# MFM 4.2 AWS

# **User Manual**



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# Product Overview

1. Product Overview	
Main Functions	

# **1. Product Overview**

MaxGauge is a performance management tool designed to support an effective performance management and fault management of each component which make up the computer system including the database, system, applications, and etc. In respect of a system administrator who oversees the system operation, the three tasks shown in the diagram below are essential to performance management, and each task must be carried out on the basis of a mutual interworking relationship.



MaxGauge supports system administrators or database and application administrators who oversee the performance management and fault management, to be effective in realtime monitoring, diagnosis, and analysis. And through the real-time monitoring feature, it allows the administrator to easily and quickly identify in which database or server the error occurred or the performance degradation occurred, among the many servers and databases. In the event of an error or performance degradation, it easily identifies exactly in which part by what factors the problem occurred through a diagnosis process, ensuring a real-time resolution as much as possible, and it further investigates the root cause of the error or performance degradation through a post-analysis so that appropriate troubleshooting actions may be taken.

## **Main Functions**

Let us explain about the functions which MaxGague provides for the performance management of MySQL database. The functions can be largely divided into real-time monitoring and diagnosis section and the post-anlysis section. We will briefly explain the functions provided by each section. MaxGauge provides functions which checks the current performance status of MySQL database, monitors if any indicator has exceeded the predefined threshold values, and tracks down the root cause of the problem in the event of performance issues. These functions allow the MySQL DBA or performance administrators to recognize potential performance issues and make corrections to prevent problems before they occur. And the activities which occur during the database operation are logged in detail and made available by date and time as a resource for identifying the problems.

#### **Integrated Monitoring Function**

By monitoring multiple MySQL databases on a single screen, you can easily identify and resolve the MySQL performance issues scattered across the system network. You can also monitor by comparing the data of several databases in respect of one particular indicator.

#### **Session Monitoring Function**

By monitoring the current wait information and SQL information of a particular session from a single screen organically, you can identify the current performance status of a session in real-time.

#### **REPLICATION Environment Monitoring Function**

You can monitor replication delays and replication fails of a database configured with replication in real-time.

#### **Session Query Function**

You can search for several sessions connected to a single database by conditions and simultaneously monitor the aggregates of sessions which meet the conditions. You can query a session's ID, Thread ID, User Name, Host Name, and the SQL Text currently executing.

#### LOCK Tracing Function

You can trace the wait relationships of locks generated in MySQL database in real-time. You can analyze the the session holding the lock and the waiting sessions organically through a tree format, and monitor dead locks in real-time.

#### **Cloudwatch metrics monitoring feature**

By providing information provided in Cloudwatch such as the server's CPU Utilization, Freeable Memory, etc., it allows the user to effectively monitor even more performance metrics.

#### Wait Indicator Logging Function

Provides logging data of all the wait indicators generated in MySQL for the user's convenience in analysis.

#### **Active Thread Logging Function**

According to the logging cycle defined by the user, it provides the details of all the active threads executed during the period and the currently executing SQL Text.

#### Lock Logging Function

According to the logging cycle defined by the user, it provides the logging data through which you can analyze he lock and the lock holders generated during the period in a tree structure.

#### **Parameter Logging Function**

Logs parameters once a day and is provided to the user.

#### **Deadlock Logging Function**

Logs InnoDB's deadlock information taken every minute.

#### **Innodb Status Logging Function**

Logs InnoDB's status information taken every 5 minutes.

#### **Threshold Values Alarm Function**

Besides the collected indicators, it also provides alarms for the monitoring server's Disk Free Size and the Replication information.

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# MAXGAUGE DAEMON & CLIENT

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# 2. Maxgauge Daemon & Client

## **MaxGauge Startup and Shutdown**

MaxGauge For MySQL is by default driven by the Real-time Client.

#### MaxGauge Real-time Client Startup

SHELL>./bin/all.start.sh

#### MaxGauge Real-time Client Shutdown

SHELL> ./bin/all.stop .sh

#### Login

Open the Chrome browser and enter the IP's WAS Port (ex. 52.192.218.24:8170) which is currently in service.

W MaxGauge x	±	-		×
← → C f [] 52.192.218.24:8170	ŝ	Q	0	≡
X MaxGauge				
Administrator				
Log In				
Remember User ID				

( Default Account : Administrator / Password : 1 )

#### Monitoring Server Registration ( Admin > Server(s) > Server )

'Server' is a screen for registering and managing the connection information of the monitoring target database.

#### **Administrator Menu Location**

After login, reference the image below to go to the administrator screen.

MaxGauge		E Logout (	Ð
Menu a	Sign In Info		
Hanagement	@ Refresh		
a 🔔 Mosopir B 🗃 Severisi	Information		
- El Sonior	hane	Videe	
Setting	User 1D	Athrikkisto	
a 🛄 Logaing Control	SOVOT an North	Julius .	
B 🔛 Evont	Language	Extra	
8 🔲 56#1	Recifima Mala Verv	DWW.IT	
a 🛄 System	Repository Server Version	n 3.629	
	MEM Vorsion	4.2.10238.1913	
		Nga le User tel formation	
	Selings		

#### **Connection Information Registration**

To register the connection information, click the 'Add' button on the 'server' screen.

- 1. Click + Add button on the server window.
- 2. Input Connection information.

MaxGauge																	📑 Logo	ut ⊙
Mesu	α	Sign In Info Server *																
Uniconstant		+ Add & Savo - x Dokta	Test Connection   🖬 Schema Inte	Gaar Filters													(	Download
a 🛄 Menoper		(Restart a service when a server data a	dil or changes.)															
🗿 🔁 Server(s)		Server ID	Server Allas	Host	Type	IF Address	rort	DB Login ID	D6 Password	SQL Text Length	Description	Instance Name	Gather No	USC 7	Accession	Scoretkey	Rogion	Service Ty
Sorior	- 1	1 e:2	62	02	MY/K2L	52.193.214.252	3336	ROOK	*********	TOLL LLNGTH		Head16265	0	T	ARADODERDACK.	J2HDIs/Ow/YuRep3seemiltbOCCa	ap-northeast-1	UC2
R view Setting		2 rds	105	rds	MY9QL	esen.dys5y7t	3306	5001	*********	FULL LENGTH		ciciti	0	T	ARADODEHET/QK.	j2h13is70w7nuRep3yxoumHb00Ca	ap-northcest-1	826
a Calification																		
🕫 🛄 Stat																		
🗴 🥽 System																		
		(																
🔤 Notification Config		N 4 Page 1 of 1 > >	2														Dispire	ina 1 - 2 of 2

Item	Item	Description
MySQL	Server Alias	Connection Name
connection	IP Address	IP address of the server in which MySQL is operating.
	Port	Port used by MySQL.
	DB Login ID	User name used to connect to MySQL.
	DB Password	Database user's password to connect to MySQL.
CloudWatch	Accesskey	Key Accesskey to access the CloudWatch

Secretkey	Secretkey to access the CloudWatch				
Region	Location of server				
Service Type	Type of server				
Instance Name	Name of instance				
Gather No	In case of high volume logging, the process numbering for division, Default Value '0'.				
Description	Memo Input Window				
Use ?	Whether to use or not the log collection and real-time.				

3. After checking the items entered, click the Save button to save information.



#### **Edit Connection Information**

To edit the connection information, click on the server you wish to edit on the 'Server' screen.

1. Select the connection information you wish to edit and edit the information.



2. When finished, click Save.

+ Add	± Save → × Dele	te   📮 Tes
(Restart i	Select Edited R	ows idd or
	-	ess
	Save	
<b>V</b> 1	mysql_repo	192, 168, 123

#### **Delete Connection Information**

To delete connection information, click the 'Delete' button on the 'Server' screen.

After checking the connection information you wish to delete, click the
 x Delete
 button on the Instance Manager screen.



2. Click 'Yes' button on the confirmation window.

#### Start Log Collection and Monitoring

Only 'Y' from the following items



will become active for log collection and

From the EXEM Maxgauge for Mysql screen, when you click Process > All STOP, START to reflect the changed server information, you can check the collected data in Real-time and Performance Analyzer.

SHELL>./bin/all.start.sh

monitoring.

Open Chrome browser and enter "52.192.218.24".

MaxGauge x		i - 🗆 🗙
← → C f  52.192.218.24:8170		☆ © ■
	Ver New Course	
	WinxGauge	
	Administrator	
	<u>.</u>	
	Log In	
	Remember User ID	

( Default Account : Administrator / Password : 1 )



(Integrated Real-time)

# **Types of Real-time Views**

MaxGauge For Mysql products can be categorized into two types - Real-time and Threads.



