# Quesť

# Foglight<sup>®</sup> for SQL Server 7.3.0

### **Release Notes**

### Developed and tested for Foglight Management Server 7.3.0

#### September 2024

These release notes provide information about the Foglight<sup>®</sup> for SQL Server 7.3.0 release.

Topics:

- Welcome to Foglight for SQL Server
- · Resolved issues and enhancements
- Known issues
- Upgrade and Compatibility
- System requirements
- Troubleshooting
- Product licensing
- Getting started with Foglight for SQL Server
- About us

# Welcome to Foglight for SQL Server

Foglight<sup>®</sup> for SQL Server allows database administrators (DBAs) to quickly and efficiently identify performance deviations, determine their root cause, perform comprehensive analyses, and resolve performance bottlenecks. This product provides web-enabled dashboards for centralized visibility, management and health checks for the SQL Server instances deployed in your environment, as well as proactive alerting and alarm workflows for tracking your responses to critical performance anomalies.

Foglight for SQL Server is an n-tier application, which leverages a web-based user interface to ensure having complete visibility into the SQL Server infrastructure wherever an Internet connection is available.

These Release Notes cover the resolved issues, known issues, workarounds and other important information about 7.3.0 release of Foglight for SQL Server. Review all sections before starting installation.

### **Resolved issues and enhancements**

Resolved issues and Enhancements have been published in the Foglight for Databases 7.3 Release Notes document. Please review that for more specific information.

## **Known issues**

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

#### **General issues**

Issue ID	Known issue
FOG-6694	Dashboards showing data that is retrieved by on-demand queries do not work on Federator due to the move from RMI to callback - this includes Blocking (current), Sessions, Buffer Cache, Plan Cache, some functionality of the Database Dashboard, SQL Server Error Log, Some functionality on Replication.
FAIO-217	PI engine didn't use new credential changed in Connection Details dashboard.
	Workaround: Reactive the agent after changing the credential.
FOG-1758	When applying an alarm template to an agent, the Inconsistent Values indication may appear. This indication can be ignored.
FOM-609	Cannot use cluster server or AlwaysOn listener to monitor AlwaysOn environment on FIPS- enabled FMS.
	Workaround: Refer to KB 324797 for detailed information.
FOM-800	When there are many DB agents with PI enabled in FMS environment and you want to upgrade the cartridge to the latest version, the SQL PI component update might fail. Workaround: Click Cancel on <i>Update SQL PI Failed</i> and click <b>Update SQL PI Components</b>
	to update again.
FOGDG-858	DB instance is still synchronized and displayed in FMS federation master even though it is stopped for some reason and not displayed in the FMS federation child.
PIFOG-431	After DB agent restarts, there will be a 5 minutes data gap in the SQL PI baseline view.
PIFOG-666	Incomprehensible error message is displayed when using local account without hostname prefix to setup PI Repository.
	Workaround: Use hostname\username to setup PI Repository instead of only using username.
PIFOG-723	"Context infos" display null in the Comparison Parameter dashboard.
GVFOG-207	An error log showed in FMS log for loading heatmap component in FMS version before 5.9.3.
SSFOG-456	If two SQL Server instances running in different hosts but these two hosts have the same short name, these two hosts shows same on the Home page.
	Workaround: Contact Quest support to get the scripts for updating the <i>loadGVData</i> function.
SSFOG-551	Due to the metric collection interval, value of <i>Data files, log files</i> , and <i>disk space</i> metrics will be occasionally missing on the <i>Databases</i> > <i>Temdb</i> dashboard.
	Workaround: Wait for 3 minutes, then you will see these metrics on the dashboard.
SSFOG-645	It fails to run <i>DBSSSQLAgentErrorLogProcessor</i> processor of <i>DBSS_SQL_Agent_Error_Log</i> collection if the SQL Server Agent Service is not started.
	Workaround: Start the SQL Server Agent Service.
SSFOG-736	DBSS_Error_Log_List collection fails if SQL Server 2017 Agent is not running on Linux.
SSFOG-739	Logical Disk metrics of SUSE showing on the <i>SQL Server Overview</i> dashboard is different from its value showing in the Infrastructure dashboard.
SSFOG-770	Alarm is not triggered while the error has been collected on the <i>DBSS</i> - <i>SQL</i> Server Error Log page.

