SQL Optimizer for SQL Server® 10.0.3

Release Notes

Monday, June 26, 2017

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About SQL Optimizer for SQL Server

SQL Optimizer for SQL Server® is the most comprehensive optimization solution available for SQL Server environments. SQL Optimizer helps you shorten tuning time and optimizes database performance. You can:

- Scan SQL statements embedded within database objects, SQL Server Profiler files, and application source code.
- Generate SQL statement alternatives for problematic SQL statements.
- Test SQL alternatives to find the best performing statement for your database environment.
- Generate index alternatives to improve database performance.
- Test index alternatives to find the alternative that provides the greatest performance gain.
- Optimize execution plans and deploy plan guides for SQL statements without changing original source code.
- Manage plan guides, including migrating plan guides from one database to another, importing plan guides from a file or exporting plan guides to a file as an archive, and enabling or disabling one plan guide from a batch of plan guides.
- Locate the most resource-intensive SQL in your server from the Plan Cache and from trace files and trace tables in SQL Profiler.

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New Features

This release of SQL Optimizer for SQL Server includes the following new features and enhancements.

SQL Optimizer for SQL Server 10.0.3

SQL Optimizer 10.0.3 is a minor release and includes the following enhancements. See also Resolved Issues and Enhancements.

SQL Server 2016 Support

This release includes support for Microsoft SQL Server 2016.

- Added support for query hints, MAX_GRANT_PERCENT and MIN_GRANT_PERCENT, for SQL Server 2016.
- Added support for the new query hint, NO_PERFORMANCE_SPOOL, for SQL Server 2016.
- Added support for the new query hint argument, USE HINT, in SQL Server 2016 SP1.
- Added support for the table hint, SNAPSHOT, introduced in SQL Server 2014.

SQL Optimizer for SQL Server 10.0.1

SQL Optimizer for SQL Server 10.0.1 is a maintenance release and includes primarily resolved issues. See Resolved Issues and Enhancements for more information.

SQL Optimizer for SQL Server 10.0

Find SQL

Search Results

The Find SQL module now includes a new *dashboard-style* summary page for search results.

- SQL Optimizer displays the new *dashboard-style* page immediately after the search process is finished.
- When you open a saved session, the dashboard displays for easy navigation to results details.
- The dashboard displays a summary of results from your search. Results are grouped by resource consumed and by SQL location (SQL, batches, or database objects).
- Click a pie chart to open Top SQL, Top Batches, or Top Database Objects and quickly drill down to result details.

- This new *dashboard-style* page allows you to:
  - See a summary of all results on one page.
  - See a side-by-side comparison of resource utilization for the most resource-intensive SQL.
  - Easily compare other resources consumed by the selected SQL.
  - Easily compare resource consumption at SQL Batch and Database Object levels.
  - Go directly to a results page already filtered by resource consumed or SQL location (click the pie chart of interest).
- The *dashboard* displays a summary of results based on statistic totals (not averages).
- The number of SQL used in each pie chart is the Top *n* SQL suggested by SQL Optimizer. Click a pie chart to open the Summary Chart where you can adjust this number to fine-tune your view.
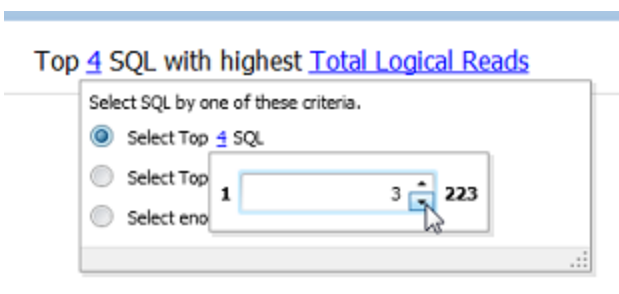
- Use the *dashboard* page to easily navigate between results views. This page also remembers your last view.
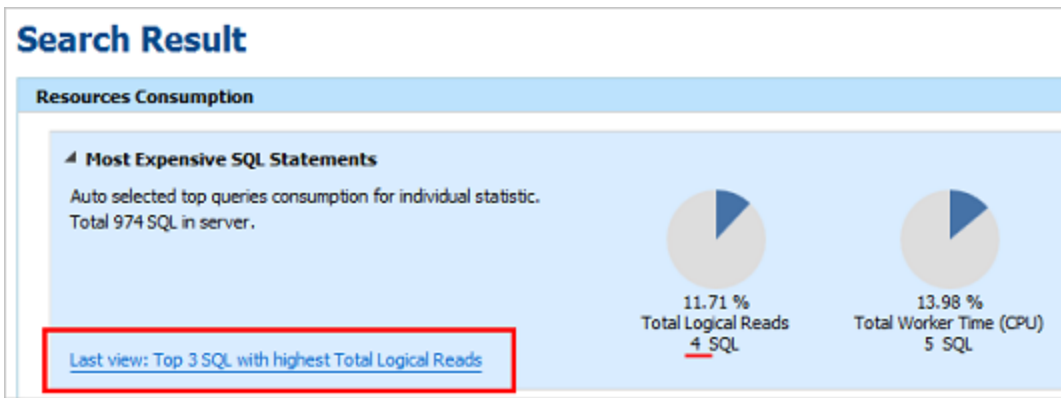
SQL Classification

Find SQL also conveniently groups the collected SQL statements into SQL Classification categories (problematic, complex, simple, and invalid).

