Benchmark Factory® 8.2.1

Release Notes

Monday, April 15, 2019

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About Benchmark Factory

Quest Software is pleased to make available Benchmark Factory® 8.2.1 to meet your database workload testing needs. Benchmark Factory is a database performance and code scalability testing tool that simulates users and transactions on the database and replays production workload in non-production environments. With Benchmark Factory developers, DBAs, and QA teams can validate that their databases will scale as user loads increase, application changes are made, and platform changes are implemented.

Benchmark Factory is available for Oracle®, SQL Server®, IBM® DB2®, SAP®, MySQL, PostgreSQL, and other databases via ODBC connectivity. Benchmark Factory:

- Simulates thousands of concurrent users with a minimal amount of hardware.
- Simulates database production workloads.
- Reports tests results with built-in reporting features.

Upon completion of a test execution, all test results are collected and stored in the repository for data analysis and reporting. Benchmark Factory collects a variety of informative and detailed statistics that include:

- Overall server throughput (measured in transactions per second/minute or bytes transferred).
- Detailed transaction executed statistics by individual agent workstations producing a load.

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New Features in 8.2.1

This release of Benchmark Factory includes the following new features and enhancements.

Benchmark Factory 8.2.1

Benchmark Factory 8.2.1 is a patch release and includes resolved issues. For a complete list, see "Resolved Issues and Enhancements" on page 4.

Benchmark Factory 8.2

Connections

MySQL Native Connection. Beginning with this release, Benchmark Factory now provides the ability to create a MySQL connection using Native database connectivity.

1. To create a MySQL Native connection, click the **New Connection** button in the main toolbar. Then select *MySQL* from the **Database Type** drop-down list.
2. Select the **Native** tab in the New Connection dialog and enter the connection information.

Note: The following Benchmark tests are supported: TPC-C, TPC-E, and TPC-H.

Database Support

This release of Benchmark Factory includes support for the following database versions:

- Oracle 18c
- MySQL 8.0

Enhancements to the Benchmark Factory Agent for Linux

In release 8.1, Benchmark Factory introduced an agent which you can deploy in your Linux environment. Benchmark Factory 8.2 includes several significant enhancements to the Agent for Linux.

Automatically Install Remote Agent on Linux

You can now install an agent on a remote Linux machine through the Benchmark Factory Console. This provides an easy, UI-based method for installing a remote agent on a Linux platform.

1. To install an agent on Linux through the console, select **Edit | Settings | Agent**. Then click **Setup New User Agent**.
2. Select **Linux** and click **OK**. Enter the name or IP address and the connection information for the remote Linux machine on which you want to install the agent. If no agent is found, you are prompted to install one. Click **Yes** to automatically install an agent for Linux.
3. After the agent is successfully installed, you can select it from the list of available agents.

Installation Package

The Benchmark Factory Agent for Linux is now distributed as an RPM package. This provides a number of advantages over the previous archive file (.tar) format. This format allows BMF to provide automatic installation through the Benchmark Factory Console. You can also use YUM to install the Benchmark Factory Agent RPM package on Linux manually.

To download the RPM package for manual installation, go to https://bintray.com/quest/bmfrepo. For additional information, see "Install Remote Agent on Linux" in the *Benchmark Factory Help*. For best results, install the Agent for Linux automatically through the Benchmark Factory Console.

Oracle and MySQL Support

The Benchmark Factory Agent for *Linux* can now be used when testing against the following database types (in addition to PostgreSQL):

- Oracle
- MySQL

Oracle. If using the Benchmark Factory Agent for *Linux* to test against an Oracle database, ensure an Oracle Client is installed on the same Linux machine as the Agent. Review the following details:

- The Oracle Client and Oracle Instant Client, versions 10g R2 and later, are supported.
- If you use a version of the Oracle Instant Client later than 10g R2, you must create a symbolic link to the shared library for the Oracle Instant Client you intend to use.
- Additional Information—For additional prerequisites and more-detailed information, see "Install Remote Agent on Linux" in the *Benchmark Factory Help*.

See Resolved Issues for more enhancements and resolved issues in this release of Benchmark Factory.

Learn More

Learn more and connect with the community at the Benchmark Factory Community page on Toad World.

- Find interesting blogs and other useful information.
- Ask questions in the forum.
- Link to Commercial, Trial, and Freeware downloads.
- Find Benchmark Factory documentation.

Deprecated Features

SQL Server Native Client

Beginning with Benchmark Factory 8.1, the Microsoft SQL Server Native Client (11.0) is no longer distributed along with Benchmark Factory.