(Integrated Real-time)

(Thred)

#### **Product's View Shift**

You can shift between products using the configuration at the top of the product as shown below.

MaxGauge			🗘 Admin 📑 Logout 📀
(Integrated Real-Time )			(Shift Menu)
Performance Analyzer		🚅 Group List	
DEFAULT (2)	*	DEFAULT (2)	*
ec2		Multi	
rds		Threads	
			· · ·



#### **Performance Analyzer**

You can easily move to the Performance Analyzer which is Maxgauge for mysql's postanalysis tool.

#### View Change

Changes the current group's view. It shifts to Threads.

#### Admin

Shifts to the ADMIN page on which you can manage users and monitoring servers.

#### Log Out

Ends the session to which you were logged and shifts to the login page.

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# MAXGAUGE MAIN FEATURES

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# 3. MaxGauge Main Features

# MaxGauge Main Screen Configuration (Multi Real-time View)

MaxGauge's main screen monitors the performance issues of multiple MySQL database simultaneously, from the system's overall perspective on a single screen, to ensure quick and effective real-time performance management of MySQL database.



MaxGauge For MySQL's DBMS performance information collects data using the query method, and you can immediately start monitoring after installation without the database' downtime. Also, through the integrated monitoring of multiple databases on a single screen, in the case of performance degradation and faillures in the database, you can quickly and effectively trace the the session and the SQL identified as the root cause of the problem.

#### To Change the Monitoring Indicator Items

 The monitoring indicators displayed on MaxGauge's Multi Monitor Area may be changed according to user's preference. To change the items, click on the
 button on the right.

CPUUtilization	# @ D	
		by View the 24Hour trends of the current day.
100		
75		Change the viewing chart format.
50 02:45:00		-
		View more details in a pop-up.
25		
0	40.00	
34:00 36:00 38:00 40:00 42:00 44:00 46:00	u 48:00	

2. Outputs a list of items you can change. Click the indicator you wish to change. MAXGAUGE FOR MYSQL transmits only the pre-selected indicators to the Real-Time View. If you do not need to change the indicators, go to ADMIN > Stat > Stat Info and change to Yes for Use, and you will be able to use the corresponding indicators on the Real-Time View.

Change Stat	×
🖨 😋 CLOUDWATCH	*
- 🔁 FreeableMemory	
- = FreeStorageSpace	
🔁 NetworkTransmitThroughput	
ReadIOPS	
📰 ReadThroughput	
WriteIOPS	
WriteLatency	
🔤 WriteThroughput	
🖻 🔁 DB	
📰 Bytes_sent	
📰 Replication_delay(sec)	
- 🔁 Threads_running	
🔁 Thread_total_wait_time(sec)	•
Filter by CPUUTILIZATION	

#### **To View Threads**

3. In the Threads area at the bottom, you will find a list of Threads that are currently active.

Threads (12)								ðð
ALIAS	ID	THREAD ID	SQLTEXT	USER	HOST	DB	ELAPSED TIME	WAI
mysql_repo_lin	542	561	SELECT '2015-01-26 16:53:	mysql	192.168.123.12	exem	10	
mysql_repo_lin	544	563	SELECT '2015-01-26 16:53:	mysql	192.168.123.12	exem	8	
mysql_repo_lin	537	556	SELECT '2015-01-26 16:53:	mysql	192.168.123.12	exem	8	
mysql_repo_lin	535	554	SELECT '2015-01-26 16:53:	mysql	192.168.123.12	exem	8	
mysql_repo_lin	539	558	SELECT '2015-01-26 16:53:	mysql	192.168.123.12	exem	6	-
•								•

#### **Multi Monitor Area**

The 'Multi Monitor Area' of MaxGauge's main screen is composed of 10 sub-windows, and the user can choose various information provided by MaxGauge such as MySQL's performance indicator, CPU indicator, and the ratio indicator from each sub-window.



#### **Monitoring Target Main Performance Indicators**

- CPUUtilization
- FreeableMemory
- Threads running
- Innodb buffer pool reads

- Threads connected
- Innodb rows updated

The Multi Monitor Areadisplays 6 performance indicators by default. The graph and the values displayed on the screen are defined as the average value per second of the difference value of the time (t) and the previous time (t-1) divided by the elapsed time (sec) in the case of performance indicators logging values in cumulative format; and the current values in the case of performance indicators logging current values.

#### Alert Area

In the Alert Area, you can check the alarm history of the instance currently being monitored.

ALERT LIST				
ALERTLEVEL	ALIAS	STATNAME	VALUE	DESC
CRITICAL	225	CPU	52.00	
WARNING	225	active memory(	67.80	
CRITICAL	225	Bytes_sent	3758.60	
WARNING	132	active memory(	45.36	
CRITICAL	132	Bytes_sent	9157.80	-
4				•

#### **Thread Elapsed Time Spread Area**

Checks the individual elapsed time of each active thread and indicates the thread count by each elapsed time segment.



#### WAIT (MS) Area



Displays the average wait time of the monitoring target database.

#### SERVER EXECUTION TIME (ms) Area

The Server Execution Time is an indicator which checks the elapsed time by continuously executing simple quieries as to know whether normal query execution is possible in the monitoring server.



## **Session Tracking by Top Down Method**

#### **Tracking Top Sessions**

Some of MaxGauge's greatest advantages are the Top-Down approach method which allows you to track down the root cause of the problem from the main screen to the 'Session Detail', SQL Level', and the 'Execution Plan Level', and the ability to collect all the necessary performance information in a short period of time to investigate the root cause of the problem.



( Thread -> Session Detail -> Sql Mini )

## **Thread Detail**

#### **Thread Detail Overview**

The THREAD Detail can provide detailed information about a particular thread in the database system and has the following functions.

- Wait indicator's content and activity amount from the time of connection to an individual thread until now.
- Wait indicator's content and activity amount between the current time and the previous time.
- Thread default information and the SQL text currently executing.
- Query Kill function

The following is the Tread Detail Initial Screen.

[ID = 541 ] - mysql_repo_39 (update time : 19:17:09)									
OS Stat				Name			Value		
				US	SER		mysql	-	
100 cpu : 29					н	DST		192.168.123.128:18796	
sys cpu : 5.41					DB	3		exem	
75 user cpu : 18.74					EL	APSED TIME(S)		7	
used swap(%): 14.3					CC	DMMAND		Query	
50					ST	ATE		User sleep	
-					SQLTEXT			SELECT '2015-01-26 19:18:57.464' , sleep(	
25					/ENT NAME				
9					DURCE				
·	16:22		W	AIT TIME(S)			-		
Delta Info					SQL Used				
Name	Value/Se	Diff Valu	Sigma Va		1	SELECT	2015-01-26 19:18:57.0	464′, sleep(10.955101504358169)	
WAIT/IO/FILE/SQL/QUERY LOG	0	0	0	1					
WAIT/SYNCH/COND/SQL/TC LOG MMAP::COND POOL	0	0	0						
WAIT/SYNCH/MUTEX/SQL/LOCK OPEN	0	0	0						
WAIT/SYNCH/MUTEX/MYISAMMRG/MYRG INFO::MUTEX	0	0	0						
WAIT/SYNCH/MUTEX/SQL/PAGE::LOCK	0	0	0						
WAIT/SYNCH/MUTEX/SQL/LOCK TABLE SHARE	0	0	0						
WAIT/SYNCH/RWLOCK/SQL/MDL CONTEXT::LOCK WAITIN	0	0	0	Ŧ					
2 🔹 🖉 Auto Refresh On 🛛 🗘 Refresh 🛛 Query kill								SQLmini SQL fo	rmat

#### **Thread Detail Description by Each Area**

#### **Thread Control Area**



You can manually Refresh or Query Kill the threads actually operating.

#### **Detail Info Area**

Displays the cumulative value (Sigma) and the Value/Se of the wait information about the corresponding session which has been waiting until the present.