- The dashboard displays a color-coded pie chart that helps you visualize the percentage of SQL statements in each classification category. The legend lists the number of SQL in each category.
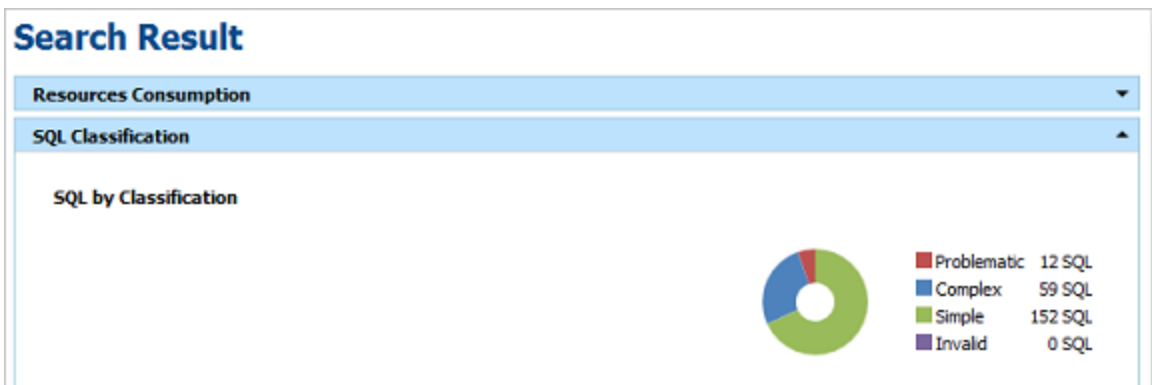
- Click a color-coded category in the pie chart to open the SQL by Classification page displaying the list of SQL statements in that category. Select a statement to view SQL text, execution plan, and batch or database object.

Summary Chart View

- You now click **View Details** to see the SQL details for Top SQL, Top Batches, or Top Database Objects.
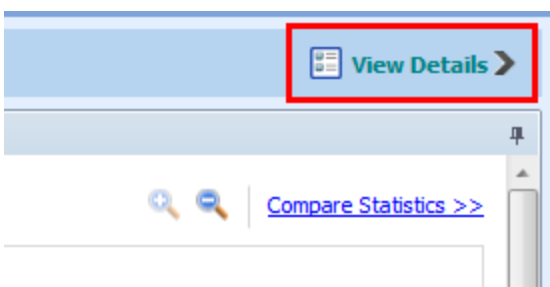
- Each Summary Chart view now includes a **Classification Type** column in the SQL grid.
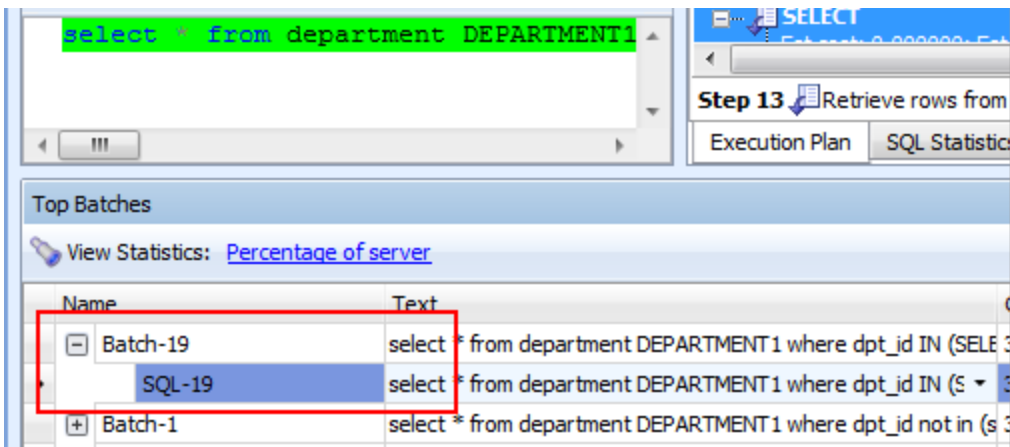

SQL Details View

The Details page has been redesigned to make it easier to view and compare SQL details.

