

SQLBigEyes Hammer User Guide

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Document overview

This document is a User Guide for SQLBigEyes Hammer, a load test tool for Microsoft SQL Server.

Images and some names used in the document may differ from version to version.

Regards,

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Intro to SQLBigEyes Hammer

Functions

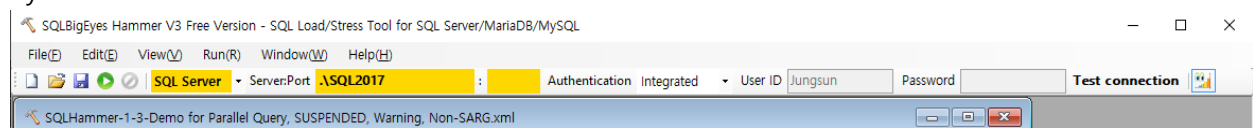
Classification	Detailed Function
Main Window	<ul style="list-style-type: none">● Run/Stop multiple hammer windows simultaneously● Support for MySQL/MariaDB (Beta)
Hammer Window	<ul style="list-style-type: none">● Setting execution properties (Repetition count, Thread count, Sleep time, etc.)● Real-time output of execution performance by thread● Uninterrupted execution in case of failure by thread● Saving and reusing Hammer configuration information
Performance Monitor	<ul style="list-style-type: none">● Performance counter support (Windows only)
ETC	<ul style="list-style-type: none">● Support for query lengths of more than 8000 characters● Automatic saving/restore of last connection information (except password)

Setup Load and Run

Main Menu, Toolbar and Server connection information setting

SQLBigEyes can run multiple queries simultaneously and load test against a single SQL Server. After executing SQLBigEyes Hammer, select **[DBMS Type]**, **[Target Server:Port]**, **[Authentication Method]**, **[User ID]**, **[Password]** (when using SQL Server authentication) to test in each of the Toolbar items shown in the figure below. Specify it and click the **[Test Connection]** button to check whether the connection is successful or unsuccessful.

When you open the "New Query" window later, the server connection information set here is applied by default.



Authentication method and account information can be changed in individual Hammer windows.

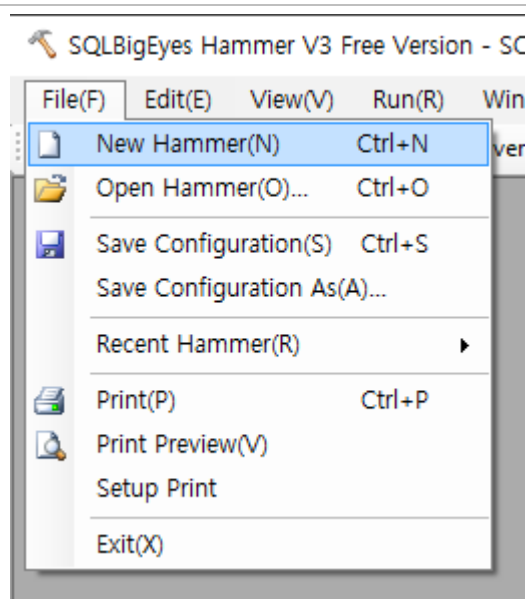
Ref-1. If you are testing **PostgreSQL/MySQL/MariaDB**, you need to install the corresponding **ODBC Drive** on your current machine first and specify the name of the driver in the "**Configurations.xml**" file (see picture below), the default specified name is entered and you only need to modify it in other cases. And **for PostgreSQL**, you need to set up the server so that it can connect with only User ID and Password, without using the certificate method if necessary.

```
*Configurations.xml - Windows 메모장
파일(F) 편집(E) 서식(O) 보기(V) 도움말(H)
<?xml version="1.0" standalone="yes"?>
<NewDataSet>
  <Config>
    <DriverForMariaDB>MariaDB ODBC 3.0 Driver</DriverForMariaDB>
    <DriverForMySQL>MySQL ODBC 5.3 UNICODE Driver</DriverForMySQL>
    <DriverForPostgreSQL>PostgreSQL Unicode(x64)</DriverForPostgreSQL>
  </Config>
</NewDataSet>
```

Ref-2. For ODBC Drive for PostgreSQL, you can download and install the file for the desired version of your platform (x64, x86) from <https://www.postgresql.org/ftp/odbc/versions/msi/>

Ref-3. MySQL/MariaDB support is still in the testing phase (Beta).

New Query Window



Use the **[File(F)]** menu, toolbar, or shortcut key (Ctrl-N) to open a new Hammer window to enter a query. If you have saved the test query in the existing Hammer window as a file (Save Configuration), you can use the "Open Hammer" menu.

