Benchmark Factory® 7.6

Release Notes

Thursday, March 16, 2017

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About Benchmark Factory

Quest Software is pleased to make available Benchmark Factory® 7.6 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, 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

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

Connections

Microsoft SQL Server Native Provider - New

You can now use a SQL Server native connection in Benchmark Factory to connect to a SQL Server database. The SQL Server native provider is included in the Benchmark Factory installation.

- This new native provider delivers improved connection performance for SQL Server database connections.
- To use the SQL Server native provider, install the version of Benchmark Factory (either 32-bit or 64-bit) that matches your operating system. This ensures that the version (bitness) of the SQL Server provider also matches your operating system.

Note: For a list of operating systems that support the SQL Server native provider distributed with Benchmark Factory (native client 11.0), see https://msdn.microsoft.com/en-us/library/cc280356(v=sql.120).aspx. If your client operating system is not supported, use ODBC connectivity.

REST API

This release of Benchmark Factory includes a REST API which will allow users to automate certain tasks and functionality in Benchmark Factory. Use a script, command-line tool, or custom application to interface with Benchmark Factory and to automate your load testing tasks. The API uses HTTP protocol and returns information in XML format.

In this release, the REST API supports the following functionality:

- Create, run, and edit Benchmark Factory jobs
- Create and edit connections
- Import and replay Oracle and SQL Server captures

Using the Benchmark Factory REST API

HTTP Request Methods—Benchmark Factory REST API uses the four main HTTP methods: GET, POST, PUT, and DELETE.

Response Format—Information is returned in XML format.

Continuous Integration

- Use the REST API to implement performance testing by Benchmark Factory and incorporate it into your Continuous Integration (CI) process.
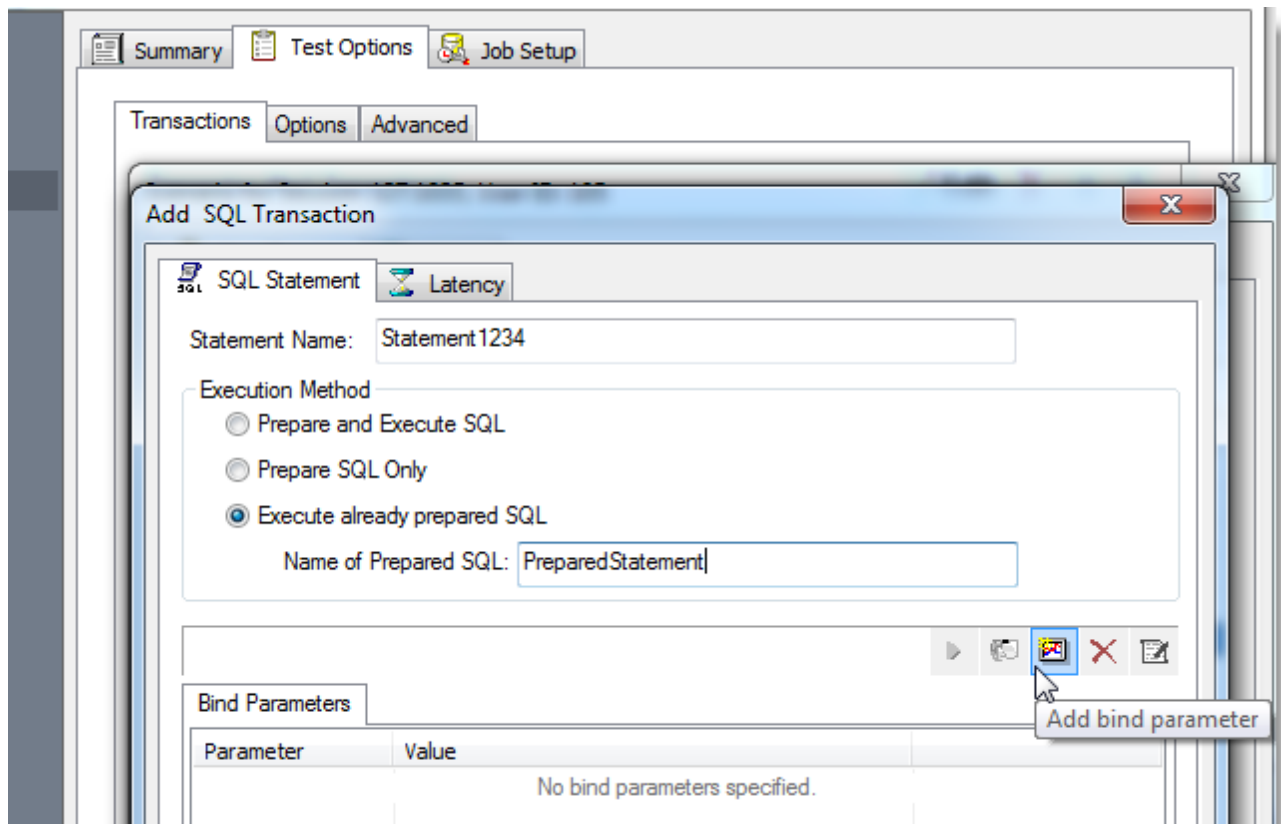
General