- The list of SQL and the details are now on the same page. Scroll through the SQL list to quickly view details of each SQL and see how the SQL relate to each other.
- When viewing details, you can now display the SQL text highlighted within the context of the batch or object.
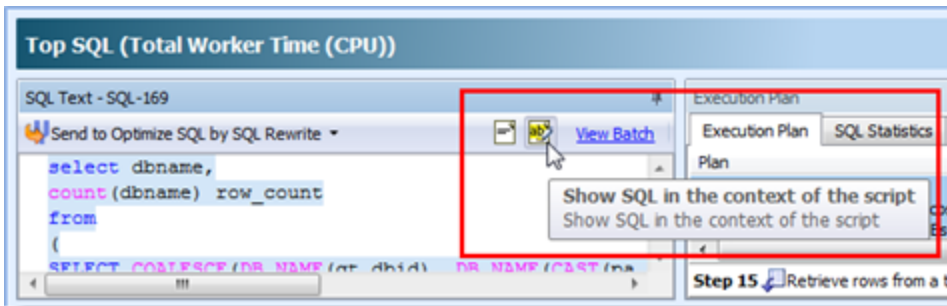
- When viewing results by batch/object, expand the batch/object node to see the list of SQL in that batch/object. Select a SQL statement to see its details.

- In the Details view for Top SQL, select a SQL statement and drill down to see batch or object details.
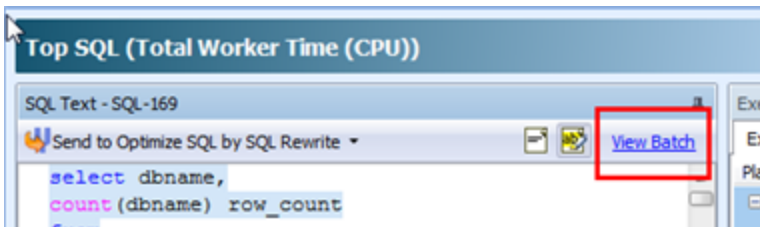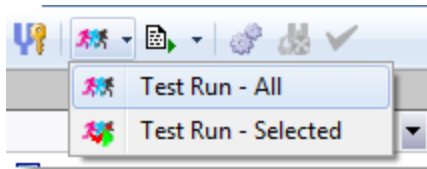
Optimize SQL

Test Run Function

New **Test Run** buttons replace the Execute and Batch Run buttons. Each button includes new sub-commands with slightly different functionality. These buttons have been redesigned to streamline the test run process. (To specify the number of records to retrieve and the number of times to test run alternatives, use the *Test Run Settings* dialog or the *Test Run Special Settings* dialog.)

- A new **Test Run Current** group button replaces the Execute button.
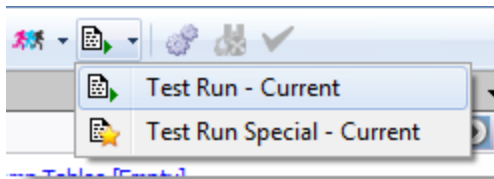
  - Click **Test Run - Current** to test run a single alternative.
  - Click **Test Run Special - Current** to test run a single alternative and specify test run options.

- The **Test Run All** group button replaces the Batch Run button. This new button includes the **Test Run - All** and **Test Run - Selected** commands to test run all alternative or a selected group of alternatives simultaneously. Use the Test Run Settings dialog to specify other options.


- The Batch Run All/Selected Multiple commands have been removed. To test run SQL multiple times, use the Test Run Settings dialog.
- The **Auto Optimize** button is no longer a group button. Click **Auto Optimize** to rewrite the original SQL and test run all alternatives. Use the Test Run Settings dialog to specify other options.

Test Run Settings Dialog

A new Test Run Settings dialog replaces the Session Batch Run Criteria dialog. This dialog opens when you select **Test Run - All** or **Test Run - Selected**.

This new dialog streamlines the process of selecting test run options.