Delta Info				
Name	Value/Sec(s)	Diff Value(s)	Sigma	Value(s)
wait/o/file/modb/modb_data_file	3.03	3.4	23	
wait/synch/mutex/nnodb/buf_pool	0.01	0.0	2.2	. 6
wait/synch/mutex/rwodb/fil_system	0		0	
wait/synch/mutex/nnodb/log_flush	0		0	
wait/synch/twlock/trinodb/btr_search	0		0	
wait/synch/mutex/sd/PAGE::lock	0		0	
wait/synch/inutex/sdl/TC_LOG_MMA	0		0	
wait/synch/mutex/sd/TC_LOG_MMA	0		0	
wait/synch/mutex/sdl/TC_LOG_MMA	0		0	
wait/synch/mutex/sql/MYSQL_BIN_L	0		0	
wait/synch/mutex/sql,MYSQL_BIN_L	0		0	
wait/synch/mutex/sql,MYSQL_RELAY	0		0	
wait/synch/mutex/sql/Delayed_insert	0		0	
wait/synch/mutex/sql/hash_filo::lock	0		0	
wait/synch/mutex/sgl/LOCK_active_mi	0		0	
wait/synch/mutex/sg/LOCK_connecti	0		0	
wait/synch/mutex/sgl&OOK_crypt	0		0	
wait/synch/mutex/sql&OCK_delayed	0		0	
wait/synch/mutex/sql/LOCK_delayed	0		0	
wait/synch/mutex/sql/LOCK_delayed	0		0	
wait/synch/mutex/sql/LOCK_error_log	0		0	
wait/synch/mutex/sql/LOCK_gdl	0		0	
wait/synch/mutex/sql/LOCK_global_s	0		0	
wait/synch/mutex/sql/LOCK_manager	0		0	
wait/synch/mutex/sql/LOOK_prepare	0		0	
wait/synch/mutex/sql/LOOK_rpl_status	0		0	
wait/synch/mutex/sqlAOOK_server	0		0	
wait/synch/mutex/sql/LOOK_status	0		0	

Item	Description
Name	MySQL Wait Indicator Name
Value/Sec(s)	Average value per second of the value generated in between times.
Diff Value(s)	The difference value in between times.
Sigma Value(s)	The cumulative value until the present time.

#### **Session Basic Information and Current Wait Area**

Displyas the User Name, Host Name, DB Name, Elapsed Time Information and the Current Wait Information.

mysql
192.168.123.75:51275
exem
51
Sleep
1 1 5 5

#### SQL Used Area

The is the area where the currently executing used SQL text is displayed.

s	)L Used	
1	select a.* , b.* from sys_stat a, sys_stat b	
		SQLmini   SQL format

To see the execution plan of the SQL Text, click on the SQLmini button located on the right bottom.

Maxgauge for My	SQL		١	4YSQL_R	EP0				
Database exem	✓   Ed	it •   Grid •   Ti	heme eclipse	🕶   Туре	es SQL	▼ Compa	are		
~	SQL								
CollapseAll									* 🗆
<ul> <li>a) → FUNCTION</li> <li>b) → PROCEDURE</li> <li>c) → TABLE</li> <li>c) → TRIGGER</li> <li>c) → TRIGGER</li> <li>c) → VIEW</li> </ul>	Execute   Clear   Explain Plan   Descri			Format SQL	~*		Limit Rows: 100 🐥		
		identifier	select_type	table	type	possible_keys	key	key_len	ref
	1	1	SIMPLE						
	<ul> <li>[10:36:1</li> <li>Co</li> </ul>	18] Connection: Expl	ain, Rows read: 1, El	apsed time (seconds	) - SQL query: 0	_	-	Clear Log	► ↓ ↓ 10:36:20 AM

If the SQL text is not readable due to long length, use the SQL formatting function. Click the Format SQL button at the bottom of the window.

#### **Thread Detail Drive Method**

To drive the Thread Detail, use the following methods.

- From MaxGauge's main screen' Thread Tab, double-dick on the session.
- From MaxGauge's Threads Manager screen, double-dick on the session.
- From MaxGauge's Lock Tree screen, double-dick on the Thread.

### **Refresh Function**

For most of the windows monitoring the performance information including MaxGauge's main screen, once the initial installation is complete, the Auto Refresh Time is set for every 5 seconds, and the user may adjust the Refresh time as necessary. The Auto Refresh Time can also be adjusted by the user as necessary, and the interval should be a minimum 5 seconds.

#### **Collection Cycle Settings**

1. Admin > Logging Control > Logging Manager.

Maxgauge for I	MySQ	L										
Menu	~	Adr	ninis	strator - SignIn Info	Stat Info 🙁	Logging Manage	🙁 Dashboard Set 🙁 I	Dashboard Server	Event Manag	ge 🗵 E	vent History 🙁	Control A
🖵 Management		±s	ave	- Restore Defaults	Clear Filter							
🖨 🔄 Manager				ProcessID *	Stat Type		Description	Interval (RTM)	Interval Type RTM	Interval (I	LC) Interval	Type LC
📃 User		<b>V</b>	1	ACTIVE_SESSION	PROGRAMM	1ED	Active Session	5	Second	5	Second	
🔄 Program Authorization			2	DEAD_LOCK	PROGRAMM	1ED_LC	Dead Lock			1	Minute	
🖂 🔄 Control Authorization			3	INFO_SCHEMA	PROGRAMM	IED_LC	Info Schema			3	Hour	
🖃 🔄 Server(s)			4	INNODB	PROGRAMN	IED_LC	InnoDB			5	Minute	
- 📰 Server			5	LOCK_TREE	PROGRAMN	AED_LC	Lock Tree			5	Second	
🖂 Dashboard Set			6	MASTERINFO	FIXED_LC		Master Info			1	Minute	
E Dashboard Server			7	PARAMETERINFO	FIXED_LC		Parameter Info			24	Hour	
😑 📥 Logging Control			8	PROC LIST	PROGRAMN	IED LC	Process List			1	Minute	
Logging Manage			9	SLAVEINFO	FIXED LC		Slave Info			1	Minute	
Event			10	SLOW OUERY	PROGRAMN	IED LC	Slow Ouerv			1	Minute	
\Xi Event Manage			11	SYS STAT	PROGRAMN	AED	Svs Stat	5	Second	1	Minute	
Event History			12	WAIT STAT	PROGRAMN	/ED	Wait Stat	5	Second	1	Minute	
G Chart Tafa			12	WALL_STAT	TROORANI		Walt Stat	5	accond		Phillippe	
Deport												
Custom												
Drogram												
Codo	1											
CodeDetail												
Denied IP Address												
Signin Delicy												
mail organization cy												

#### (Full View Shot)

Description	Interval (RTM)	Interval Type RTM	Interval (LC)	Interval Type LC
Active Session	5	Second	5	Second
Dead Lock			1	Minute
Info Schema			3	Hour
InnoDB			5	Minute
Lock Tree			5	Second
Master Info			1	Minute
Parameter Info			24	Hour
Process List			1	Minute
Slave Info			1	Minute
Slow Query			1	Minute
Sys Stat	5	Second	1	Minute
Wait Stat	5	Second	1	Minute

#### (Configuration)

You can configure the Real-Time and Logging collection cycle. Once the changes have been made, you must restart the product ( all.stop.sh -> all.start.sh ).

# 4

# Main Functions

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# 4. Main Functions

## **Threads Monitor**

THREADS Manager is intended for monitoring the sessions that are connected to the database and currently running, and helps to find the sessions you want to look up through several conditions.

#### **Drive Threads Manager**

Go to Tool of the Server you wish to monitor.

 On the Server List on the left, mouse right-click and go to Tool -> Threads Manager.



2. When the corresponding database' Threads Manager window opens, it will show the information of all the sessions currently connected to the database.

Ser.							ec2 - Ch	rome								_ 🗆 🗡
52.192.218.24:8170/realti	ne/to	ools/inde	vols/index.html?serverno=0													
Tool	c)   1	Threads Man	ager (8)													
<ul> <li>View Type</li> <li>Threads Manager</li> </ul>		ID	96		Thread ID	96		User	Name	96		Statu	s %	~	Refresh	Restore Defaults
- Lock Tree Parameter List		Host Name	96		Detabase Name	%		SQL	Text	96		Sleep			Kill Session	
	4	2 Auto Refres	horr 3													
		ID	THRE	AD	USER		HOST		DB		ELAPSED TIME		WAIT	EVENT ID	EVENT	SQLTEXT
		1 73	92		root		52.196.1.173	5	tpcc			0				UPDATE warel
		2 70	89		root		52.196.1.173:5		tpcc			0				SELECT o_id, o
		3 76	95		root		52.196.1.173	:5	tpcc			0				UPDATE ward
		4 78	97		root		52.196.1.173:	:5	tpcc			0				UPDATE wareh
		5 69	88		root		52.196.1.173:	:5	tpcc			0				UPDATE wareh
		6 74	93		root		52.196.1.173	5	tpoc			0				UPDATE wareh
	•	7 72	91		root		52.196.1.173	-a	tpcc			0				UPDATE wareh
		8 //	90		root		52.196.1.173	ca	tpoc			0				OPENTE waren
		9 75	94		root		52.196.1.173	o	tpcc			0				OPERTE waren
	100	10 /1	90		root		52.190.1.173	co	tpcc			0				SELECT 0_30, 0
		_														

#### **Search Thread**

The user can pull up specific threads from the total list by entering certain values in the conditions input box located at the bottom of the Threads Manager.