Issue ID	Known issue		
SSFOG-775	If AD authentication has been used to monitor SQL Server instance, the default option ' <i>Log in to the host using the same account used for monitoring SQL Server</i> ' cannot be used to monitor Linux Operating System (OS).		
	<b>Workaround</b> : Switch to use the option ' <i>Log in to the host using different login credentials</i> ', then choose either of the following Linux authentication types: input AD account info, input other Linux account info, or use ' <i>Select from stored credentials</i> '.		
SSFOG-844	When using IP address to create a SQL server agent, Disk metric and Host metric will be missing in the Global view.		
SSFOG-943	Using CLI to create multiple SQL Server instances with OS monitoring might result in failure to activate some host agents.		
	<b>Workaround</b> : Either activate those host agents manually on the <i>Agent Status</i> dashboard or recreate those host agents.		
SSFOG-948	When monitoring SQL Server 2017 on Linux, an error message will be shown in <i>Logs</i> > SQL Agent Error Logs page.		
SSFOG-949	If you select either of DB_SQL_Server, DB_SQL_Server_UI, DB_Global_View_UI, SPIRepository* cartridges then click <b>Reset</b> on the Cartridge Inventory dashboard, the upgrade wizard will prompt again.		
	Workaround: Do the following:		
	<ol> <li>Navigate to the Administration &gt; Rules &amp; Notifications &gt; Manage Registry Variables dashboard.</li> </ol>		
	2 Search for DBSS_Is_Fglams_Required_Upgrade.		
	3 Change its value to -1.		
SSFOG-956	Creating Infrastructure agent automatically after failover occurs on Linux-based SQL Server cluster may fail.		
SSFOG-976	In the Master server of the federation environment, the values in Message of back up alarm are null.		
SSFOG-1031	When SQL Server cluster on Linux does fail-over, IC agent may not be auto created when the host name of the node is different with previous node.		
SSFOG-1071	Databases Replication Dashboard does not show all Subscriptions when using multiple distribution databases.		
SSFOG-1206	Failed to monitor SQL Server 2005 on premise while using no required permission DB credential.		
	<b>Workaround</b> : Download the <i>DB_SQL_Server_Grant_Permission_Script</i> from <b>Components</b> <b>for Download</b> , execute the script at SQL Server client to grant permission to the new user, then use the new user to monitor SQL Server 2005 Instance.		
SSFOG-1207	Databases on a secondary replica are read-only, so the grant script cannot create the user in the database. The Foglight user may still not be able to read data from these read-only replicas even if the users are synchronized.		
	Workarounds:		
	<ul> <li>When using new SQL Server Authentication and granting permission failed, do the following:</li> </ul>		
	Re-monitor this instance again, and then it could be monitored successfully.		
	<ul> <li>When using new AD (Active Directory) Authentication and granting permission failed, do the following:</li> </ul>		
	1. Re-monitor this instance again.		
	2. A grant permission dialog pops up. Skip the permission granting step.		
	3. Continue monitoring the instance, and then it could be monitored successfully.		
SSFOG-1310	When the <i>VMwarePerformance</i> Agent exists, the <i>Disk Latency in SQL Server Overview</i> would always show "-" while enabling OS monitoring.		