- Simplify the process of selecting test run settings by answering three questions about your original SQL. SQL Optimizer automatically determines the best test run settings based on your answers.
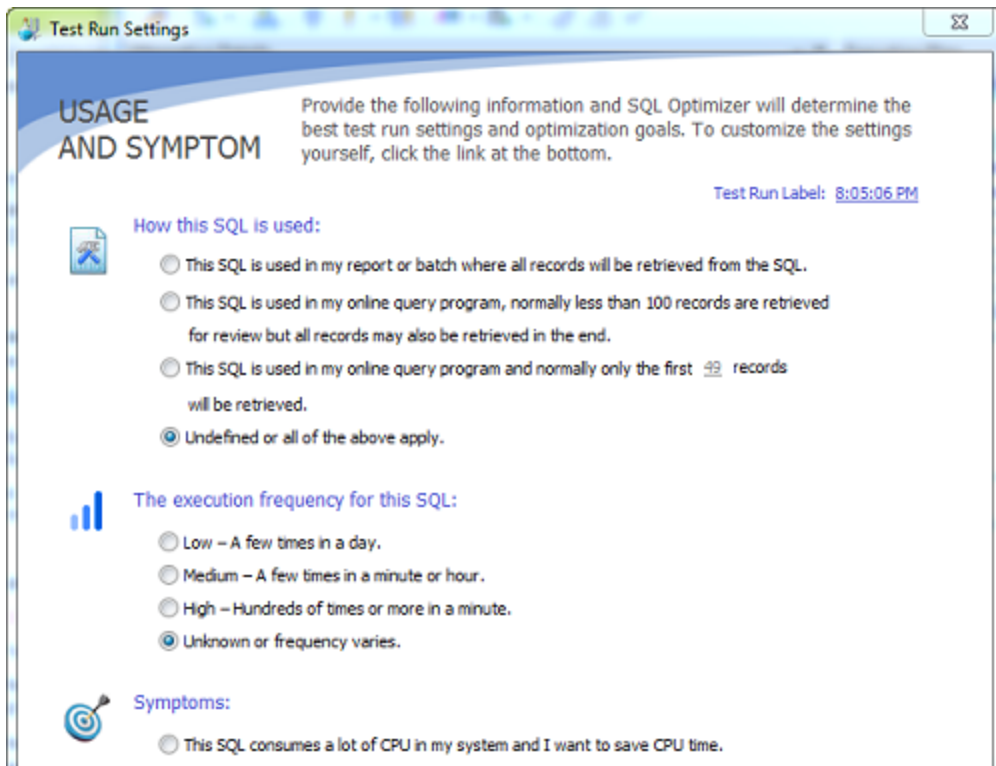
- If you prefer, you can specify test run settings manually by selecting the **Customize Test Run Settings** link at the bottom of the page. The Custom Setup page opens where you can specify detailed options for your test run.
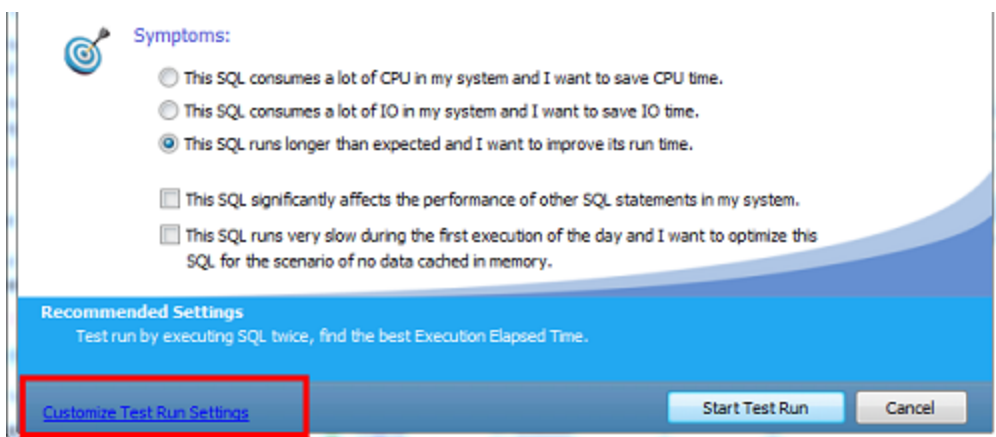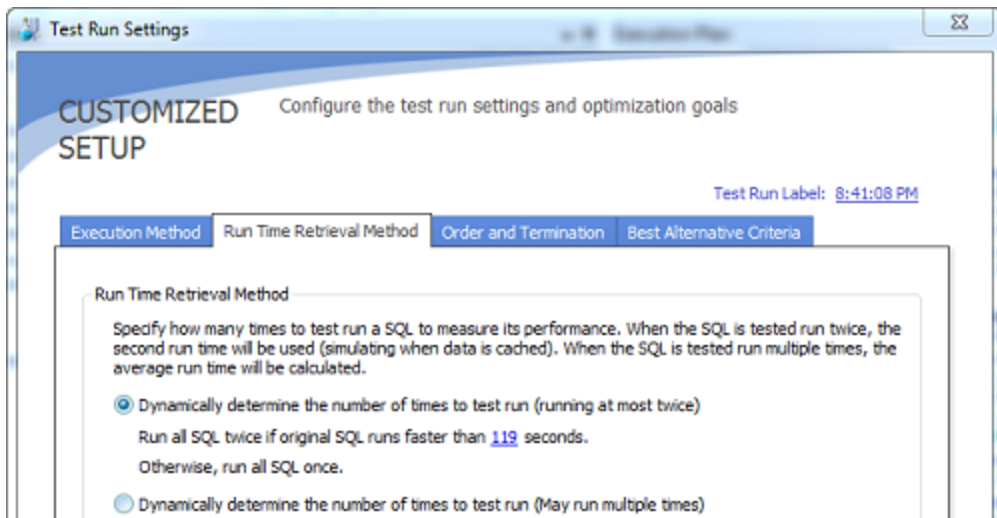
- Several of the test run options have been refined to better help you identify the best SQL alternative.
  - When using the termination option **User-defined time**, you can select whether or not to terminate the original SQL if it is included in the batch.
  - When using the termination option **Percentage of original SQL run time**, you can select whether or not to run the original SQL again if it is not included in the batch.
  - The termination option **Run time of the fastest SQL** now applies to the fastest SQL in the batch, not all alternatives.
- **Flush data cache before running each SQL** is now the default selection.
- You can now apply a label to a test run to identify all alternatives that were executed in that test run. The label is displayed in the **Test Run Label** column in the Alternatives or Plans grid. Use the default timestamp or create a custom label.
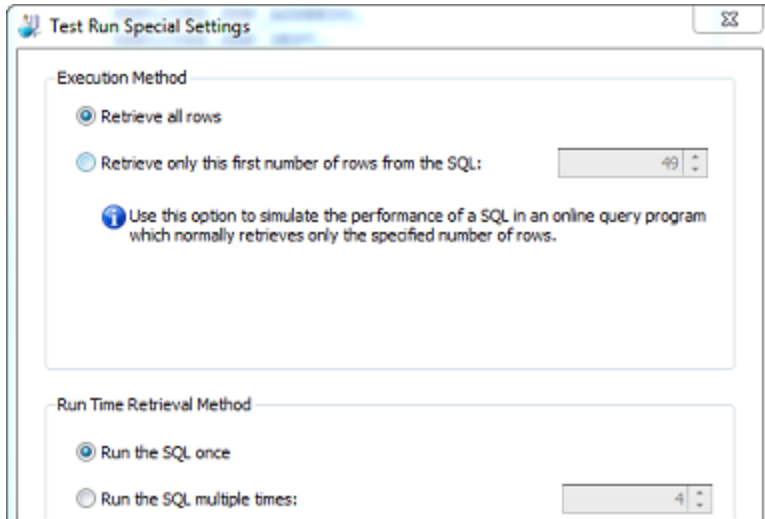