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Resolved Issues and Enhancements

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

Resolved Issues in 8.2.1

Feature	Resolved Issue	Defect ID
Benchmark Factory Console	Corrected an issue which caused an error when a Standard user attempted to start the Benchmark Factory console under certain conditions.	BMF-5377
General	Upgraded Third Party component to latest version.	BMF-5419

Resolved Issues in 8.2

Feature	Resolved Issue	Defect ID
Adding SQL Transactions	Corrected an issue in which the same database was listed twice in the "Database" drop-down list in the "Add Stored Procedures" dialog (Test Options | Transactions | Add Stored Procedures). This issue was discovered when testing against an SAP ASE database.	BMF-3856
Adding SQL Transactions	Corrected an issue in which existing procedures were not listed for the selected database in the "Add Stored Procedures" dialog (Test Options | Transactions | Add Stored Procedures). This issue was discovered when testing against an SAP ASE database.	BMF-3857
Benchmark Factory REST API	Corrected an issue in which Benchmark Factory failed to include the SQL's bind parameter in a Custom test posted using the JSON format.	BMF-5217
Capture and Replay	Corrected an issue which caused Benchmark Factory to unexpectedly stop and close as a result of high memory utilization when importing a very large number of Oracle trace files.	BMF-5013
Capture and Replay	Enhancement: A new Execution Method, "Direct SQL Execute," has been added to the "Add SQL Transactions" dialog. Select this method to execute SQL without preparation. This can be useful when replaying a workload in which temporary tables are used.	BMF-5148
Capture and Replay	When importing a SQL Server trace table, the SQL Server Trace Processing screen now displays statistics for only the imported SQL.	BMF-5248
Capture and Replay	Oracle: Corrected an issue in which executing a SQL statement that included an in/out parameter with a NULL value caused in the following error: ORA-06502: PL/SQL: numeric or value error.	BMF-5253
Capture and Replay	If an error is encountered during replay of an imported SQL	BMF-5302

Feature	Resolved Issue	Defect ID
	Server trace table/file, the error message now includes more-detailed information, such as the name of the transaction that errored and the user scenario containing the transaction.	
Connections - MariaDB ODBC	Corrected an issue that caused a "load_progress" error when loading tables during a Standard Benchmark test (TPC-C and TPC-D) using a MariaDB ODBC connection to a MariaDB database.	BMF-5305
General	Oracle: Resolved an issue which caused Benchmark Factory to unexpectedly close when executing an Oracle SQL statement which returns a LONG data type column in the results. This issue was encountered during test execution, in the Session Editor, and during SQL Preview.	BMF-5142
General	Oracle: Corrected an issue that resulted in the following error when executing a Select statement against an INTERVAL DAY TO SECOND data type column: ORA-24374: define not done before fetch or execute and fetch.	BMF-5163
General	Enhancement: User Startup options have been added to the Timing tab for the "Test SQL for Scalability" test and the capture replay. The User Startup options allow you to specify when to start users. This allows you to adjust startup loads by staggering user startup times.	BMF-5297

For the most recent list of resolved issues, see the Benchmark Factory 8.2.1 Release Notes at: https://support.quest.com/benchmark-factory-for-database/technical-documents.

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Known Issues

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

Feature	Known Issue	Defect ID
Capture and Replay	Oracle workload: Capturing using the trace file method is not available and is disabled when connected to an Oracle 12c pluggable database (PDB).	N/A
Capture and Replay	Oracle workload: In Benchmark Factory 7.2 or later, if you attempt to use Oracle capture files created in an earlier version of Benchmark Factory (6.9.3 or earlier) and .NET Framework 2.0 is not installed, Windows may prompt you to install it (for example, in Windows 8 or later). **Workaround:** Install .NET Framework 2.0 (3.5).	N/A
Capture and Replay	Oracle workload: Capturing using the trace file method is not available and is disabled when connected to an Oracle RAC system.	N/A
Capture and Replay	**Issue:** If you start a trace file capture using the current version of Benchmark Factory and then start another trace file capture using version 7.2 (or earlier) on the same database, the earlier version of Benchmark Factory cannot detect the current version performing a	N/A