Adding Bind Parameter Values for Prepared Statements

It is now much easier to add bind variable or parameter values for prepared statements.

- In the Transaction tab, when adding a new statement or editing an existing statement, the **Add bind parameter** button is now enabled for prepared statements. Click this button to add bind parameter

values for the selected SQL.

Specify Benchmark Factory Console Port Number

You can now specify a TCP/IP port for the Benchmark Factory console.

1. Select **Edit | Settings | General** to open the Settings dialog.
2. Then enter a port number in the **TCP/IP Settings**. The default value is port 4568.

Standard Benchmark Testing

Teradata Database Benchmark Testing

- This release includes enhancements to the support for standard benchmark testing on Teradata databases.

PostgreSQL Database Benchmark Testing

- This release includes enhancements to the support for standard benchmark testing on PostgreSQL databases.
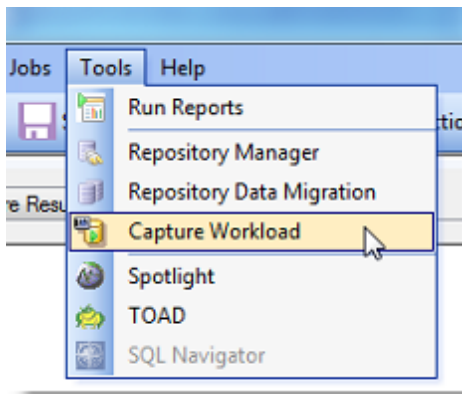
Replication Benchmark Test

- You can now edit the precision of the FLOAT data type when customizing table options in a Replication Benchmark test.

Capture and Replay

Easily Open Capture Scenario Wizard from Tools Menu

You can now open the Capture Scenario Wizard directly from the Tools menu.

- Select **Tools | Capture Workload**. Then select either Oracle or SQL Server as the capture type.