Item	Description
ID	Search with the ID.
Thread ID	Search with the Tread ID.
User Name	Search with the User Name
Host Name	Search with the Host Name.
DB Name	Search with the Database Name.
SQL Text	Search with the SQL Text.
Elapsed Time	Search based on the Elapsed Time (Sec).
Sleep	Displays threads that are in sleep mode.

The following provides descriptions of items used in search condtions.

#### Kill in Threads Manager Results Window

The sessions displayed on the Threads Manager Results window may be selected by using the direction arrow keys, and the session is highlighted when selected.

When in selected mode, the kill function which forces the session to end may be executed and hence, it must be handled with caution.

Tool		Thr	eads Manage	er (8)											
😑 View Type						lei.	1					- N		Defeat	Destus Defaults
Threads Manager		IC		10	Thread ID	90	U	iser Name	970		Statu	\$ 90	*	Refresh	Restore Deraults
– Lock Tree – Parameter List		н	ost Name 9	6	Database Name %		SQL Text		%	Sleep			Kill Session	_	
		¢ A	uto Refresh Off 3												
			ID	THREAD ID	USER	н	OST	DB		ELAPSED TIME		WAIT TIME	EVENT ID	EVENT NAME	SQLTEXT
		1	73	92	root	5	2.196.1.173:5	tpcc			0				UPDATE ware
		2	70	89	root	5	2.196.1.173:5	tpcc			0				SELECT o_id,
		3	76	95	root	5	2.196.1.173:5	tpcc			0				UPDATE ware
		4	78	97	root	5	2.196.1.173:5	tpcc			0				UPDATE ware
		5	69	88	root	5	2.196.1.173:5	tpcc			0				UPDATE ware
		б	74	93	root	5	2.196.1.173:5	tpcc			0				UPDATE ware
		7	72	91	root	5	2.196.1.173:5	tpcc			0				UPDATE ware
		8	77	96	root	5.	2.196.1.173:5	tpcc			0				UPDATE ware
		9	75	94	root	5.	2.196.1.173:5	tpcc			0				UPDATE ware
		10	71	90	root	5	2.196.1.173:5	tpcc			0				SELECT o_id,

### Lock Session Trace (Lock Tree)

The Lock Tree screen displays the information about sessions waiting on the Lock and the sessions which caused the lock, among all the sessions currently connected to the database system.

- 1. Tools > Select Lock Tree
- 2. Lock Tree window of the corresponding database.

Тос	l	Session Manager	r 🗷 Lock Tree 🗵 Parameter List 🕱 System multi monitor 🗵											
ė v	liew Type	🗘 Refresh												
	- Session Manager	HOLDER	10	THREAD	LOCK	LOCK	LOCK	LOCK	LOCK	LOCK	11000	00	ELAPSED	SQL
	Lock Tree	TRX_ID	10	ID	TRX_ID	MODE	TYPE	TABLE	PAGE	REC	USER	DB	TIME	TEXT
	- Parameter List	🖃 Holder	32804	32820	3D1B29	х	RECORD	`test`	65541	2	root	test	27	select
	System Multi Monitor	- 3D1B29	32808	32824	3D1B2D	х	RECORD	`test`	65541	2	root	test	27	delete
	Process List	3D1B29	32805	32821	3D1B2A	х	RECORD	`test`	65541	2	root	test	27	delete
	NDB Data Node Monitor	- 3D1B29	32807	32823	3D1B2C	х	RECORD	`test`	65541	2	root	test	27	delete
	Shared Storage / Disk Subsystem	3D1B29	32806	32822	3D1B2B	х	RECORD	`test`	65541	2	root	test	27	delete

The Lock Tree screen displays the selected database' lock holder and the requests relationship in a layer structure, which allows you to quickly distinguish the lock relationships among the sessions.

### **Parameter**

You can check the current database' parameter values.

1. Tools > Select Parameter

#### 2. The corresponding database' Parameter screen

Tool	Threads Manager 🕐 Parameter List 🖉					
🖃 View Type	¢ Refresh					
- Threads Manager	NAME	VALUE				
- Lock Tree	auto_increment_increment	1				
Parameter List	auto_increment_offset	1				
System Multi Monitor	autocommit	ON				
NDB Data Node Monitor	automatic_sp_privileges	ON				
Shared Storage / Disk Subsystem	back_log	650				
Shared Storage / Sisk Subsystem	basedir	/opt/mysql/server-5.6				
	big_tables	OFF				
	bind_address	*				
	binlog_cache_size	32768				
	binlog_checksum	CRC32				
	binlog_direct_non_transactional_updates	OFF				
	binlog_format	STATEMENT				
	binlog_max_flush_queue_time	0				
	binlog_order_commits	ON				
	binlog_row_image	FULL				
	binlog_rows_query_log_events	OFF				
	binlog_stmt_cache_size	32768				
	bulk_insert_buffer_size	67108864				
	character_set_client	utf8				
	character_set_connection	utf8				
	character_set_database	utf8				
	character_set_filesystem	binary				
	character_set_results					
	character_set_server	latin1				
	character set system	utfR				

5

# INTENSIVE MONITORING WINDOW

5. Intensive Monitoring Window(Threads)	34
Threads	34
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Advanced Filter by Elapsed Time	35
Configure Advanced Filter by Elapsed Time	35
Filtering by Specific Users From the Threads List	
Filtering by Specific Thread ID From the Threads List	37
Single Server View	

# 5. Intensive Monitoring Window (Threads)

You can do an intensive monitoring of THREADS and SLOW QUERIES from the Real-Time Monitoring window.

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MarGauge for NySQL													
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## Threads

#### **Threads Window**

The Server List of the corresponding group will be on the left, and the THREADS within the GROUP will be output on the right.

MaxGauge for MySQL GROUP														
SERVER LIST «	Threads (84)													
Server Boot      Server Hang      Sysmon Down	DB	ELAPSED TIME	WAIT TIME	EVENT ID	EVENT NAME	COMMAND	STATE	SOURCE	SPINS	OBJECT SCHEMA	OBJECT NAME	OBJECT TYPE	OBJECT INSTANCE OPERATION	NUM
mysql_repo_linux1234567890	exem	10	0			Query	User sleep							
a mulation	exem	10	0			Query	User sleep							
• manaus	exem	10	0			Query	User sleep							
• mysql56	exem	10	0			Query	User sleep							
• mariadb_30	exem	10	0			Query	User sleep							
• mariadb.31	exem	10	0			Query	User sleep							
	exem	10	0			Query	User sleep							
<ul> <li>mariadb_32</li> </ul>	exem	10	0			Query	User sleep							
<ul> <li>mariadb_33</li> </ul>	exem	10	0			Query	User sleep							
a marinelh 24	exem	10	0			Query	User sleep							
· manadajov	exem	10	0			Query	User sleep							
<ul> <li>mysql_repo_35</li> </ul>	exem	10	0			Query	User sleep							
e mysql_repo_36	exem	6	0			Query	User sleep							
a musel sens 37	exem	6	0			Query	User sleep							
<ul> <li>mysqcjepoja/</li> </ul>	exem	6	0			Query	User sleep							
<ul> <li>mysql_repo_38</li> </ul>	#3#TD	6	0			Query	User sleep							
<ul> <li>mysql_repo_39</li> </ul>	exem	6	0			Query	User sleep							
	exem	6	0			Query	User sleep							
<ul> <li>mysql_repo_40</li> </ul>	exem	5	0			Query	User sleep							
	exem	5	0			Query	User sleep							
	exem	5	0			Query	User sleep							
	exem	5	0			Query	User sleep							
	exem	5	0			Query	User sleep							
	exem	5	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	exem	3	0			Query	User sleep							
	•													
All + +	Refresh Delay	5 🗘 Data Count	30 🗘 Ref	resh Time : 13:39:	-44								Auto Refresh On	

(THREAD Window)

#### Advanced Filter by ELAPSED TIME

Do an advanced filter of threads by ELAPSED TIME > = ? .

Threads (109)								
ALIAS	ID	THREAD ID	SQLTEXT	USER	HOST	DB	ELAPSED TIME	1
mysql_repo_40	716	734	SELECT '2015-01-29 14:02:	mysql	192.168.123.12	exem	13	
mysql_repo_39	716	734	SELECT '2015-01-29 14:02:	mysql	192,168,123,12	exem	13	
mysql_repo_38	716	734	SELECT '2015-01-29 14:02:	mysql	192,168,123,12	exem	13	
			and the second second second second					

#### Configure Advanced Filter by ELAPSED TIME

- 1. Click the @ button.
- 2. Enter the values in the Elapsed time(sec) input box.
- 3. Click  $\bowtie$  button to apply.