Hammer Window

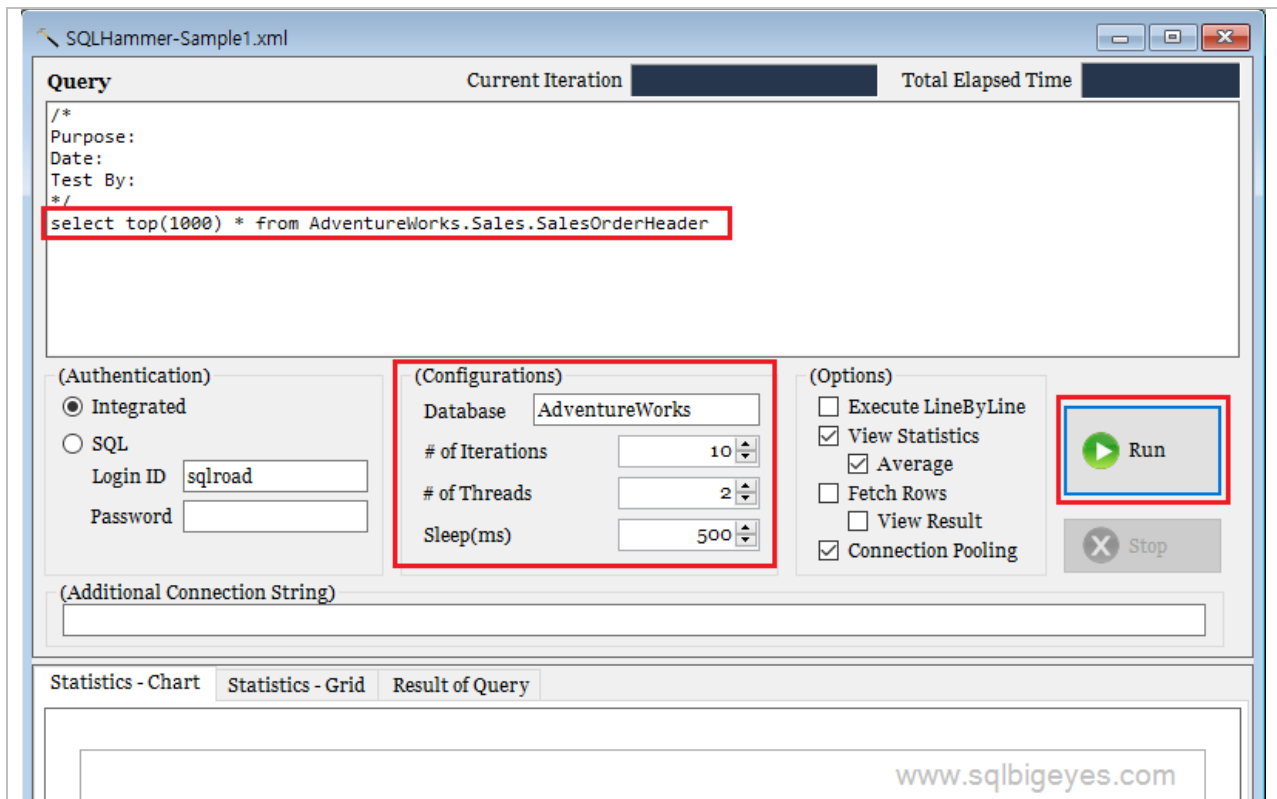
Enter the query to be executed in the **[Query]** window. You can specify more than one query. Basically the entire query is executed in one batch (batch) at once, so it is structured so that there is no problem to perform it.

Note) SQLBigEyes Hammer **supports entering queries of more than 8,000 characters (over)**.

Note) You can adjust the "Font size" by using the **[Ctrl+Mouse Wheel]**.

- Enter the database to connect to in the **[Database]** window. Then set properties on how often and how many times we want to run the query.
- **[# of Iterations]** is the number of query iterations.
- **[# of Threads]** is the number of threads to be executed at the same time.
- **[Sleep(ms)]** can specify the number of milliseconds to wait between repetitions (0 is no wait).

Now click the **[Run]** button to actually execute the query.



If you want to **execute a specific query** among several queries, select the query and click the **[Run]** button.