Feature	Known Issue	Defect ID
	capture. This can result in an invalid capture. **Solution:** For best results, do not perform trace file captures using both the current and an earlier version of Benchmark Factory concurrently on the same database.	
Capture and Replay	SQL Server workload: After capturing activity from a user logged-in using Windows authentication, attempting to replay the capture using the ODBC profile results in the following error: "Could not obtain information about Windows NT group/user '*<group/user>*', error code 0x5." **Workaround:** Use a domain account to start SQL Server service and make sure the account can connect to the Active Directory of *Domain*.	N/A
Capture and Replay	Oracle workload: In an Oracle capture and replay, Benchmark Factory cannot generate the Statspack report if the local replay directory is mapped to drive "B." This is because Benchmark Factory must have drive B open to execute a background .bat file during oracle capture and replay. **Workaround:** Do not map your local replay directory to drive "B" when running an Oracle capture and replay in which you chose to generate the Statspack report.	109221
Capture and Replay	In an Oracle 12c container database (CDB), Benchmark Factory cannot replay an existing workload that was captured in an earlier version of an Oracle database. In an Oracle 12c container database, a user name (common user) is prefixed with "c##" by default.	N/A
Capture and Replay	Oracle Capture Using FGAC: When performing an Oracle Capture using the FGAC method, if the application has a trigger with a multi-schema select, additional transactions will be recorded.	N/A
Connections - Teradata ODBC	When creating or modifying a Teradata ODBC connection, if the Teradata DSN has incorrect connection information and you click **Test Connection** in the Connection dialog , Benchmark Factory might close unexpectedly.	BMF-1497
Connections - Transaction Wizard and IBM CLI Driver	When using the 64-bit version of Benchmark Factory, the Transaction Wizard stops working when using the IBM DB2 CLI Driver profile to connect the database which created objects using the ODBC Driver.	N/A
Connections - Microsoft Oracle ODBC Driver	When using Microsoft's Oracle ODBC driver for either testing or for Benchmark Factory repository access, there is an issue with the ODBC driver. It does not work with CLOB data.	N/A
Connections - Oracle ODBC driver	When using the Oracle 11g R2 Client and Oracle 32-bit ODBC driver in a Windows 64-bit environment, the Oracle 32-bit ODBC driver requires an 8-byte int data type. **Workaround:** Use the Oracle native client or Oracle 32-bit ODBC driver.	N/A

Feature	Known Issue	Defect ID
Connections - SQL Server DB-Library (Obsolete) Connection	If you run a benchmark test using a Microsoft SQL Server DB-Library (Obsolete) connection to SQL Server 2014, and you have the "Recreate objects and reload data every execution" option selected, you might encounter the following error: "DB-Library Message - Insert bulk is not supported over this access protocol" **Workaround:** Use the Microsoft SQL Server ODBC driver or SQL Server native connection.	N/A
Connections - SQL Server DB-Library (Obsolete) Connection	Attempting to run a benchmark test using a Microsoft SQL Server DB-Library (Obsolete) connection to SQL Server 2014 results in an error. **Workaround:** Use the Microsoft SQL Server ODBC driver or SQL Server native connection.	N/A
Connections - IBM DB2 CLI Driver	A profile created with a DB2 ODBC data source may crash Benchmark Factory if the IBM DB2 client catalog becomes broken/corrupted.	N/A
Connections - IBM DB2 CLI Driver	Attempting to connect using an IBM DB2 CLI ODBC connection from Benchmark Factory running as a limited user (not Administrator) could result in the following error: "[IBM][CLI Driver]SQL1031N the database directory cannot be found on the indicated file system." **Workaround:** Run Benchmark Factory as Administrator.	N/A
Connections	In Windows 10, if you open a New Connection dialog, create an SAP data source and then attempt to create a SQL Server data source, Benchmark Factory might close unexpectedly.	BMF-555
General - Benchmark Factory Console	Benchmark Factory does not support data types that are created by the user.	N/A
Industry Standard Benchmark Testing	**Background:** This issue applies to benchmark testing using a SQL Server or SAP native connection when the Refresh data retention option is selected in the Test Options tab. **Issue Description:** In a test where the connection is lost while tables are loading, if you reconnect and attempt to rerun the job, Benchmark Factory might error with the following messages: "The Expected Total rows are not the same as the Actual Total rows," or "a duplicate key was found" (when creating an index). The test is then canceled due to errors. **Resolution:** Recreate and run a new job against your selected database using the native connection.	N/A
Industry Standard Benchmark Testing	If testing against a database other than Oracle, SQL Server, DB2, SAP, or MySQL, and using the Object/Data Retention option **Refresh data using backup sets**, backup sets might not be created resulting in a canceled test.	114266