Issue ID	Known issue		
SSDB-2060	On SQL Server 2008, deadlocks on two different databases of the same instance become one chained deadlock.		
	Workaround: Implement trace flag -T1234.		
SSDB-2379	When working with Global View while the screen resolution is set to 1024 by 768 pixels, it is advisable to switch to the browser's full view (F11 toggles between full and normal views in all browsers).		
SSDB-2455	User-defined collection names and fields must be entered in Latin characters (A to Z), without any special symbols.		
SSDB-3039	The DBSS- Deadlock Details alarm is disabled by default.		
SSDB-3061	Changes made in the <i>Global Administrations &gt; Alarms</i> screen are saved when switching to another global administration screen, even if selecting "Yes" in the dialog box that asks whether to exit without saving changes.		
SSDB-5248	Editing a user-defined collection results in periodic overlap of data.		
SSDB-5542	Creating a user-defined collection with more than one SQL in it will not alert the user, however, only the first SQL in the collection will be executed.		
SSDB-8949	When editing the properties of the Foglight Agent Manager concentrator ( <i>Dashboards</i> > <i>Administration</i> > <i>Agents</i> > <i>Agent Status</i> ), the name of the Foglight Agent Managers should be entered in the Downstream FgIAMs section exactly as they appear in the topology, under <i>Home</i> > <i>Agents</i> > <i>All agents</i> > <i><agent i="" name<="">&gt; &gt; <i>RMI data</i> &gt; <i>FgIAM host property</i>.</agent></i>		
SSDB-8987, SSDB-7326	On Microsoft® Windows® 2008 R2, a SQL Server version 2012 instance with a name that contains inverted commas ("; (for example:'X641_ENT1') can encounter issues with the retrieval of WMI data. This is by design on the part of Microsoft.		
	<b>Workaround</b> : If WMI data is not retrieved, the instance name without the "should be added in the field Service Name in the <i>Agent Properties</i> dashboard.		
SSDB-9138	Cluster data can be collected only if the xp_cmdshell parameter is configured.		
	To configure this parameter, run the following commands:		
	EXEC sp_configure `show advanced options',1		
	GO		
	To update the currently configured value for advanced options. RECONFIGURE		
	GO		
	To enable the feature.		
	EXEC sp_configure `xp_cmdshell', 1		
	GO		
	To update the currently configured value for this feature.		
	RECONFIGURE GO		
SSDB-13199	Selecting a batch text in the lock tree may navigate to a non-equal batch in the TSQL Batches dimension.		
SSDB-13479	In environments configured to use Agent Manager in High Availability mode the chosen Agent Manager hosting the SQL PI repository will host watchdog and maintenance agents that cannot participate in the Agent Manager high availability utility.		
SSDB-14323	The SQL Server Error log collection requires you to use WinShell. Follow the instructions below to configure the correct settings:		
	Configuring the Command-Shell Connection Settings		
	Configuring Windows Management Instrumentation		
SSDB-15192	SQL BI - Reporting services, integration services and Analysis services are not supported on cluster configuration.		

Issue ID	Known issue
SSDB-16097	In case the privilege of OS monitoring is not set to the Local Administrator group on the host being monitored, see the Knowledge Article 215054.
ODB-1606	Performing an upgrade process on a large environment (more than 50 agents) takes time to complete.
ODB-2829	When running user-defined collections on dynamic tables, deleted items are still kept in the topology. As a result, the number of rows displayed on the user-defined collections table will exceed the configured value for maximum allowed rows.
ODB-2984	In the <i>Global Administration &gt; User-defined Collections</i> screen, it is possible to create two collections that bear the same name with a different capitalization (for example: MyCollection and Mycollection); however, the more recently created collection will not appear in the topology, nor will it be displayed on the User-defined Collections panel.
n/a	Need to wait for more than ten minutes between the upgrade of the Foglight Management Server and Foglight for SQL Server.
n/a	In environments configured to monitor SSAS agent only, when upgrading to version 5.9.2.1 or later, the upgrade process will fail.
	<b>Workaround</b> : In the <i>Administration &gt; Agents &gt; Agent Status</i> dashboard, click <b>Deploy Agent</b> <b>Package</b> , then follow on-screen instructions to deploy the SSAS package manually.
n/a	Monitoring Analysis services is supported only on Agent Managers running on Windows which must have a version of .NET 3.5 installed.
n/a	If the WMI exception "Format specifier '%s' " is entered in agent log the following workaround is recommended:
	Workaround:
	For Windows® Vista® and Windows Server 2008 or above:
	According to http://support.microsoft.com/kb/929851, the default dynamic port range for TCP/IP has changed in both versions. The new default start port is 49152 and end port is 65535. Subsequently, monitoring instances that run under these operating systems can be carried out by setting a static (fixed) WMI port in Windows Server.
	For more information, see the Knowledge Article 114559.
n/a	When Foglight or the Agent Manager are installed on a VM, it is highly recommended to reserve the following:
	<ul> <li>CPU - for a virtual machine the CPU reservation is highly recommended for better performance. The reservation is expressed in MHz.</li> </ul>
	<ul> <li>RAM- for a virtual machine the memory reservation is highly recommended for better performance.</li> </ul>
n/a	Antivirus exclusions is required for the SQL Server-based SQL PI repository. For more information refer to the Microsoft's official article https://support.microsoft.com/en-us/help/309422/choosing-antivirus-software-for-computers-that-run-sql-server.
n/a	When upgrading Foglight, if the FMS is upgraded to version 6.0.0 and the database cartridge is not, the dashboard will display "There is no data to display".
	<b>Workaround</b> : When upgrading Foglight to 6.0.0, first upgrade the FMS to 6.0.0, then directly upgrade the cartridges.
FOG-728	When creating a new user account to monitor an instance, If the same account is used as PI repository login to enable PI, the process will failed showing no permission error.
	Workaround: Manually grant the database user the db_owner role for the new created PI repository database.
	For more information, refer to KB article 331530.