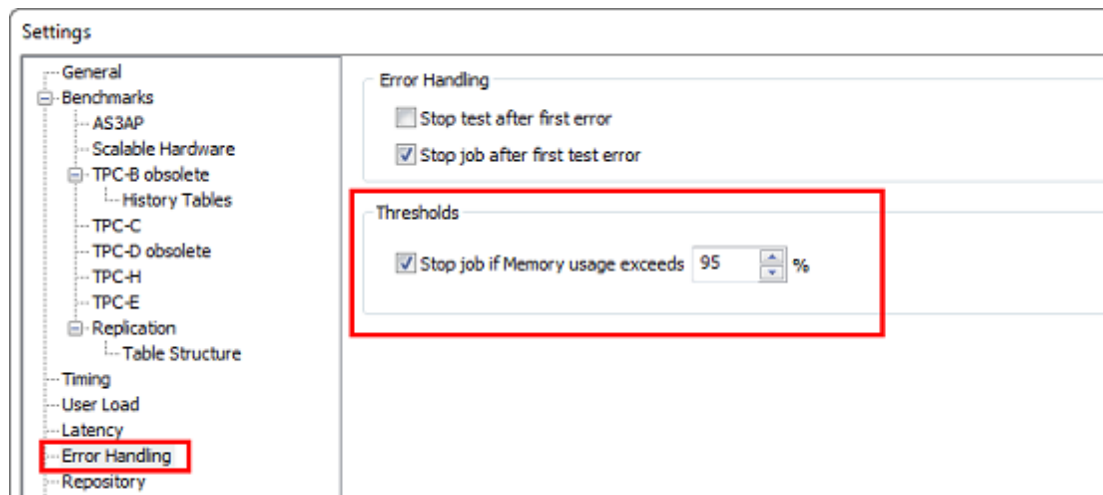**Discontinued - Import from Foglight PA**

The option to import a workload from a Foglight Performance Analysis Repository when creating a new Capture and Replay test is no longer available beginning with this release of Benchmark Factory.

Settings

Specify a Threshold for Memory Usage

You can now specify a memory usage threshold. If memory usage exceeds the percentage you specify, Benchmark Factory stops the job.

- To specify a threshold, go to **Edit | Settings | Error Handling** and enter a percentage.
- You can disable/enable this memory usage check.

Error Handling Page in Settings Dialog

The error handling options have been moved to **Edit | Settings | Error Handling** in the Settings dialog.

Run Reports

Improved Performance When Importing Large Test Results

- This release includes markedly improved performance when importing a very large Test Result file.

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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.

Feature	Resolved Issue	Defect ID
Benchmark Testing	Teradata: Improved support for standard benchmark testing against a Teradata database.	BMF-1254
Benchmark Testing	Teradata: Corrected an issue that caused a "Duplicate row" error when loading tables in a Scalable Hardware benchmark test against a Teradata database.	BMF-222
Benchmark Testing	PostgreSQL: Improved support for standard benchmark testing against a PostgreSQL database.	BMF-1265
Benchmark Testing	In a benchmark test, if you choose "Refresh data using backup sets" as the data retention method but the scale factor of the backup sets does not match the scale factor selected in the test, Benchmark Factory now displays a friendly warning with instructions on how to proceed.	BMF-1369
Benchmark Testing	For a TPC-D test, the Custom Creation SQL page displays the region_idx1 index as expected.	BMF-1509
Benchmark Testing	User Interface: When attempting to run more than one job and the total virtual users requested exceeds the number of licensed virtual users currently available, a friendly warning instructs the user to reduce the number of virtual users / user load or reduce the number of jobs running.	BMF-825
Benchmark Testing	Enhancement: You can now edit the precision of the FLOAT data type when customizing table options in a Replication Benchmark test.	BMF-1152
Benchmark Testing	Replication Benchmark Test: Corrected an issue that caused an ORA-20000 error when re-running a test after changing a table option (data type precision) and switching retention from "Recreate objects…" to "Refresh data using inserts."	BMF-1250
Capture and Replay	Enhancement: Added the ability to import and replay a captured workload using automation / command line interface.	BMF-1581
Capture and Replay	Corrected an issue that, under certain conditions during the import of a SQL Server capture, resulted in an extra transaction with no SQL being added to the replay.	BMF-929
Connections	Corrected an issue that prevented data from loading correctly when using a SQL Server DB-Library connection.	BMF-1338
Data Migration Wizard	Corrected an issue which disabled the Next button on the "Choose a Data Source" page in the Migration Wizard even when the data source connection information was valid.	BMF-963