Feature	Known Issue	Defect ID
Benchmark Test - Scalable Hardware Test	Attempting to use a native connection to run a Scalable Hardware benchmark test in which the objects were created using an ODBC connection and the objects are not recreated will result in a failed test with errors. The reverse is also true. **Solution:** When running a Scalable Hardware test using a native connection and objects were created using an ODBC connection (or vice versa) always recreate the objects.	N/A
Installation (uninstall)	Beginning with release 7.1.1 in Windows 7 or later, if you have multiple editions of Benchmark Factory installed side-by-side (e.g., a Beta and a Commercial edition), and then uninstall one edition, you might encounter the following error when attempting to run a job: " This object does not represent an OLE control" **Workaround:** Do one of the following: • Open the Benchmark Factory application directory for the edition that is displaying the error. Then right-click the Benchmark Factory executable (BFactory.exe) and select **Run As Administrator**. • Or run the installer in Repair mode. To do this, right-click the .msi installer used to install the edition that is displaying the error and select **Repair**.	ST115773
Integration with other Toad products	Applies in Toad for Oracle suites (12.5 or later): When the database connection or the SQL statement contains Chinese characters, attempting to send SQL from SQL Optimizer for Oracle to Benchmark Factory results in an error. This issue only occurs when Spotlight on Oracle is launched prior to the other applications mentioned here. **Workaround:** Always launch Benchmark Factory and SQL Optimizer for Oracle prior to launching Spotlight on Oracle if sending SQL from SQL Optimizer to Benchmark Factory.	N/A
Licensing	License keys compatible with Benchmark Factory 5.8.1 (or earlier) are no longer supported. See Product Licensing for instructions on how to upgrade an earlier-version license key.	N/A
Licensing	If your current Benchmark Factory license key is a 21-digit format (x-xxxxx-xxxxx-xxxxx-xxxxx) and you want to use the 64-Bit installation, you will need to request a new license key. Please obtain the new key before installing the new release. To obtain a new key, please refer to the Licensing Assistance page on our support portal: https://support.quest.com/licensing-assistance.	N/A
Oracle Database Privileges	In Oracle 12c, the RESOURCE role no longer includes the UNLIMITED TABLESPACE system privilege. Therefore, Benchmark Factory users with the RESOURCE role must also be granted the UNLIMITED TABLESPACE privilege.	N/A
Repository	In a new installation (not an upgrade) of Benchmark Factory 7.2 or later, a Standard (Limited) user may encounter a Repository error when attempting to launch the application. The issue involves the SQLite database that is used as the default database in a new installation of Benchmark Factory 7.2 or later. **Workaround:** Do one of the following: • Run Benchmark Factory using an Administrator account.	BMF-202

Feature	Known Issue	Defect ID
	• In the directory containing the SQLite database file, grant *Write* permission to all users. This directory is located in the following location in Windows 7: C:\ProgramData\Quest Software\BMF\Repository.	
Repository	If you created a Data Source Name for the BMF MySQL ODBC Driver in a previous release (6.9.3 or 7.0), attempting to edit this DSN results in an error.	N/A

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Third-Party Known Issues

Feature	Known Issue	Defect ID
Connections - Oracle	If you have multiple Oracle clients installed, after connecting using one Oracle home, attempting another connection using a different Oracle home results in an error. **Workaround:** Close and then re-open Benchmark Factory.	N/A
Connections - SAP	When creating a new SAP connection, if you partially define an SAP ASE ODBC DSN, then click "Cancel," and then switch to the Native tab of the New Connection dialog (or select a different connection type), Benchmark Factory quits unexpectedly. This is a known issue with the SAP ASE ODBC driver. To create a native SAP connection, use the Native tab of the New Connection dialog. To create an SAP ODBC connection, finish defining the SAP ODBC DSN in the ODBC tab of the New Connection dialog.	N/A
Connections - MySQL ODBC	On Windows Server 2012 R2, attempting to run a TPC-C, TPC-D, or TPC-H benchmark test using the MySQL ODBC connection could cause Benchmark Factory to unexpectedly close. There is a known issue with the MySQL 8.0 ODBC driver on a Windows Server 2012 R2 system in which the latest updates are not installed. **Workaround:** Ensure the latest Windows Server 2012 R2 updates are installed, or use MySQL ODBC driver version 5.3.	N/A

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System Requirements

Before installing Benchmark, ensure your system meets the following minimum hardware and software requirements:

