructure built to support business growth and flexibility. Only BMC provides best practice IT processes, automated technology management, and award-winning BMC Atrium technologies that offer a shared view into how IT services support business priorities. Known for enterprise solutions that span mainframe, distributed systems, and end-user devices, BMC also delivers solutions that address the unique challenges of the mid-sized business. Founded in 1980, BMC has offices worldwide and fiscal 2006 revenues of more than \$1.49 billion. Activate your business with the power of IT.

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