Test Run Special Settings Dialog

You can now specify test run options when you test run a single SQL or plan alternative.

- Select the **Test Run Special - Current** option to test run the alternative. The Test Run Special Settings dialog opens where you can specify the number of records to retrieve and the number of times to test run

the alternative.

Execution Statistics

- The following statistics are now included in the Alternatives pane and the Plans pane in Optimize SQL: Response Time, Writes, Buffers Received, and Bytes Received.

Linked Server Objects

- The Schema Information tab now identifies a table or view from a linked server by displaying *Remote Table* or *Remote View* in the **Type** field.

Syntax Support

- SQL Optimizer now supports SQL Server "linked servers" and queries that utilized linked servers.
- This release includes support for SQL Server synonyms.

Learn More

Find blogs, forums, and other product resources on Toad World.

- You can get the latest product information, find helpful resources, test the product betas, and join the discussion at the SQL Optimizer for SQL Server Community.

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Resolved Issues and Enhancements

The following is a list of issues addressed and enhancements implemented in this release.

Resolved Issues in 10.0.3

Feature	Resolved Issue	Defect ID
Integration with other Quest products	Corrected an issue which prevented integration with Foglight.	ST118843, QSOSS-517
Integration with other Quest products	Corrected an issue that caused an error when sending SQL to the Optimize SQL module in SQL Optimizer for SQL Server from Foglight.	ST118832, QSOSS-1198
Optimize Indexes	Corrected an issue that caused an error when attempting to connect to a Spotlight Statistics Repository in a SQL Server 2016 database to collect SQL. The error text included the following: "Procedure or function spotlight_get_monitored_ objects has too many arguments specified."	QSOSS-1245
Optimize SQL (SQL Rewrite)	Corrected an issue that caused an "Objects of this type have no space allocated" error when attempting to generated Index alternatives.	ST118919, QSOSS-1199
SQL Server 2016	Added support for the new query hint argument, USE HINT, in SQL Server 2016 SP1.	QSOSS-946
SQL Server 2016	Added support for new DATEDIFF_BIG function in SQL Server 2016.	QSOSS-953
Syntax	Corrected a syntax issue in which a column was incorrectly treated as a bind variable. This issue was encountered when the SQL contained either a "left join" or "right join," the first table had no alias, and columns in the first table were qualified with the table name.	ST118920, QSOSS-568, QSOSS-1200
Syntax	Added support for $IDENTITY and $ROWGUID.	QSOSS-959