Line-by-line query execution

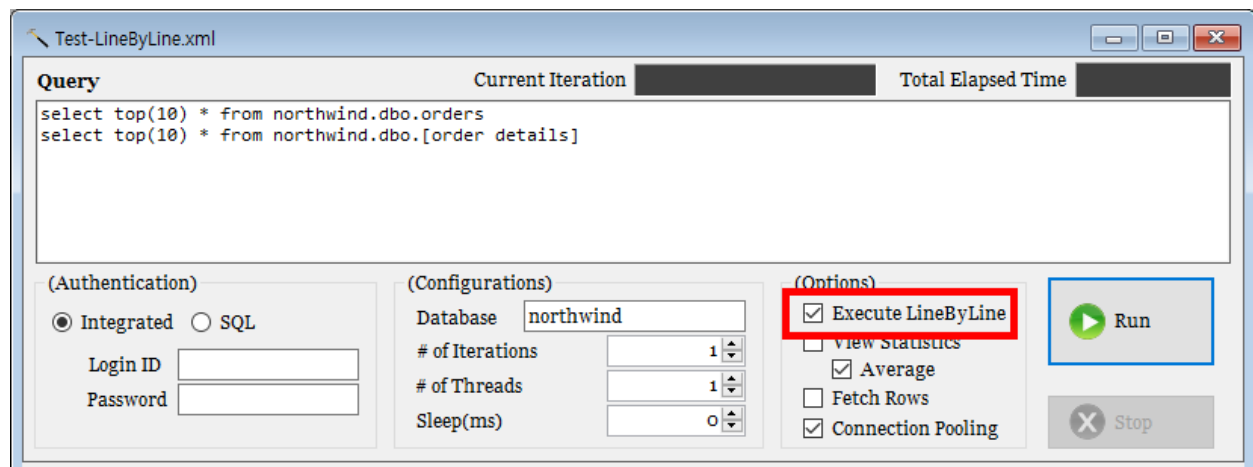
Select the **[Execute LineByLine]** option if you want to call one query line by line rather than executing all queries as a batch at once.

Caution.

- 1) In the case of `/* */` comments spanning multiple lines, an error occurs, so remove them in advance

or change them by line.

2) Lines beginning with -- comments are automatically excluded when executed.



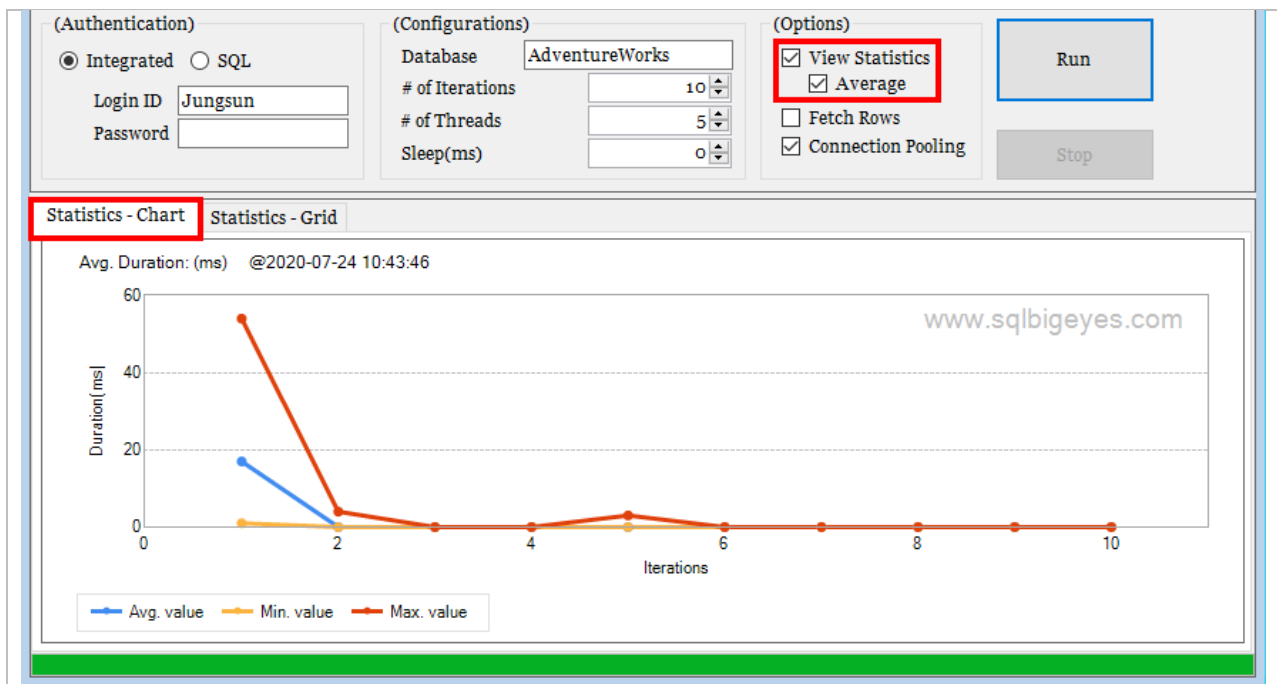
Real-time performance evaluation by thread