### **Execution plan**

#### Table 2. Execution plan related known issues

Issue ID	Known issue
SSDB-11283	Execution plan may not be resolved.
SSDB-11582	Sometimes, query_hash is changed by SQL Server and generating a plan using the Generate button fails. SQLhash isn't found in XML so the screen displays No operation was found and the execution plan changes are missing.
SSDB-11657	Time range changes are not affecting the execution plan dashboard.
n/a	In the Execution Plan comparison popup, the date of the selected plan is the insert time to the SQL PI repository and not the execution time.
n/a	In the Execution Plan Comparison popup for statement - the estimated plan appears only as the selected plan on the left side. It cannot be selected from the list.

### Third party known issues

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

Table	3	Third-party	known	issues
lane	э.	initia-party	KIIOWII	133463

Issue ID	Known issue		
SSFOG-1716	No throughput data on dashboard for SSAS 2017 due to WMI class missing.		
	Workaround:		
	<ol> <li>Download cumulative update package through https://support.microsoft.com/en- us/help/4056328/performance-counters-are-missing-after-the-installation-of-ssas- 2017.</li> </ol>		
	2 Install the package on the host where SSAS is installed.		
	3 Restart the host.		
WCF-16277	Popup SQL Statement dialog cannot show all SQL text when accessing with Firefox browser using FMS version higher than 5.9.4.		
FGL-20596	Cannot import license into installer with license file name XXX.lic.		
	<ul> <li>Workaround:</li> <li>1 When importing license into installer, change license file name to <i>XXX.license</i>.</li> <li>2 Install <i>xxx.lic</i> after login FMS.</li> <li>3 Change license file name to <i>XXX.license</i> and put it into license folder before FMS start up.</li> </ul>		
FOGDG-650	The Foglight Agent Manager (FgIAM) failed to restart when upgrading DB Cartridge, which is due to <i>Could not obtain a deployment lock</i> error.		
	Workaround: Perform the procedure described in the Knowledge Article 266110.		
FAM-7722	In FIPS-compliant mode, it is required to use at least 2048 RSA and DSA key size to do OS monitoring via SSH connection in DB cartridge.		
	When FgIAM version is lower than 5.9.7.1, FgIAM will not check RSA/DSA key size < 2048, and the connection is non-FIPS compliant.		
	Workaround: Upgrade the FgIAM version to 5.9.7.1 or later.		