Threads Settings		
THREAD ID		
Clear All		
- ETC		
Elapsed time(sec):	8	A V
Filterd username:	system	

### Filtering by Specific Users From the Threads List

- 1. Click on the 🙆 button.
- 2. Enter the values in the Filter by Username input box.
- 3. Click on the button to apply.

Threads Settings		
THREAD ID		
Clear All		
- ETC -		
Elapsed time(sec):	8	* *
Filterd username:	system	

### Filtering by Specific THREAD ID From the THREADS List

From the Threads List, right-click and select the	Add to filter list	, and it w	ill
immediately show the filtered results. To cance	l the filter, click the 🔎	button	and click the
hutton of the corresponding Thread ID			

button of the corresponding Thread ID.

THREAD ID		
731		l
740		ĺ
Clear All		
Clear All		
Clear All		
Clear All ETC Elapsed time(sec):	8	×

#### **Single Server View**

From the Server List on the left, click on the servers you wish to see. To undo, click on All button to clear the selections.

MaxGauge			🖨 Admin 📑 Logout 📀
SERVER LIST «	CPU (%)	Threads Elapsed Time Spread (2)	Threads Running
order-db1			
order-db2			
order-db3		1 1	
order-db4	25		6
order-db5			
order-db6			
order-db7	CPU	CPU all Threads_running all	Wait (Ms)
order-db8		20	80 20:44:15
order-db9	100	100 15 _ 20:42:35	••
	20:42:15		40
	25	25	20
	0	0 1000 1000 1000 1000 1000 1000 1000 1000	0.0
	42.30 43.00 43.30 44.00 44.30	42.30 43.00 43.30 44.00 44.30 42.30 43.00 43.30 44.00 44.30	20142130 20143100 20143130 20144100 20144130
	Innodb_buffer_pool_reads	Threads_connected & Replication_delay(Sec) & Threads_connected	Slow Query
	1	50 5	1.0
		40	0.8
		30	0.5
		10 1	0.3
	0	0	0.0
	42:30 43:00 43:30 44:00 44:30	42.30 43.00 43.30 44.00 44.30 42.30 43.00 43.30 44.00 44.30	42:30 43:00 43:30 44:00 44:30
	Alert List	Threads (2)	Server Execution Time (Ms)
	ALERTLEVEL ALIAS STATNAME	ALIAS ID THREAD ID SQLTEXT USER H	
	CRITICAL order-db1 CPU ^	order-db3 2 0 system user	200
	CRITICAL order-db1 CPU CRITICAL order-db1 CPU	order-db3 3013 3033 unauthenticated 1	150
	CRITICAL order-db1 CPU		
	CRITICAL order-db1 CPU CRITICAL order-db1 CPU		
			20:42:30 20:43:00 20:43:30 20:44:00 20:44:30
All V ↑	Data Count 30 Refresh Time : 20:44:54	Auto Refres	h On Refresh Restore Defaults Socket Connected!

# 6

# Manage Functions

6. Manage Functions	
Admin Access	
Admin Screen	
Manager Menu	

# 6. Manage Functions

Configures detailed items in Maxgauge product. For some of the features, after configuration, you must restart the Gather to reflect changes.

## **Admin Access**

1. Click on Admin.

			🖨 Admin	📑 Logout	$\odot$
E Performance Analyzer		🚅 Group List			Т
DEFAULT (2)	*	DEFAULT (2)			^
rds		Multi			
ec2		Threads			
	Ŧ				-

## **Admin Screen**

MaxGauge				🖃 Logout 📀
Menu	로그인 정보			
P Management	2 세로고등			
응 그 사용자관리 응 그 서비관리	Information			
물 💭 로 강관리	· 한옥			
이번드란티 () 지표편리	User Name	Adres		
🗷 🧰 시스템	Longuage Realtime Main View	한국어 DEFMLT		
	Repository Server Version	5.6.20		
	MEM Version	4.2.160321.1300		
	- Carl Factoria		보그인 사용적 정보	
	- Contraction			
	1			
Notification Config				
MaxGauge				🖬 Logout 📀
MaxGauge	로그전 평보			🗃 Logout 📀
MaxGauge Hens a Rangement	6.10 8k 2 45.28			🖬 Logout 📀
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Mus-Gauge           Non         *           United and the state of the state	L10 B       L10 B      L10 B       L10 B	2 सम्बद्ध Айм २२ ССААТ 5.52 4.1.0001.130	8.312 / MRT 15K	🖪 Logout 💿
MaxGattige           Property         0           0 49/8/2         0	2.30 명보 같 42.29 Information 맞약 User To Dear Name Longonity Search Values HPM Verson Company Search Values HPM Verson	2 Antennatur Antennatur Antenna Research Search Sacarc	8.312 / M89 104	🖪 Logast 💿
MaxGuige           Ret         a           Unserved         a <td< th=""><td>2.3代 部本 全 3.4代 部本 日本 の 日本 の し な の の の の の の の の の の の の の の の の の</td><td>D Advander Adva Geog Geog Geog Adva Adva Adva Adva Adva Adva Adva Adva</td><td>#10 MBR 192</td><td>🖪 Logout 💿</td></td<>	2.3代 部本 全 3.4代 部本 日本 の 日本 の し な の の の の の の の の の の の の の の の の の	D Advander Adva Geog Geog Geog Adva Adva Adva Adva Adva Adva Adva Adva	#10 MBR 192	🖪 Logout 💿
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MaxGattige           Max         a           Prespect         a           a         a	C.10 전보     C.10 전L     C.10 T	2 Animanda Anima Anima Res Res Res Res Res Res Res Res Res Res	\$32 M89 98	🖬 Logast 💿
Max-Guige           Image         Image           Image         Imag	4.3 代 部上 全 452 当 24 452 当 Deformation Ump and Dero Rame Longsage Radios Note Science Note HTM Version HTM Version	D Alwandor Alwa Qaq Qaq Qa Qa Qa Qa Qa Qa Qa Qa Qa Qa Qa Qa Qa	#10 MAR 19	🖪 Logout 💿
AuxGuige	L 3 10 M M → 442.50 Entransition 10 M Long the Long the Lon	0 Alementari 8-34 8-34 6-34 4-3 5-29 4-3 Janet 130	#32 M&R 92	🖪 Logout 📀
MaxGauge           Present         •           •         • <td>2.1만 정보     21만 정보     21만 정보     21만 정보 30     21만 400 00     2100 00     2100 00     2100 00     210 00     2100 00     210 0</td> <td>2 Animanda Anima Anima Sana Sana Sana Sana Sana Sana Sana Sa</td> <td>£12 MR 94</td> <td>🖪 Logant 💿</td>	2.1만 정보     21만 정보     21만 정보     21만 정보 30     21만 400 00     2100 00     2100 00     2100 00     210 00     2100 00     210 0	2 Animanda Anima Anima Sana Sana Sana Sana Sana Sana Sana Sa	£12 MR 94	🖪 Logant 💿
Max-Guige           Ret         a           U 4870         a	4.3 代 部上 全 4 年21日 日本中の日本 日本日本 日本	D Advanded Advanded Color Colo	£32 MAR 92	🖪 Logout 🍥
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MaxGauge           Present         •           •         • <td></td> <td>2 Animan da J Anima Anima Sara Sara Sara Sara Sara Sara Sara Sa</td> <td>£12 MR 19</td> <td>🖪 Logant 💿</td>		2 Animan da J Anima Anima Sara Sara Sara Sara Sara Sara Sara Sa	£12 MR 19	🖪 Logant 💿
Max-Guige           Ret         a           U 48920         a </th <td>(2.30 Hz) 244539 Efformation 94 94 94 149 149 149 149 149 1</td> <td>8 Alexandr 93a 020A27 3.09 3.0001308</td> <td>£20 MAR 31</td> <td>I togot 💿</td>	(2.30 Hz) 244539 Efformation 94 94 94 149 149 149 149 149 1	8 Alexandr 93a 020A27 3.09 3.0001308	£20 MAR 31	I togot 💿
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MaxGauge           Present         ************************************	4.3€ BH 2 42.5 2 4.5 2 4.5	2 Antennatur Anten Serias I Sa2 Sa2 Sa2 Sa2 Sa2 Sa2 Sa2 Sa2 Sa2 Sa2	428 HAR 184	I Logout 🕥
Music         Image           Image         Image           Image <td>E_TO BIA     Constant     Constant</td> <td>0 Alemany 8-9 0 00ALT 1.0 4.1 MHI 100</td> <td>2.12 MAR 192</td> <td>El Logout 📀</td>	E_TO BIA     Constant	0 Alemany 8-9 0 00ALT 1.0 4.1 MHI 100	2.12 MAR 192	El Logout 📀
MaxGauge           Property         •           •         • <td>2.10 0 U 2 4228 2 4228 2 4228 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4</td> <td>2 Animandu Anima Anima Reference Reference 1.25 4.1 Monta, 130</td> <td>822 M87 84</td> <td>🖪 Logast 💿</td>	2.10 0 U 2 4228 2 4228 2 4228 2 4 2 4 2 4 2 4 2 4 2 4 2 4 2 4	2 Animandu Anima Anima Reference Reference 1.25 4.1 Monta, 130	822 M87 84	🖪 Logast 💿
MaxGauge           Image: Second Seco	2.3€ BH 2.4€ BH 2.4 Extraction Destinant	8 Animati Anima 9 Q 000427 3.09 4 Amit 1 No	A22 H81 18	Logout ()
Musicalization           Person         Person           Person         Perso	( 2.3 to the )	0 Alemandr #34 #34 CORALT 1.05 4.3 JUNELING	\$22 M81 88	El Logart ()
MaxGauge           Image: State Sta	<ul> <li>エンク 日本</li> <li>(1) クローク</li> <li>(2) 日本</li> <li>(2) 日本</li> <li>(2) 日本</li> <li>(2) 日本</li> <li>(2) 日本</li> <li>(3) 日本</li> <li>(4) 日本</li> <li>(4)</li></ul>	2 Anima Ada Ada Ada Ada Ada Ada Ada Ada Ada Ada	E22 148 38	🖬 Logant 💿
Musicality       Image: A Stable of the stable	<ul> <li>C 10 H L</li> <li>Februarian</li> <li>E4 0</li> <li>Care and a second seco</li></ul>	8 Alexania 9 Q 000000 4 June 100	2.22 / 489 98	Logout 📀
MaxGattige           Image: Constraint of the second secon	( 2.10 0 M)	2 Ammar 33 33 34 34 34 34 34 34 34 34 34 34 34	8.32 / MRT 104	Logart 📀