Feature	Resolved Issue	Defect ID
Documentation	Added clarification in the product documentation (online Help) as to when and why the AWR reported elapsed time and the replay time may not match the specified capture time.	BMF-118
General - Settings	Enhancement: You can now instruct Benchmark Factory to stop a job when memory usage exceeds a limit you specify (Edit | Settings | Error Handling). You can also disable the memory check.	BMF-856
General - Settings	You can no longer edit the repository credentials (user name and password) through Edit | Settings | Repository while a job is running.	BMF-1229
Installation	Corrected an issue that caused an error when installing Benchmark Factory using the .msi and a custom transform file.	BMF-1157
Integration with other Toad Products	Corrected an issue in which the Tools | Spotlight menu item was disabled in Benchmark Factory even if the Spotlight application was installed.	BMF-969
Integration with Other Toad Products	Corrected an issue that resulted in a "No scenarios to import" error when sending an Oracle trace file to Benchmark Factory from Toad for Oracle 12.8 or later.	BMF-972
Run Reports	Enhancement: Added an enhancement that markedly improves performance when importing a very large Test Result file.	BMF-92
Scalability Testing	After completing a Scalability test, the Results page now displays the Transactions vs User Load graph.	BMF-1163
Test Stored Procedures for Scalability	Corrected an issue which caused an error if the user selected a schema other than the default schema on the "Select Stored Procedures" page when selecting the stored procedures to test for scalability.	BMF-1009
User Interface	Corrected several text display issues encountered in the New/Edit Job Wizard when non-English locale settings were specified in Windows.	BMF-1173, BMF-1185
User Interface	Corrected an issue that prevented the scroll bar from displaying correctly in some cases in the Results page.	BMF-918

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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

Feature	Known Issue	Defect ID
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 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.	N/A
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

Feature	Known Issue	Defect ID
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
Connections - Microsoft SQL Server (Obsolete DB-Library) Connection	If you run a benchmark test using a Microsoft SQL Server (Obsolete DB-Library) 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.	N/A
Connections - IBM 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	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
Installation (uninstall)	Beginning with release 7.1.1 in Windows Vista 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,	N/A

Feature	Known Issue	Defect ID
	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.	
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. • 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.	BMF-202
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

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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® 7 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® 2003 Microsoft Windows Server 2008 Microsoft Vista® Microsoft Windows® 7 Microsoft Windows 8 Microsoft Windows 8.1 (Update) Microsoft Windows Server 2012 Microsoft Windows 10
.NET Framework	.NET Framework 2.0 is required to use Oracle workloads captured using Benchmark Factory 6.9.3 or earlier.
SQL Server Native Provider	For a list of operating systems that support the SQL Server native provider distributed with Benchmark Factory (native client 11.0), see https://msdn.microsoft.com/en-us/library/cc280356(v=sql.120).aspx.
Database Server	Oracle®: 9i, 9.2, 10g, 11g, and 12c (requires Oracle 9 client libraries or higher.) Benchmark Factory has been tested on Oracle Exadata 2.0 running Oracle database 11g R2. **Note**: Oracle Capture/Replay of workloads must use Oracle 9i or higher. SQL Server®: 2000 (ODBC only), 2005, 2008, 2008 R2, 2012, 2014, and 2016

Requirement	Details
	SQL Azure™: Benchmark Factory provides limited support of SQL Azure. SAP® ASE: 12.5, 15, 15.5, 15.7, 16 IBM® DB2® for LUW: 9.x through 10.x IBM® DB2® for z/OS: 9.x through 10.x MySQL: 4.5 and 5.x **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.
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.

Note: To enter a virtual user key (for additional virtual users), select the Virtual User Pack tab of the Licensing dialog and enter your license key and site message.

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 7.6
2. Product Documentation, including:
   - User Guide
   - Online Help
   - Release Notes

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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.

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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/company/contact-us.aspx or call 1-949-754-8000.

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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