### Table 3. Third-party known issues

Issue ID	Known issue
n/a	WMI-related issue
	Problem: WMI support is affected by the firewall
	Workaround: For Windows versions prior to Windows 2008/Vista, use the following steps:
	1 Open TCP port: 135.
	WMI by default uses the port range 1024 to 5000.
	2 Open up a range of ports above port 5000.
	Port numbers below 5000 may already be in use by other applications and could cause conflicts with your DCOM applications. It is recommended to have at least 100 ports opened, as several system services rely on these RPC ports to communicate with each other.
	3 Add the registry key, including additional ports.
	<ul> <li>Use the RPCCfg.exe (Windows Resource Kits) by running: rpccfg.exe -pe 5009-5009 -d 0</li> </ul>
	<ul> <li>Manually add the registry keys under: HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Rpc\Internet</li> </ul>
	For Windows Vista® and Windows Server 2008:
	According to Microsoft® http://support.microsoft.com/kb/929851, the default dynamic port range for TCP/IP has changed in these versions. The new default start port is 49152 and end port is 65535.
	Subsequently, monitoring instances that run under these operation systems can be carried ou by using either of the following options:
	<ul> <li>Configure the firewalls to allow traffic between servers in the dynamic port range of 49152 through 65535 (less secure).</li> </ul>
	Limit the port range that is used in each monitored server.
n/a	As a result of the change introduced in Java 6 update 29 to how data is sent to databases, users may experience connection failures when using the Microsoft JDBC Driver for SQL Server® to connect to SQL Server. This interoperability enhancement is available in the following SQL Server versions:
	SQL Server 2012 Production version and later
	SQL Server 2008 Service Pack 3 Cumulative Update 4
	SQL Server 2008R2 Service Pack 1 Cumulative Update 6
	SQL Server 2008R2 Service Pack 2
n/a	Third Party Limitations
	Monitoring an SQL Server instance that resides on a Windows 2008R2 or higher requires a workaround as follows:
	1 Browse to https://support.quest.com/ and log in.
	2 Perform solution https://support.quest.com/kb/SOL65870.
n/a	Some base values are not updated when using the <i>Win32_PerfRawData_PerfDisk_LogicalDisk</i> WMI class to calculate performance data in Windows Vista or in Windows Server 2008, because this class does not contain the <i>PercentDiskTime_Base</i> metric.
	<b>Workaround</b> : A hotfix is available on Microsoft site, https://support.microsoft.com/kb/961435/en-us.
n/a	Due to a known Microsoft issue, on SQL Server instances version 2014 the SQL text presented may be truncated.

#### Table 3. Third-party known issues

Issue ID	Known issue
n/a	SQL's and execution plans may not be collected on SQL Server 2014 as a result of a Microsoft bug: "The values of column query_hash and query_plan_hash are NULL for DMV sys.dm_exec_requests in SQL Server 2014"
n/a	The Foglight Time Bar Chart click event does not work with Chrome version 40.x.x.x and 39.x.x.x. Refer to https://code.google.com/p/chromium/issues/detail?id=428308 for more information.
n/a	The Windows System Center Endpoint Protection (SCEP) tool and Anti-Virus Protection tools installed on Windows® may negatively impact CPU and system performance of machines running Foglight, Foglight Agent Manager, and the SQL PI repository.
	To reduce resource consumption it is highly recommended that you exclude the following directory from being scanned by the protection tools: <ul> <li><installation directory="">:\Quest\<foglightagentmanager></foglightagentmanager></installation></li> </ul>
n/a	Anti-virus software may negatively impact the CPU and system performance of machines running Foglight. To reduce resource consumption, it is highly recommended to exclude the relevant directory, processes, and executables from being scanned by the anti-virus software. For detailed information, refer to the "Configuring anti-virus exclusion settings" in <i>Installing Foglight on Windows with an Embedded PostgreSQL Database</i> .

### Workaround for all missing WMI metric cases

In some cases, running the command: <code>%windir%\system32\wbem\wmiadap.exe /f in Windows' command-line (CMD)</code> may solve the problem of missing WMI classes. This command parses all the performance libraries on the system and refreshes the Performance Counter Classes. For further details, see <a href="http://msdn.microsoft.com/en-us/library/aa394528%28VS.85%29.aspx">http://msdn.microsoft.com/en-us/library/aa394528%28VS.85%29.aspx</a>.

### **Upgrade and Compatibility**

A direct upgrade to Foglight for SQL Server 7.3.x is only available from version 6.1 or later. Customers that are running older versions of the product must first upgrade to version 6.1.0.10 and then upgrade to version 7.3.x.

Foglight for SQL Server 7.3.x requires:

- Management Server version 7.3.x
- Agent Manager version 7.3.x

### System requirements

Before installing Foglight for SQL Server, ensure that your system meets the hardware and software requirements detailed in *Foglight System Requirements and Platform Support Guide*.

Customers running large deployments (that is, with more than 20 agents) should consult the *Foglight for Databases Deployment Guide*.

### **Required privileges**

For information on the required privileges, refer to the Foglight for Databases Deployment Guide.