# Manager Menu

Menu	Description		
Manage Server(s)	Monitoring target servers settings		
	• Add, edit, or delete the monitoring target server.		
	• Add, edit, or delete views (service group).		
Manager	Maxgauge Client User Setting		
(Manage Users)	• Add, edit, or delete Maxguage Client users.		
	• Add, edit, or delete multiple screens (service group)		

	• Add, edit, or delete the Admin Menu access rights for each
	user.
Logging Control	Logging Settings
	• Sets the monitoring's Refresh cycle, and the logging
	collection cycle.
	Check the period of the data saving & Capacity for data collection
	Sets the Backup cycle
Manage Events	Sets the alarms of the stat and disc
	<ul> <li>Sets the alarms of the stat and disc</li> </ul>
	History of stats alarms
	Sets the Event filter
Stat	Stat setting
	• Add, edit, or delete stat
	Sets the stat type
System	System settings

#### **Notification Config**

Menu	Description		
Notification Settings	SMS Notification Settings		
	<ul> <li>Add, edit, or delete indicators for which notifications</li> </ul>		
	sending permission will be given for each group		
	• Set up sending rules.		
	• Set up the text format.		
Notification Report	• View the sent history.		

# 7

# GATHER

7. Gather(MaxGauge Logging ontroller)	
Gather Overview	
Environment Configuration	
Repository Configuration	
Gather Start and Stop	
Dashboard Support Function	

# 7. Gather (MaxGauge Logging ontroller)

### **Gather Overview**

The limitation of real-time performance management is in that the problem diagnosis and resolution must be done in real-time. However, a DBA cannot work 24 hours around the clock at the workstation for real-time monitoring and diagnosis. And in the event performance issues arise, if we try to resolve the issues by rebooting the database, cancelling sessions by force, or program's automatic shutdown, the source of data through which the root cause of the problem may be identified will be destroyed, making it impossible to further investigate the problem through a post-analysis.

MaxGauge logs various performance information collected from MySQL in a safe repository to support post-analysis of the performance issues, and it compensates for the timing limitation of real-time monitoring through log analysis.

Especially, it replays the past execution situations as if in real-time, and by rewinding back to a specific time in the past, the analyzing function of the sessions and SQL executed at the corresponding time can be a helpful resource in identifying the root cause of the problem and finding the solutions. MaxGauge also provides trends analysis function for a log accumulated over a period of several of days.

MaxGauge collects and logs MySQL 's performance information, session information, and lock information by using the queries. The DBA can set up the logging cycle and logging data through the Logging Controller program, and do an analysis with the Performance Analyzer program.

You can check the performance degradation and database error phenomenon generated in the system, after it has occurred. Since you can check the performance indicators trends of data for specific time period by using the Performance Analyzer, you can accurately and conveniently pinpoint the time at which overload occurred, and by migrating to that specific time, you can identify the sessions and SQL executed at that time.

## **Environment Configuration**

MaxGauge saves the performance information to the Repository.

#### **Repository Configuration**

Repository Configuration is used to save performance information in MySQL DB.

The configuration file location is conf/properties .

1. dbpool.properties

Configure the information for Gather to access the Repository DB.

Configuration KEY	DEFAULT VALUE	Description
manager.logging	true	Logging Options
manager.pool_type	bonecp	DB Pool Type
mydb.driver	com.mysql.jdbc.Drive r	Connect Driver
mydb.url	jdbc:mysql:// <host NAME&gt;:3306/<db_n AME&gt;</db_n </host 	Repository Access Location
mydb.user		REPOSITORY User
mydb.password		REPOSITORY Password
mydb.connectTimeout	3	Connection Delay Wait Time
mydb.readTimeout	30	Read Time Duration
mydb.loginTimeout	1	Login Time Duration
mydb.testQuery	SELECT 1	Query for remaining connected
mydb.minConnectionsPerPartition	3	DB Pooling Minimum
mydb.maxConnectionsPerPartitio n	30	DB Pooling Maximum
dynamic.instance.connectTimeout	3	Connection Delay Wait

		Time
dynamic.instance.readTimeout	30	Read Time Duration
dynamic.instance.loginTimeout	1	Login Time Duration
dynamic.instance.testQuery	SELECT 1	Query for remaining connected
dynamic.instance.minConnections PerPartition	3	DB Pooling Minimum
dynamic.instance.maxConnection sPerPartition	30	DB Pooling Maximum

#### 2. system.properties

Configure the Port the WEB CLIENT will connect to and other client related settings.

Configuration KEY	DEFAULT VALUE	Description
socket.ip	localhost	Do Not Change
socket.port	8170	PORT for WEB CLIENT
socket.context	/ws	Fixed Value for internal operation
websocket.max_message_size	524288	Maximum size per transmission through the web socket.
websocket.compress	false	Compress web socket data
websocket.sqltext.len	30	Configures the length of SQL Text which will be shown on the THREADS LIST.

#### 3. daemon.properties

Configure Gather details. In general situations, no changes are necessary.

#### 4. version.properties

Contains the product version information. You can also check product version information from Admin's Information area.

#### **Gather Start and Stop**

Once configuration is complete, execute Gather with all.start.sh.

SHELL > ./bin/all.start.sh

You can stop Gather with ALL.STOP.sh.

SHELL > ./bin/all.stop.sh

## **Dashboard Support Function**

You can connect to data in MAXGAUGE for MySQL and other house products from EXEM DASHBOARD.

There is no separate environment configuration in this product, but since a linking job is required on EXEM Dashboard, seek technical support for assistance in set up.

# 8

# MAXGAUGE PERFORMANCE ANALYZER

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# 8. MaxGauge Performance Analyzer

## **Performance Analyzer Overview**

The Performance Analyzer replays the performance indicators, Active Sessions, SQL Text and CPU indicator, and Top Processes saved to the repository by gather exactly the same as in real-time to analyze the performance and to identify the root cause of the problem in MySQL database.

Performance Analyzer is generally used most frequently for the following situations.

- To analyze performance issues throughout the overall system
- To analyze Peak Times of specific dates, problem sessions, and to trace SQLs.
- To analyze system resource usage type and trends analysis

#### **Performance Analyzer Home Screen**



#### Select Log

Repository is used as the supporting logging type for Maxgauge For MySQL. For the corresponding log, innodb engine and partitions are used and it is a database creating structure.

#### Performance Analyzer Screen Overview

The Performance Analyzer displays MySQL database' daily execution status. All indicators are displayed in a 24 hour trends graph, and you can easily identify the Peak Time and navigate to the time you wish to analyze with just a mouse click. MySQL performance indicator, Session information, SQL Text and O/S process information are organically connected which allows you to accurately analyze the Peak Times and the times at which errors occurred.