Resolved Issues in 10.0.1

Feature	Resolved Issue	Defect ID
Integration with Toad for SQL Server	When sending SQL from Toad for SQL Server to SQL Optimizer to Auto Optimize, the Test Run Settings dialog opens as expected.	ST115905, ST115914, QSOSS-449
Optimize SQL	An issue that resulted in incorrect values for "Time Saved (%)" and "Times of Improvement" in the Report page for an Optimize SQL session is resolved.	ST116812
Optimize SQL	After selecting **Clear Optimization Results	Clear Original Scenario** in the Alternative Details pane and then entering SQL again, the **Get Estimated Plan** button works as expected.	QSOSS-401

Feature	Resolved Issue	Defect ID
Optimize SQL	If you attempt to generate indexes when optimizing a SELECT INTO statement, you will no longer encounter "An object or column name is missing or empty" error message.	ST116701

Resolved Issues in 10.0

Feature	Resolved Issue	Defect ID
Find SQL	When creating a new Plan Cache search, the user was unable to start the Plan Cache search process after closing the Top SQL selection text box by clicking the close [x] button.	ST113068
Find SQL	When collecting SQL, the number of SQL now updates dynamically on the Show All Searches page.	ST114802
Find SQL	An issue that caused an empty XML file to be generated when saving an execution plan in Find SQL is resolved.	ST114881
Find SQL	In the Summary Chart, the Primary Statistics (y-axis label) correctly updates after selecting to view a different primary statistic (resource type).	ST114937
Optimize SQL	Old execution statistics are now cleared after original SQL is rewriten and execution plan is retrieved.	ST109320
Optimize SQL	Improved performance of SQL Rewrite process.	ST113052
Optimize SQL	Added support for synonyms.	ST74220
Optimize SQL	An issue that caused an "Out of Memory" error when using Batch Run to run SQL that returns a large number of rows is resolved.	ST112494
Optimize SQL	An issue that caused the "SQL Extraction" to display when inputting a single invalid SQL statement is resolved.	ST113628
Optimize SQL	Revised termination criteria in Batch Run.	ST113710
Optimize SQL	Optimize SQL now points out the best value for each statistic. The value is displayed using bold text to highlight it.	ST114018
Optimize SQL	An issue that caused duplicate columns to display for remote objects in the Schema Information tab is resolved.	ST114083
Optimize SQL	Optimize SQL failed to generate alternatives for some SQL containing linked server objects. This issue is resolved.	ST114279
Optimize SQL	Support for SQL Server 2014 cardinality estimator. You can enable/disable in Options.	ST114816
Optimize SQL	Importing a session from STS files is no longer supported.	ST114826
Optimize SQL	When sending multiple SQL alternative containing the same bind variable to Benchmark Factory, the scalability job failed because only the first SQL received the bind variable. This issue is resolved.	ST114842
Optimize SQL	After opening a saved session, the user-defined alternative would contain duplicate indexes. This issue is resolved.	ST114845

Feature	Resolved Issue	Defect ID
Optimize SQL	An issue that caused the application to unexpectedly close when selecting the Virtual Indexes tab in a saved session shortly after creating a new session is resolved.	ST114939
Optimize SQL	SQL Rewrite: When auto-optimizing SQL containing a temp table and a bind variable, the original SQL test runs successfully and no longer displays an error icon in the status column.	ST114979
SQL Scanner	The SQL Scanner now supports the following syntax: [server]. [database].[schema].[object]	ST41156
System Requirements	Include support for Windows 8.1 and Windows Server 2012 R2.	ST113995
System Requirements	Include support for Windows 8.1 (with Update) and Windows Server 2012 R2 (with Update).	ST114511, ST114878, ST114879
User Interface	If you input your original SQL from a file, when saving the SQL as a SQL text file again, for convenience the default file name in the Save As dialog is now set to the original file name.	ST113215

Known Issues

The following is a list of issues known to exist at the time of the SQL Optimizer release.

Feature	Known Issue	Defect ID
General	If you uninstall the standalone version of SQL Optimizer with Toad for SQL Server and SQL Optimizer installed, you can no longer launch SQL Optimizer by sending SQL statements from Toad for SQL Server to SQL Optimizer.	ST77615
	If you create a connection using Windows Authentication in Performance Analysis for SQL Server and the login user does not have privileges to connect to your SQL Server database, you cannot send SQL statements from Performance Analysis for SQL Server to SQL Optimizer because SQL Optimizer cannot establish a database connection.	ST83601
	When you launch SQL Optimizer from Windows 2000, you may get an error message, "Quest.Tuning.SQLSvr.Main has encountered a problem and needs to close." **Workaround:** Download and install MSXML 6.0 from http://www.microsoft.com/en-us/download/details.aspx?id=3988.	ST102569
Installation	If you upgrade to SQL Optimizer for SQL Server 10.0.1 from a previous version (and install versions side-by-side) and then uninstall a previous version, when you attempt to send SQL from Toad for SQL Server to SQL Optimizer, you will encounter an error. After closing the error message, the SQL may or may not be sent successfully.	N/A

