



## IBM Optim Query Tuner

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### Highlights

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- ***Reduce costs and minimize risk by tuning SQL during development***
- ***Combine query tuning with development through seamless Eclipse®-based integration***
- ***Accelerate query tuning analysis with expert advisors and recommendations***
- ***Improve statistics collection to spend CPU cycles only on the most essential information***
- ***Foster DBA and developer collaboration to improve application quality and delivery***

Application performance affects your business

Delivering applications that perform to meet client expectations and service level objectives is becoming more challenging. Aggressive project delivery schedules and limited human and database resources often have a negative impact on performance.

Writing effective Java® code and writing optimized SQL are different skills sets. Application developers tend to have the former, but not necessarily the latter, and increasingly rely on Java frameworks to write the SQL. Unfortunately, a lack of focus on query optimization during development can result in significant performance issues that can negatively impact daily business operations. Service level objectives are missed; business users experience unanticipated application and database outages. Customer satisfaction declines and revenue opportunities are lost.

It is understandable why application developers may not make query

tuning a high priority. Developers tend to focus on query results and database optimization is generally not their expertise or responsibility. They are consumed with getting the required data to make applications function properly rather than on optimizing query performance. Business and application managers push developers to adhere to tight deadlines. Application developers are not able to unit test under a significant load where problems might surface.

In addition, understanding how to evaluate query performance and interpret cryptic performance diagnostics is intimidating. Even when a problem is recognized, there is a gap in knowing what to do about it. Experienced DBAs who may be able to help solve problems are often too busy on other high priority activities. They may not be able to help until the problem is propagated to the production system.

Programming frameworks can negatively impact performance

Ironically, new advances in programming designed to make the application developer's job easier often lead to serious query performance problems. Java programmers are quickly moving to frameworks, such as Hibernate and Java Persistence Architecture (JPA), to handle database operations under the covers. These frameworks can make developers more productive, but often obscure how data access is managed. Access is, in essence, a black box.

Consequently, SQL performance issues are often not discovered until they are in a production environment under full loads, where they impact service level agreements, consume precious resources, or, in extreme situations, cause application outages. What if it was easier for developers to tune their queries early in the development phase where performance issues are less costly to resolve and have less impact on daily business operations?

SQL tuning during development optimizes performance and reduces costs

Deploying high performing applications into production translates directly into reduced computing costs, better organizational productivity and improved customer satisfaction. IBM® Optim™ Query Tuner allows

developers and DBAs to collaborate more effectively to produce enterprise-ready database applications that perform faster and cost less.

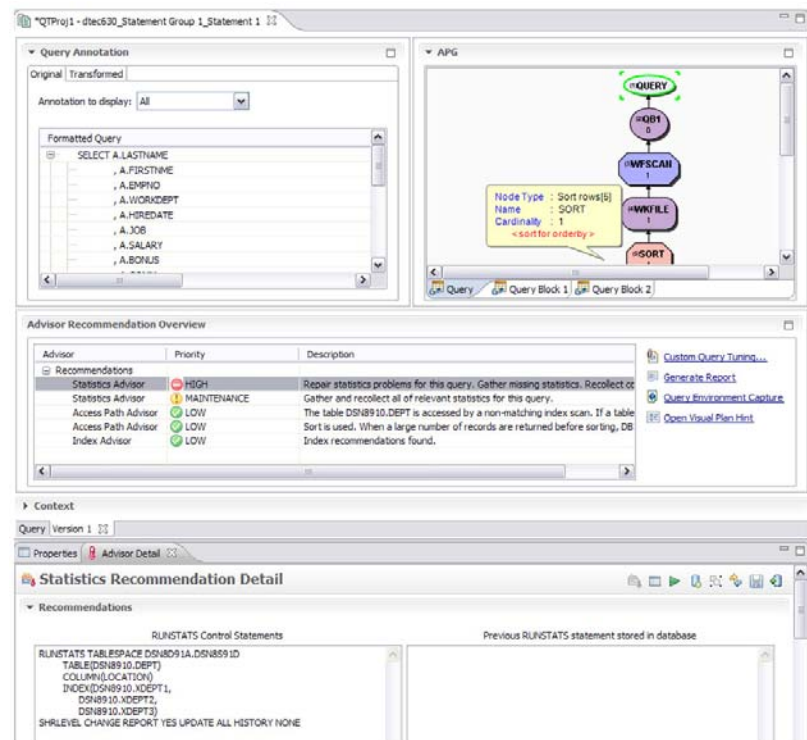
IBM Optim Query Tuner helps cut costs and improve performance by providing expert advice for tuning query performance. First, Query Tuner makes it easy to access candidate queries from a number of sources including: the DB2 catalog (for example, SQL from packages or stored procedures), the dynamic statement cache, IBM Optim Development Studio, a text file or other source.