Location	Item	Description
< 00:00:00 >	Searching Time	Provides current time and the target time
Threads         Process List         Thread By IP List           ElspsedTime(s)         ID         Thread ID         Event ID         U           0         9765708         0         root         root           4         [0/1 Rows]         00         05         10         15         25	Thread Information	Check Active Sessions and O/S Process of the selected time

CPUUtilization Threads_running	Main Indicators Area	Displays the main performance indicators graph. The user can change the indicator for the graph in indicator details area, however, the user cannot change the indicators for the graph in the main indicators area.
Stat All Stat Wait Los	Indicator Details Area	The details window consists of several tabs for each item such as performance indicators, wait indicators and others. For the description of each item, reference the corresponding section below.

#### **Thread and Process List Window**

By looking at the trends of performance indicators displayed on the screen, you can know the type of resource usage during the collection period and the peak time of database system usage, and from the Session & Process window, since you can sort the values by clicking on the column header of each indicator, you can easily identify which sessions have used up the most resources. In general, excessive usage of resource calls for special attention and you can check the SQL text of such sessions to take appropriate actions to resolve the problem.

Threads	Process Li	st Thread	By IP List											
ElapsedTime(s)	ID	Thread ID	Event ID	User	Host	Wait Time(ms)	Event Name	DB Name	SQL Text	Command	Operation	State	Source	Spins
0	898214	898233		root	192.168.123.13	0		information_sch		Query		init		
0	983062	983081		root	192.168.123.13	0		information_sch	/* mysql-conne	Query		executing		
4														
[0/2 Rows] 30	50 55													

#### **Main Indicators Area**

The Main Indicators Area displays O/S CPU , Active Sessions and other important performance indicators provided by MySQL.

CPUUtil	ization Threads_running	Threads_connec	ted Innodb bu	ffer pool read requests	Innodb buffer p	ool reads Innod	o row lock currents wai	s Innodb rows D	ML & read Replic	ation delay		
1.5.												
												CPUUtilization
1					Max: 0.67							
0.5	ويستعل المسلوب والمراجع و	فللملط فليلت فتستلينه فالم	سليسليس ساب لسليتيك	الماساسا بالبابيا بالماسالين	بليانين الالتيانيين المراجع	لمللما ساعتا بالكيساليا و	مىلىمىلىمىلىمىلىرلىلىمىل	سللتان المستعادية والمساعدة	بلملبا بالمالل ببالساسات	فبالمستعلما الصامسيانيان	سايا يستيا السايا السيسا	all market
00:00:00	02:00:00	04:00:00	06:00:00	08:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	20:00:00	22:00:00	

Item	Description
CPUUtilization	OS CPU Usage Rate(%)
Threads Running	Active Sessions

Threads Connected	Total Sessions
Inndb buffer pool read requests	Number of blocks read from the Buffer Pool (memory I/O)
Innodb buffer pool reads	Number of blocks read from the Disk (Disk I/O)
Innodb row lock currents waits	Number of sessions waiting on the Lock
Innodb rows DML & Read	Innodb rows deleted: Number of records deleted. Innodb rows updated: Number of records updated. Innodb rows inserted: Number of records inserted. Innodb rows read: Number of records read.
Replication delay	Replication Environment Master – Replication delays between Slaves (Unit: sec)

# **Indicator Details Area**

The Indicator Details Area is divided into 9 tabs and each tab provides the following information.

Item	Description
Stat	Provides Trends of MySQL Performance Indicators and Active Sessions List.
All Stat	Provides the current values of all the performance indicators provided in MySQL and the Active Sessions List.
Wait	Provides the current values of all the wait indicators provided in MySQL and the Active Sessions List.
Lock Tree	Provides the Lock Tree details of the corresponding time in a tree structure.
Cloud Watch	Provides metrics information provided in CloudWatch
Parameter	Provides parameter information
Slow Query	Provides Slow Query Information

Alarm	Provides function for checking the details of alarms generated due to threshold values.
Deadlock	Provides function for checking the details of Deadlocks.
Innodb Status	Provides function for checking the Innodb Status.

#### STAT

The Stat screen displays the trends graph by using the difference values of performance indicators generated in between the segments and the active sessions list. You can easily recognize the MySQL database' peak time on the Stat screen, and you can navigate to the corresponding time by double-clicking the specific time on the graph. You can also easily identify the sessions which caused the peak times through the resource usage information shown in the Active Sessions List.

MaxGauge	Q,	Admin 📑 Logout 📀
rds 🤟 🤇	CPULTilization Threads_unning Threads_connected innote buffer pool read requests innote buffer pool reads innote buffer pool reads innote buffer pool reads innote towe lock currents waits in innote tows DML & read in Replication driay	
< 00:00:00 >		0.42 COUNTRATOR
2016 SUN MON THE WED THE FRE SAT	1000 1000 14000 14000 14000 14000 12000 12000 1400 14	22.00:00
29 MAR 3 37 00 00 00 00 00 00 06 00 00 00 00 00 00 10 00 00 00 00 00 00 10 00 00 00 00 00 00 10 00 00 00 00 10 00 00 00 00 00 10 00 00 00 00 00 10 00 00 00 00 10 00 00 00 00 10 00 00 00 10 00 00 00 10 00 00 10 00 00 00 10 00 100 1	304 VAISat V Wat V Look Tree V Coud Wath V Parameter V Alarm V Silve Cuery V Threads V Beed Look V Innode Status V 107 108 109 109 100 100 100 100 100 100	Involt_buffer_pool_read_requests
Instance List DEFAULT rds	1 23 20	0 📕 Inneliz, judžer, prol., venih
102		
	-	E Droch, one, ond
ок	5.7	Sort_rows
Critical Warning 1,440 0		
	Threads Thread by FLM Prozenes Beaufined a 10 March Date Date D Use Net Well Design Earthere 18 New 20 Tet Conneed Quadan Date Serve Sele Quad Shee Quad Shee Quad Shee Quad Shee Select Quark Select Qu	at Name Object Type Objec
	0/1 Rows ] 00	

The 4 indicators displayed on the screen can be changed to different indicators by the user. To change the indicator, click on the performance indicator name located on the right side of the screen.

1. Click performance indicator name.

MayGauge	à	Admin 🕞 Logout 🛇
nk <	•	
	C/CUBILIZEON Threads_running V Threads_connected V Innodo Exiter pool reads	A 43 🗮 (711)
< 00:00:00 >	- 1	6.42 CPUBlication
2016 SUN MON TUE WED THU FRI SAT	Stat All Stat Weit Lock Tree Cloud Watch Parameter Alarm Slow Query Threads Dead Lock Innob Status	
29)	13	Innotb_buffer_pool_read_requests
13 H 15 16 17 18 19 20 21 22 23 M 25 26	7	May: 52.22
27 28 28 30 28 01 02		
Instance List	55	0 📕 Innotb_buffer_pool_reads
DEFAULT rds	3	
ec2	2.5	
		-
	u u	Innodb_rows_read
		a la de libelt poù la de ser la de la d
ок		Sort_rows
	85 33	
Critical Warning	45	
1,440 0	al-	
	Tanda Tanah Bili Asam	
	ITTENDES INTENDED FOR LA FORCESSON DE THEAD DE LE PARTE NORT DE LE PARTE DE LE	loject Name Object Type Object
	0 18 0 mbahan koatoot;1400 0 MLICT Qarry Withing to et	
	() (0/180m) oo	

2. Enter or select the desired indicator and click 'OK'.

MaxGauge		
rds S	CPUUsilization Threads_running V Threads_connected V Innodb buffer pool read requests V Innodb buffer pool reads	V Innodb row lock currents waits V Innodb rows DML & read V Replication delay
< 00:00:00 >	12 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
2016 SUN MON THE WED THU FRE SAT	Stat All Stat Walk Lock Tree Cloud Watch Parameter Alarm Slow Query Threads	12/06/09 14/06/09 14/06/09 14/06/09 22/06/09 22/06/09 22/06/09 22/06/09 22/06/09
< 29 > // // // // // // // // // // // // /	Change Stat	🗆 🗙
1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Constanting     Constanti	 ■ mal.,dat, mat.,mat. ■ mal.,mat.,mat.
	a hann an the second se	Sandalak iny mének alak kénerené konstruktion a névelépedek élek kénerené diti névelek kénérek interketek terme
≋ଥ Critical Werning 1,440 0	Image: An and a set of the set o	E store
	Filter by	
	Develop (Fill Process)     Develop (Fill Pr	90, Tel: Corrend Corellon 906 Seven Sales OperSaless OperSales OperSales OperSales

When you click on the blue square on the left of the performance indicator, it displays the all the logged values by time.