Requirement	Details
Repository	Benchmark Factory cannot run without a repository, and during installation a SQLite file-based repository is installed. After installation, you can select a repository of your choice. Benchmark Factory supports the following databases: • Oracle® • SQL Server® • MySQL • SQLite • SAP SQL Anywhere® (Adaptive Server® Anywhere)
Memory	512 MB of RAM 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.
Platform	1.0 GHz x86 or x64 compatible CPU
Browser Requirements	Benchmark Factory requires Internet Explorer® 9 or later.
Hard Disk Space	120 MB of disk space for installation Note: The disk space required may vary based on options selected for installation.
Operating System	Microsoft® Windows Server® 2008 R2 Service Pack 1 Microsoft Windows® 7 Service Pack 1 Microsoft Windows 8 Microsoft Windows 8.1 (Update) Microsoft Windows Server 2012 Microsoft Windows Server 2016 Microsoft Windows 10
.NET Framework	.NET Framework 2.0 is required to use Oracle workloads captured using Benchmark Factory 6.9.3 or earlier.
Additional Software	The Universal C Runtime component for Windows is required. See Universal C Runtime Update or Visual C++ Redistributable for Visual Studio 2015 to download this software. **Note:** If you encounter an error when installing this software, install the missing prerequisite software. For Windows 8.1 or Windows Server 2012 R2, install the April 2014 update: https://support.microsoft.com/en-us/kb/2919355. For other operating systems, see the Universal C Runtime Update Prerequisites section.
Database Server	Oracle®: 10g R2, 11g, 12c, and 18c • Requires Oracle 10g R2 or later client libraries • Benchmark Factory has been tested on Oracle Exadata 2.0 running Oracle

Requirement	Details
	database 11g R2
	Note: Oracle Capture/Replay of workloads does not support Oracle databases earlier than 9i.
	PostgreSQL 9.4, 9.5, 9.6, and 10, and EnterpriseDB Postgres 10
	SQL Server®: 2005, 2008, 2008 R2, 2012, 2014, 2016, and 2017
	• Benchmark Factory has been tested against SQL Server 2017 running on Windows or Linux.
	Note: Beginning with Benchmark Factory 8.1, a SQL Server client is no longer distributed along with Benchmark Factory. To create a SQL Server native connection, ensure a SQL Server client is installed.
	SQL Azure™: Benchmark Factory provides limited support of SQL Azure.
	SAP® ASE: 15.5, 15.7, 16
	IBM® DB2® for LUW: 9.x through 10.x, 11.1
	IBM® DB2® for z/OS: 9.x through 10.x, 11.1
	MySQL: 5.5 and later
	Note: The 32-bit version of Benchmark Factory requires the 32-bit versions of the client libraries (including ODBC drivers). The 64-bit version requires 64-bit client libraries.
ODBC Database Server	Benchmark Factory supports almost all databases that you can connect to using an ODBC 3.0 or later driver.
Benchmark Factory Agent for Linux - Requirements	Supported Operating Systems: CentOS 7.x (64-bit), RHEL 7.x (64-bit), and Oracle Linux 7.x (64-bit)
	Supported Databases for Load Testing: PostgreSQL, Oracle, and MySQL
	Note: If using the Benchmark Factory Agent for *Linux* to test against an Oracle database, ensure an Oracle Client is installed on the same Linux machine as the Agent.
Cloud Database Service	Oracle Database as a Service

Virtualization Support

Before installing Benchmark Factory, review the following for virtualization support:

Requirement	Details
Application Virtualization	Benchmark Factory has been tested with the following:
	• Citrix XenApp 6.5

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Product Licensing

To activate a trial license

1. In the Licensing dialog, enter your license (Authorization) key.
2. Enter the site message included with the license key.

To activate a purchased commercial license

1. In the Licensing dialog, enter your license (Authorization) key.
2. Enter the site message included with the license key.

Earlier-Version License Keys

License keys compatible with Benchmark Factory 5.8.1 and earlier versions are no longer supported.

To upgrade your license key

1. In your current version of Benchmark Factory, go to **Help | Licensing** to find your license *number* . If not explicitly listed, it may be included as part of the Site Message associated with your key.

   Example: ACCOUNTNAME-nnn-nnn-nnn

2. Then go to the License Key Upgrade page at: http://license.quest.com/upgrade.
3. Enter your e-mail address and your existing license number, and follow the prompts.

If you need help finding your license number or an upgrade key, please contact the License Administration team at: https://support.quest.com/licensing-assistance.

Getting Started

Contents of the Release Package

The Benchmark Factory release package contains the following products:

1. Benchmark Factory version 8.2.1
2. Product Documentation, including:
   - User Guide
   - Online Help
   - Release Notes

Globalization

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. In this release, all product components should be configured to use the same or compatible character encodings and should be installed to use the same locale and regional options. 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.

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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