### **Supported platforms**

Foglight for SQL Server supports monitoring the following platforms:

- Supported SQL Server versions:
  - Microsoft SQL Server: 2005 and above (Windows), 2017 and above (Linux)
  - Azure SQL Managed instance
  - Amazon RDS for SQL Server2: 2014 and above (If supported by Amazon)
  - SQL Server on Google Cloud Platform Version: 2017 and above (If supported by Google)
- Supported Operating Systems:
  - All Operating Systems supported by Microsoft<sup>®</sup> SQL Server

### i | NOTE:

- Foglight for SQL Server also supports the Express and Developer editions of Microsoft<sup>®</sup> SQL Server.
- Virtualization monitoring requires installing the VMware tools service on the monitored VM.
- SQL Server on AWS VM (IaaS) is supported and can be monitored as long as the Instance port is opened and the OS is configured as described in: Configuring Windows Remote Management (WinRM).
- For the Amazon RDS for SQL Server, only Standard and Enterprise version are supported.

### **Final Browser Support Notice**

Support for Microsoft® Internet Explorer® 8, 9, and 10 has been discontinued in this Foglight release.

Microsoft ended the support for these browsers on January 12, 2016. For more information, visit https://support.microsoft.com/en-us/lifecycle?p1=13418.

# Troubleshooting

This section provides a list of references which address the most commonly faced issues relating to remote connectivity, allowing for easy troubleshooting using the vendor's information knowledge base:

- To verify TCP/IP connectivity for SQL statement collections, Management Studio (SSMS) cannot be used as other protocols may be leveraged. Instead, verify connectivity using a UDL as detailed here: https://support.microsoft.com/kb/308075/.
- To verify the WMI connectivity using a Microsoft Windows built-in utility, see https://technet.microsoft.com/en-us/library/cc180684.aspx.
- To troubleshoot WMI access permissions, see http://blogs.technet.com/b/askperf/archive/2007/08/14/wmitroubleshooting-permissions.aspx.
- For information about WMI connectivity from Windows Server 2003/Vista and later versions, see http://msdn.microsoft.com/en-us/library/aa822854(VS.85).aspx.

- For WMI troubleshooting tips and techniques, see http://msdn.microsoft.com/enus/library/aa394603(VS.85).aspx.
- For PI troubleshooting tips: exclude the SQL PI repository directory (named Infobright<sup>™</sup>) from real-time scanning (for example, Antivirus software). For a virtual machine, the CPU and memory allocations must be reserved.

# **Product licensing**

Foglight includes a licensing capability that restricts access to those features that are defined in the license. Any Management Server installation requires a license that grants access to server-specific parts of the browser interface and the features associated with them. Foglight cartridges are also license-protected. While some cartridges are covered by the base Foglight license (such as Foglight Agent Manager cartridges and the Foglight for Infrastructure), others may require an additional license.

Foglight for SQL Server is covered by the base Foglight license that allows cartridges to be installed. The SQL Performance Investigator extension requires a dedicated license.

#### To activate a trial or a purchased commercial license:

- 1 On the navigation panel, under Dashboards, click Administration > Setup > Manage Licenses.
- 2 Click Install.
- 3 In the Install License dialog box, click Browse.
- 4 In the file browser that appears, specify the location of the license file.
- 5 In the Install License dialog box, click Install License.

# Getting started with Foglight for SQL Server

### **Contents of the release package**

The Foglight for SQL Server 7.3.0 release package contains the following:

- Foglight for SQL Server cartridge:
  - DB\_SQL\_Server-7\_3\_0.car
- Product documentation, including:
  - Foglight for SQL Server User and Reference Guide (PDF and online help)
  - Foglight for Databases Deployment Guide (PDF)
  - Foglight for SQL Server Release Notes (this document)

### Installation instructions

For installation pre-requisites, permissions, information necessary to determine your environment's hardware requirements, and for installation instructions, see the *Foglight for Databases Deployment Guide*.

# **Additional resources**

Additional information is available from the following:

- Online product documentation (https://support.quest.com/technical-documents#F)
- Foglight Community (https://www.quest.com/community/products/foglight/)

# 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.

This release has the following known capabilities or limitations: The server will be enabled for Global Operation, but not localized to any particular locale.

# About us

Quest creates software solutions that make the benefits of new technology real in an increasingly complex IT landscape. From database and systems management, to Active Directory and Office 365 management, and cyber security resilience, Quest helps customers solve their next IT challenge now. Around the globe, more than 130,000 companies and 95% of the Fortune 500 count on Quest to deliver proactive management and monitoring for the next enterprise initiative, find the next solution for complex Microsoft challenges and stay ahead of the next threat. Quest Software. Where next meets now. For more information, visit https://www.quest.com/.