Feature	Known Issue	Defect ID
	Workaround:	
	• Uninstall SQL Optimizer 10.0 before installing version 10.0.1.	
	• Or use the Repair feature in the SQL Optimizer for SQL Server 10.0.1 .msi Installer to replace the missing files.	
Installation	If you upgrade to SQL Optimizer for SQL Server 10.0.1 from a previous version and then uninstall SQL Optimizer 10.0.1, the Start menu shortcut and some installation files are not completely removed. **Workaround:** After uninstalling SQL Optimizer 10.0.1, manually remove the SQL Optimizer 10.0.1 shortcut and remaining 10.0.1 installation files.	N/A
Installation	After installing SQL Optimizer for SQL Server 10.0.1, if you then install a previous version of SQL Optimizer side-by-side with 10.0.1, and then uninstall version 10.0.1, you cannot launch the previous version from the Start menu. **Workaround:** Launch the previous version of SQL Optimizer using the executable in the installation directory.	N/A
Installation	When you upgrade from 7.1 to 8.0, the error window "Quest.Tuning.SQLSvr.Main" displays. **Workaround:** 1. Uninstall 7.1. 2. Install 8.0.	ST90338
	When you upgrade from 7.0 to 7.1 or from 7.1 to 8.0, Install for Everyone does not work.	ST89823
	You are not provided with an option to upgrade when installing SQL Optimizer 7.1 if you have SQL Optimizer 7.0 installed with Toad for SQL Server. **Workaround:** Perform a side-by-side installation of SQL Optimizer 7.0.	ST83496
Optimize SQL	When you connect to SQL Server using Windows group, you cannot define a default schema. **Workarounds:** 1. Connect to the SQL Server with a login who has permission to create a user, and use the following script to create a user login (replace domainname\username with your NT login). USE [yourdbname] GO CREATE USER [domainman\username] FOR LOGIN [domainname\username] WITH DEFAULT_ SCHEMA=[dbo] GO. After the above is created, connect to the database using Windows Authentication to use SQL Optimizer. 2. Contact your Database Administrator to directly add your domainuser as a login.	ST84377
	A SQL statement with a hidden control character in the text is classified as Invalid.	ST41386, ST98296

Feature	Known Issue	Defect ID
	Optimizing SQL with **DBO**.*Sys Objects* results in a "Table does not exist" error because *Sys Objects* reside in the **SYS** schema and not the **DBO** schema. Since the DBO schema is only backwards compatible to SQL Server, SQL Optimizer is unable to access it. **Workaround:** Optimize SQL with *Sys Objects* with the **SYS** schema instead of the **DBO** schema.	ST75908
	Executing SQL alternatives with an Option Clause using Query Hints for SELECT statements in CREATE VIEW causes an error because these statements are not supported by SQL Server. **Workaround:** Clear the checkbox for the SQL alternative with the Option Clause before using the Auto Optimize or Optimize function to generate alternatives without the Option Clause.	ST53842

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Third Party Known Issues

The following is a list of third party issues known to exist at the time of this release.

Feature	Known Issue	Defect ID
Optimize SQL	When using Microsoft SQL Server 2005 SP1 and optimizing certain types of SQL statements, you might encounter an "Internal Query Processor" error. See Microsoft support article 931329 for more information. **Workaround:** Upgrade to SQL Server 2005 SP2.	N/A
Scan SQL	If the SQL Server CURSOR_CLOSE_ON_COMMIT dboption parameter is not set to OFF, using the sp_ helptext system stored procedure in Scan SQL may return the following error due to SQL Server BUG #: 57967 (SQLBUG_70) or BUG #: 231137 (SHILOH): Server: Msg 16917, Level 16, State 2, Line 0 Cursor is not open.	N/A
SQL Server Connection	If you are using dynamic port allocation and UDP port 1434 is disabled, SQL Optimizer may not be able to connect to SQL Server and you may receive an error message. This is a known Microsoft issue. See Microsoft Support Article ID 823938 for more information. **Workaround:**Manually specify the SQL Server connection string as [Server]\[Named Instance],[Port] in SQL Optimizer.	N/A

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System Requirements

Before installing SQL Optimizer for SQL Server, ensure your system meets the following minimum hardware and software requirements:

Requirement	Details
Platform	600 MHz minimum, 1 GHz recommended
Memory	512 MB of RAM minimum, 1 GB recommended **Note:** The memory required may vary based on the following: • Applications that are running on your system. • Size and complexity of the database. • Amount of database activity. • Number of concurrent users accessing the database
Hard Disk Space	70 MB of disk space to run SQL Optimizer **Note:** This is the disk space required for a full installation, which includes 457 MB download of temporary setup files that can be removed at the completion of the installation.
Operating System	Windows® 7 (32-bit or 64-bit) Windows Vista® (32-bit or 64-bit) Windows Server 2008 (32-bit or 64-bit) Windows 8 (32-bit or 64-bit) Windows 8.1 Enterprise (with Update) (32-bit or 64-bit) Windows Server 2012 Windows Server 2012 R2 (with Update) Windows 10 (32-bit or 64-bit) Windows Server 2016
.NET Framework	Microsoft® .NET Framework 4.0 **Note:** The .NET Framework Client Profile is not supported.
Database Server	SQL Server® 2000, 2005, 2008, 2012, 2014, 2016, 2017 • SQL Optimizer has been tested against SQL Server 2017 running on Windows or Linux. SQL Server 2005 Express SQL Server 2008 Express **Note:** SQL Server Compact edition is NOT supported.
Cloud Database Service	Microsoft SQL Azure™ Database
Additional Software	Microsoft Internet Explorer® 6.0 or later. Adobe® Acrobat® Reader 7.0 or later (for viewing the Installation Guide). SQL Server Management Objects (SMO); for more information about SMO, please visit http://msdn.microsoft.com/en-us/library/ms162189.aspx. You can also simply install Management Studio from SQL Server installation media.

Virtualization Support

Before installing SQL Optimizer, review the following for virtualization support:

Requirement	Details
Application	SQL Optimizer has been tested with the following: • Citrix® XenApp™ 5.0 on Windows Server 2003 (Service Pack 2) using the Citrix Presentation Server Clients 4.0 • Citrix XenApp 6.5 on Windows Server 2008 R2

Note: SQL Optimizer may work in virtualization environments other than the ones in which it was tested.

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Product Licensing

To activate a trial license

1. Enter the Authorization Key included in your Trial Email into the License Key field of the Licensing dialog.
2. Enter the Site Message included with your Authorization Key.

To activate a purchased commercial license

1. Enter the Authorization Key included in your Purchase Email into the License Key field of the Licensing dialog.
2. Enter the Site Message included with your Authorization Key.

Getting Started with SQL Optimizer

Contents of the Release Package

The SQL Optimizer for SQL Server release package contains the following products:

1. SQL Optimizer for SQL Server 10.0.3
2. Product Documentation, including:
   - Install Guide
   - Online Help
   - Release Notes

Installation Instructions

Refer to the *SQL Optimizer for SQL Server Installation Guide* for installation instructions.

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Global Operations

This section contains information about installing and operating this product in non-English configurations, such as those needed by customers outside of North America. This section does not replace the materials about supported platforms and configurations found elsewhere in the product documentation.

This release is Unicode-enabled and supports any character set. It supports simultaneous operation with multilingual data. This release is targeted to support operations in the following regions: North America, Western Europe and Latin America, Central and Eastern Europe, Far-East Asia, Japan.

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About Us

We are more than just a name

We are on a quest to make your information technology work harder for you. That is why we build community-driven software solutions that help you spend less time on IT administration and more time on business innovation. We help you modernize your data center, get you to the cloud quicker and provide the expertise, security and accessibility you need to grow your data-driven business. Combined with Quest's invitation to the global community to be a part of its innovation, and our firm commitment to ensuring customer satisfaction, we continue to deliver solutions that have a real impact on our customers today and leave a legacy we are proud of. We are challenging the status quo by transforming into a new software company. And as your partner, we work tirelessly to make sure your information technology is designed for you and by you. This is our mission, and we are in this together. Welcome to a new Quest. You are invited to Join the Innovation.

Our brand, our vision. Together.

Our logo reflects our story: innovation, community and support. An important part of this story begins with the letter Q. It is a perfect circle, representing our commitment to technological precision and strength. The space in the Q itself symbolizes our need to add the missing piece—you—to the community, to the new Quest.

Contact Quest

For sales or other inquiries, visit www.quest.com/contact.

Technical Support Resources

Technical support is available to Quest customers with a valid maintenance contract and customers who have trial versions. You can access the Quest Support Portal at https://support.quest.com.

The Support Portal provides self-help tools you can use to solve problems quickly and independently, 24 hours a day, 365 days a year. The Support Portal enables you to:

- Submit and manage a Service Request
- View Knowledge Base articles
- Sign up for product notifications
- Download software and technical documentation
- View how-to-videos
- Engage in community discussions
- Chat with support engineers online
- View services to assist you with your product

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