If you select the **[View Statistics]** option in the figure above, the number of times the query is being executed for each concurrently executed thread, the number of **successes** and **failures** among them, the execution time of individual calls together with the number of occurrences (**Elapsed Time**) and the accumulated execution time up to that point (**Total Elapsed Time**). Each thread is not necessarily called in order.

Important. Specifying this option can affect the overall execution time due to additional behavior in the SQLBigEyes Hammer program itself.

(Current Iteration) and **(Total Elapsed Time)** at the top of the Query window show the accumulated number of iterations and total execution time to date regardless of this option.

[Statistics-Chart] Tab



[Statistics-Grid] Tab

Statistics - Chart **Statistics - Grid**

Thread No	Duration(ms)	Success	Fail	Rows Affected
1	0	10	0	10
2	0	10	0	10
3	0	10	0	10
4	0	10	0	10
5	0	10	0	10
Average	0			

After execution is complete, you can see the **average execution time and average elapsed time of individual threads** in the (Average) row at the bottom.

Tip. Utilize when testing in a redundant environment

SQLBigEyes Hammer is developed so that even if an error occurs during execution, the query continues to be repeated until the specified number of iterations is met. This can be useful **when testing Failover behavior** in a redundant environment such as Failover Cluster, Always on availability group, auto failover group on Azure, etc

[Options – Fetch Rows & View Result]

Hammer does not process query result rows by default. By specifying the **[Fetch Rows]** option, you can specify that the default behavior of populating a variable is for the entire result row and for individual column values. This allows you to perform a load test (similar to the actual situation), including the amount of time the client processes data.

(Options)

☐ Execute LineByLine

☒ View Statistics

☒ Average

☐ Fetch Rows

☐ View Result

☒ Connection Pooling

Run

Stop

In addition, if you select the **[View Result]** option, the result is displayed in the **"Result of Query"** tab at the bottom. If the Iterations value is 2 or more, the execution result is displayed in the form of being added to the Grid. The **"Iteration"** column value indicates the number of iterations.

Statistics - Chart	Statistics - Grid	Result of Query				
Iteration	SalesOrderID	RevisionNumbe	OrderDate	DueDate	ShipDate	Status
1	43659	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
1	43660	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
2	43659	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
2	43660	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
3	43659	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
3	43660	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
4	43659	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
4	43660	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
5	43659	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5
5	43660	8	2011-05-31 ...	2011-06-12 ...	2011-06-07 ...	5

[Options – Connection Pooling]

Connection using Connection Pooling in ADO.NET (.NET Data Provider), ADO (OLEDB), etc. is the default operation, but if necessary, you can disable the option and perform a load test with Non-Connection Pooling.

(Options)

☒ View Statistics

☒ Average

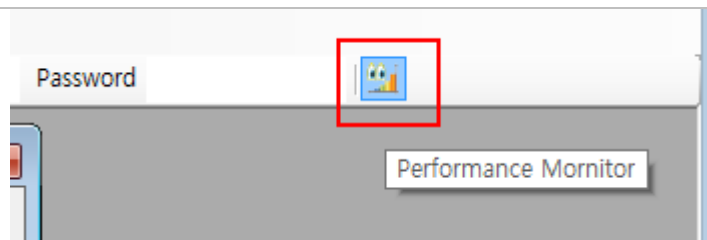
☐ Fetch Rows

☒ Connection Pooling

Run

Stop

Performance Monitor window [Beta]