### **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.

#### © 2024 Quest Software Inc.

#### ALL RIGHTS RESERVED.

This guide contains proprietary information protected by copyright. The software described in this guide is furnished under a software license or nondisclosure agreement. This software may be used or copied only in accordance with the terms of the applicable agreement. No part of this guide may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording for any purpose other than the purchaser's personal use without the written permission of Quest Software Inc.

The information in this document is provided in connection with Quest Software products. No license, express or implied, by estoppel or otherwise, to any intellectual property right is granted by this document or in connection with the sale of Quest Software products. EXCEPT AS SET FORTH IN THE TERMS AND CONDITIONS AS SPECIFIED IN THE LICENSE AGREEMENT FOR THIS PRODUCT, QUEST SOFTWARE ASSUMES NO LIABILITY WHATSOEVER AND DISCLAIMS ANY EXPRESS, IMPLIED OR STATUTORY WARRANTY RELATING TO ITS PRODUCTS INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL QUEST SOFTWARE BE LIABLE FOR ANY DIRECT, INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR INCIDENTAL DAMAGES (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF PROFITS, BUSINESS INTERRUPTION OR LOSS OF INFORMATION) ARISING OUT OF THE USE OR INABILITY TO USE THIS DOCUMENT, EVEN IF QUEST SOFTWARE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. Quest Software makes no representations or warranties with respect to the accuracy or completeness of the contents of this document and reserves the right to make changes to specifications and product descriptions at any time without notice. Quest Software does not make any commitment to update the information contained in this document.

If you have any questions regarding your potential use of this material, contact:

Quest Software Inc. Attn: LEGAL Dept. 4 Polaris Way Aliso Viejo, CA 92656

Refer to our website (https://www.quest.com) for regional and international office information.

#### Patents

Quest Software is proud of our advanced technology. Patents and pending patents may apply to this product. For the most current information about applicable patents for this product, please visit our website at https://www.quest.com/legal.

#### Trademarks

Quest, the Quest logo, Foglight, and Where next meets now are trademarks and registered trademarks of Quest Software Inc. in the U.S.A. and other countries. For a complete list of Quest Software trademarks, please visit our website at www.quest.com/legal. Red Hat, JBoss, the JBoss logo, and Red Hat Enterprise Linux are registered trademarks of Red Hat, Inc. in the U.S. and other countries. CentOS is a trademark of Red Hat, Inc. in the U.S. and other countries. Fedora and the Infinity design logo are trademarks of Red Hat, Inc. Microsoft, NET, Active Directory, Internet Explorer, Hyper-V, Office 365, SharePoint, Silverlight,SQL. Server, Visual Basic, Windows, Windows Vista and Windows Server are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries. I, BM, PowerPC, PowerVM, and WebSphere are trademarks of International Business Machines Corporation, registered in many jurisdictions worldwide. Java, Oracle, Oracle Solaris, PeopleSoft, Siebel, Sun, WebLogic, and ZFS are trademark or registered trademarks of Oracle and/or its affiliates in the United States and other countries. SPARC is a registered trademark of PARC International, Inc. in the United States and other countries. Products bearing the SPARC trademarks are based on an architecture developed by Oracle Corporation. OpenLDAP is a registered trademark of Linus Torvalds in the United States, other countries, Novell and Directory are registered trademark of MySQL AB in the United States, and or other jurisdictions. Sybase is a registered trademarks of the down System and UNIX are registered trademarks of Canopamark of Sub MyMare, Inc. in the United States and or trademarks of Canopamark of Apple Inc., in the United States and certain other countries. PostgresQL is a registered trademarks of the Open Group. Mozilla Aon daries and there countries of Apple Inc., in the United States and certain other countries. Apple, iPad, iPhone, Mac OS, Safari, Swift, and Xcode are trademarks of Apple Inc., registered

#### Legend

- WARNING: A WARNING icon indicates a potential for property damage, personal injury, or death.
- CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.
- | IMPORTANT NOTE, NOTE, TIP, MOBILE, or VIDEO: An information icon indicates supporting information.