After an SQL statement is selected for tuning, the visualizations and advisors help novice and expert database developers alike tune the query and database for better performance.

In addition, users can maintain multiple versions of a query (allowing them to make changes based on advice) within one project. When they invoke any of the advisors, multiple versions of the advice are maintained within the project.

Query Tuner provides the following advisors and visualizations:

- Query Advisor: Provides query rewrite advice based on a set of best practice rules.
- Access Path Advisor: Provides advice on how to resolve access path issues that may result in poor performance using a set of best practice rules.



Optim Query Tuner provides expert advice for tuning SQL.

- **Statistics Advisor:** Provides advice on missing, outdated and conflicting statistics and suggests additional statistics that should be gathered to improve individual query performance.
- **Index Advisor:** Provides advice on new indexes that may improve performance for individual queries as well as the ability to define user-defined virtual indexes.
- **Access Plan Graph:** Provides a graphical view of the access plan chosen by the optimizer. Additional costing and statistical information is viewable for each of the nodes within the access path. There is an access plan comparison feature that can visually compare two graphs. This can be useful when a user modifies the SQL based on query advice from Optim Query Tuner or implements other advice suggested by the tool and re-analyzes the statement.
- **Query Annotation:** Formats the query with collapsible sections and highlighting to improve readability and navigation through complex queries. Provides catalog statistics and cost estimates for the tables and columns used in the query.

- **Query Report:** Simplifies collaboration identifying key statistics, access path information as well as physical database design validation.

#### Creating a development powerhouse

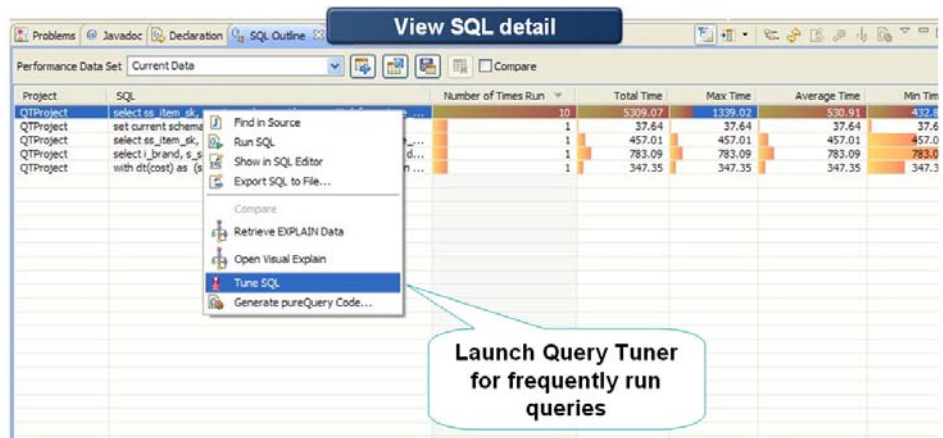
Optim Development Studio and Query Tuner have been integrated to make SQL statement tuning a natural part of the development process. Invoke query tuning capability and get advice on writing better queries without slowing down the development process.

This integration empowers developers to optimize SQL performance during development without being SQL experts!

Developers can use Optim Development Studio to view and identify SQL that has high cost or is run frequently to identify hot spots in the application and then launch Optim Query Tuner directly to optimize SQL.

In addition, with Optim Development Studio, DBAs or developers are not required to have access to the source code to replace poorly performing queries with finely tuned ones. They can capture application SQL while executing the application and replace poorly performing SQL with optimized SQL without updating the application.

Bottom line value across your enterprise IBM Optim Query Tuner cuts cost and improves performance by providing



Optim Query Tuner makes it easy to view and optimize SQL during development.

expert advice on writing high quality queries and improving database design. Its easy-to-use advisors enable developers to deliver optimized SQL right from the start.

It is easy to optimize SQL during the development process to improve performance while it is inexpensive and without waiting until production systems are affected. Built-in integration with Optim Development Studio makes it even easier to find problematic queries in development and launch Query Tuner in context.

#### About IBM Optim Solutions for Integrated Data Management

IBM Optim Solutions for Integrated Data Management offer proven, integrated capabilities to manage enterprise application data from requirements to retirement. With Optim, teams can share data artifacts (like models, policies and metadata) to align data management with business goals and improve collaboration.

Today, organizations of all types leverage Optim to improve performance, streamline database administration, speed application development, and enable effective governance. Optim delivers better business outcomes, at lower cost, with less risk, while providing capabilities that scale across enterprise applications, databases and platforms.

For more information

To learn more about Optim Solutions for Integrated Data Management, please visit:

<http://www-01.ibm.com/software/data/optim/solutions-on-delivery>



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