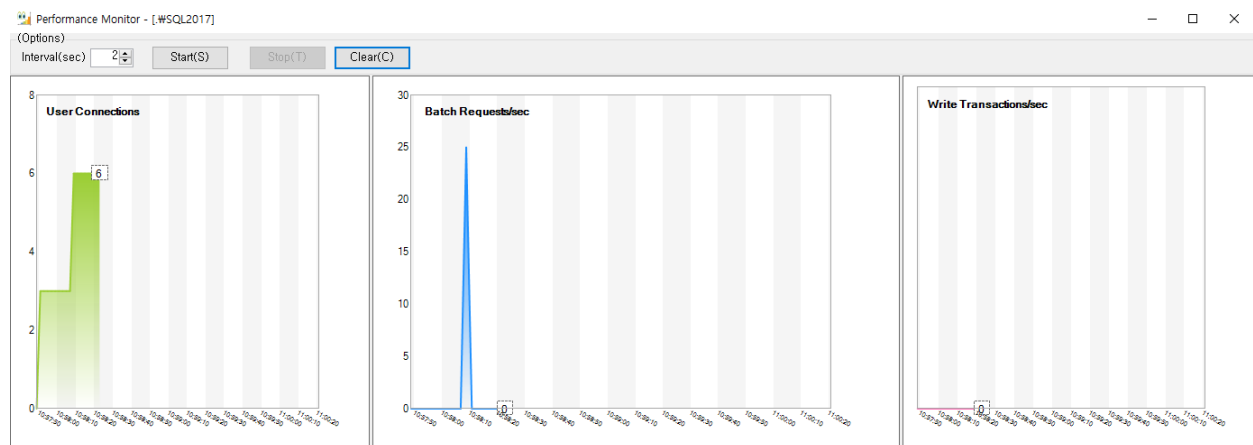


It is recommended to use Windows Performance Monitor (**Perfmon.exe**) to check the overall performance of the current server. You can also use **SQL Server Profiler (Trace)** or **Extended**

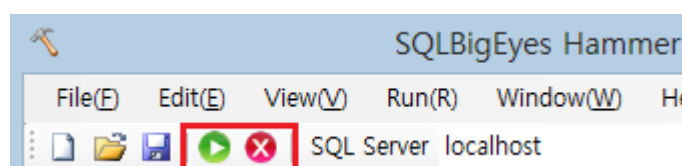
Event to check the performance of individual queries (CPU, Read, Write).

SQLBigEyes Hammer provides the **[Performance Monitor]** window so that you can check some performance counters simply as shown in the figure. Currently, Batch Requests/sec value is supported, and additional support is planned as needed in the future.

Note) This function is currently being tested (Beta). There may be a delay in the output of the chart when the load of the program itself increases or the computer in use is under load.



Run and stop all Hammer windows

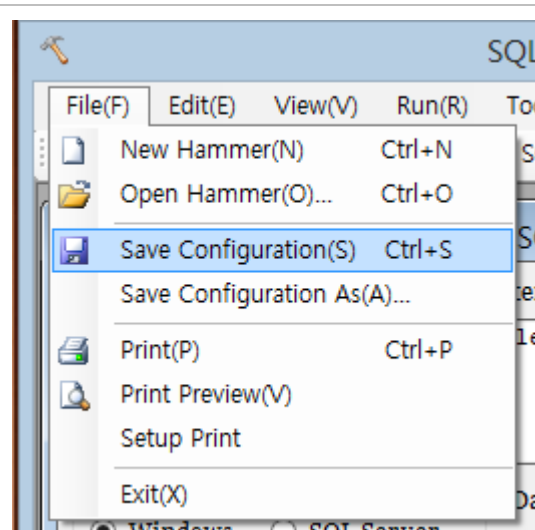


You can also open multiple Hammer windows and run or stop all queries at the same time. Open two or more required Hammer windows, set the information, and

then use the **[Run All]** or **[Stop All]** menu in the toolbar or [Run] menu.

Saving and Reusing Hammer Configurations

Saving Hammer Window Configurations



For later reuse, connection information of the current Hammer window, database, and property information including the number of repetitions can be saved in the configuration file (xml).

Using **[Save Configuration]** menu, toolbar, or shortcut key, and designate folder and file name to save. The xml file can also be edited directly using an editor tool such as Notepad.

When reusing the saved xml file, select the **[Open Hammer]** menu and specify the file, a new Hammer window is created, and the query and property information are automatically set.

Considerations

Here are some considerations when using SQLBigEyes Hammer.

- ❑ For production environment, execute SQLBigEyes Hammer on a separate computer independent from SQL Server.
- ❑ If you designate too many threads (more than a few thousand) in one Hammer window, a problem may occur in program execution, so consider increasing it from a small number or executing several other Hammer windows or SQLBigEyes Hammer programs. .
- ❑ If you run a query that runs for a very long time, closing the Hammer window may not terminate the query. You need to exit the SQLBigEyes program itself.
- ❑ Even if individual queries are very slow or under heavy load, it can cause problems with program execution, so please consider them.

In case of Error

If the following runtime error occurs repeatedly while using SQLBigEyes and you are uncomfortable, it would be appreciated if you capture the screen and send it by e-mail with a brief explanation.

And you can click the [Continue (C)] button to proceed with the operation.