Innodb_buffer_pool_	reads			X
LogTime	Sigma	Diff(s)	Value/Se	
2014-08-18 00:00:00	5,522	640.00	10.67	
2014-08-18 00:01:00	5,522	43.00	0.72	
2014-08-18 00:02:00	5,522	7.00	0.12	
2014-08-18 00:03:00	5,522	263.00	4.38	
2014-08-18 00:04:00	5,522	13.00	0.22	
2014-08-18 00:05:00	5,522	1.00	0.02	
2014-08-18 00:06:00	5,522	5.00	0.08	
2014-08-18 00:07:00	5,522	0.00	0.00	
2014-08-18 00:08:00	5,522	0.00	0.00	
2014-08-18 00:09:00	5,522	0.00	0.00	
2014-08-18 00:10:00	5,522	0.00	0.00	
2014-08-18 00:11:00	5,522	1.00	0.02	
2014-08-18 00:12:00	5,522	0.00	0.00	
2014-08-18 00:13:00	5,522	0.00	0.00	
2014-08-18 00:14:00	5,522	0.00	0.00	
2014-08-18 00:15:00	5,522	0.00	0.00	
2014-08-18 00:16:00	5,522	0.00	0.00	
2014-08-18 00:17:00	5,522	1.00	0.02	
2014-08-18 00:18:00	5,522	0.00	0.00	
2014-08-18 00:19:00	5,522	0.00	0.00	
2014-08-18 00:20:00	5,522	0.00	0.00	
2014-08-18 00:21:00	5,522	0.00	0.00	
2014-08-18 00:22:00	5,522	0.00	0.00	
2014-08-18 00:23:00	5,522	0.00	0.00	
2014-08-18 00:24:00	5,522	0.00	0.00	
2014-08-18 00:25:00	5,522	0.00	0.00	
2014-08-18 00:26:00	5,522	0.00	0.00	
2014-08-18 00:27:00	5,522	2.00	0.03	
2014-08-18 00:28:00	5,522	0.00	0.00	
2014-08-18 00:29:00	5,522	0.00	0.00	
2014-08-18 00:30:00	5,522	0.00	0.00	Ŧ

#### All Stat

Provides all the performance indicators provided in MySQL.

← Stat	All Stat Wait Lock Tree	O/S Stat	Paramet	je	er Error & OS Log Alarm Slo
	Stat Name	Value/Sec	Diff(s)		Stat Name
Com_show_create	func	0.0	*		Please select it by double-clicking the left
Com_set_option		1.3			
Performance_scher	ma_thread_classes_lost	0.0			
Innodb_data_read	s	0.0			
user cpu		0.4			
Innodb_log_write_	requests	0.1			
Qcache_not_cache	d	0.9			
Key_blocks_used		0.0			
Innodb_buffer_poo	ol_read_ahead	0.0			
Com_xa_start		0.0			
Performance_scher	ma_table_handles_lost	0.0			
Select_range		0.0			
Slow_launch_threa	ids	0.0			
Select_range_chec	k	0.0			
Com_alter_tablesp	bace	0.0			
Com_replace		0.0			
Com_uninstall_plu	gin	0.0			
Innodb_buffer_poo	ol_wait_free	0.0			
Com_drop_event		0.0			
Com_call_procedu	re	0.0			
Com_show_binlogs	5	0.0			
Com_rollback		0.1			
Innodb_data_fsynd	3	0.1			
Com_ha_open		0.0			
Not_flushed_delay	ed_rows	0.0			
•			<b>b</b>		

#### **Performance Indicator Area**

Stat	Performance Indicator Name
Value/sec(s)	The difference value of previous time and current time per second.
Diff(s)	Difference value of previous time and the current time.
Sigma(s)	Cumulative Value

#### Wait

Provides all the wait information provided in MySQL.

		Max: 2.82											
,	ait/synch/mutex class		wait/synch/rwlock class	4		wait/synch/con	nd class		w	ait/ic/file clas	8		
Stat Name	Value/sei Diff(s) Sigm	n(s) Stat Name	Value/sei Diff(s)	Sigma(s)	Stat Name	Value/sei Dit	ff(s)	Sigma(s)	Stat Name	Value/ser I	Diff(s)	Sigma(s)	
synch/mutex	0.00 0	0 wait/synch/rwlos	¢ 0.00 0	0	wait/synch/cond	0.00	0	0	wait/ic/file	2.82	169	4,640	
									wait/io/file/csv/metadata	0.02	0	0	
									wait/ic/file/innodb/innodb	2.25	135	1,894	
									wait/io/file/innodb/innodb	0.55	33	2,741	
									wait/ic/file/mytsam/dfile	0.00	0	2	
									wait/io/file/mytsam/kfile	0.00	0	0	
									wait/io/file/sql/FRM	0.00	0	0	

#### Lock Tree

The Lock Tree screen displays the relationship between the Lock Holder sessions and the Waiter sessions in a tree format, and provides the Mode, SQL Text, and Wait Time information. This screen is configured the same as the Real-Time Lock Tree screen.

Stat All Stat	Wait	Lock Tree	Cloud Watch	Paramete	ar Alarm	Slow Q	Jery Th	reads Dea	d Lock In	nodb Status		
6 4 2 0			Max: 3.00									Al Day Look
Lock Trx ID	id	Lock holder Trx ID	Lock Mode	Lock Type	Lock Table	Lock Page	Lock Rec	User Name	Elapsed Time(s)	Host Name	DB Name	SQL Text
a 🔁 2016-04-05 03:24:00												
😑 🖼 (Holder)179594504	50	Holder	x	RECORD	"tpcc", "wareho		8	2 root	5	52.196.1.173:5	tpoc	SELECT o_id, o_carrier_id, o_entry_d INTO os_o_id, os_o_carrier_id, os_entdate FROM (SELECT o_id, o_
- 🖂 179594509	44	179594504	х	RECORD	'tpcc', 'wareho		3	2 root	5	52.196.1.173:5	tpoc	UPDATE warehouse SET w_ytd = w_ytd + p_h_amount WHERE w_id = p_w_id
- 🔁 179594505	45	179594504	х	RECORD	'tpoc'. 'wareho		3	2 root	9	52.196.1.173:5	tpcc	UPDATE warehouse SET w_ytd = w_ytd + p_h_amount WHERE w_id = p_w_id
- 🖂 179594506	46	179594504	х	RECORD	'tpcc', 'wareho		3	2 root	9	52.196.1.173:5	tpoc	UPDATE warehouse SET w_ytd = w_ytd + p_h_amount WHERE w_id = p_w_id
- 179594519	47	179594504	х	RECORD	'tpoc', 'wareho		1	2 root	5	52.196.1.173:5	tpcc	UPDATE warehouse SET w_ytd = w_ytd + p_h_amount WHERE w_id = p_w_id
179594558	49	179594504	х	RECORD	'tpoc', 'wareho		3	2 root	3	52.196.1.173:5	tpoc	UPDATE warehouse SET w_ytd = w_ytd + p_h_amount WHERE w_id = p_w_id

#### CloudWatch

Provides metrics information provided in CloudWatch

Stat All Stat Wait Lock Tree Cloud Watch Parameter Alarm Slow Quer	ery Threads Dead Lock Innodb Status	
150M	Rec (112) # 7	eableHemory apDsage
50M		
0		
2 15 Mee 1.85		Resettors WriteIOP5
	and the second	
		haranaa
New: 0.22 0.2 0.15		ReadLatency WriteLatency
6.1		
0		
7500 5000 Lucia - 1 Lucia -	Hase 7782.53	dThroughput teThroughput
0		
400		

#### Parameter

Provides parameter information. Parameter information is logged once a day.

+ Stat	All Stat Wait	Lock Tree	O/S Stat	Parameter	Error & OS Log	Alarm	Slow Query	Threads	Dead Lock	Innodb Status
	Variable name						Value			
autocommit			ON							
automatic_sp_privilege	5		ON							
auto_increment_increm	ent		1							
auto_increment_offset			1							
back_log			50							
basedir			/usr/local/mysql							
big_tables			OFF							
binlog_cache_size			32768							
binlog_direct_non_tran	sactional_updates		OFF							
binlog_format			STATEMENT							
binlog_stmt_cache_size			32768							
bulk_insert_buffer_size			8388608							
character_sets_dir			/usr/local/mysql/sha	ire/charsets/						
character_set_client			utf8							
character_set_connection	on		utf8							
character_set_database			utf8							
character_set_filesyste	m		binary							
character_set_results										
character_set_server			utf8							
character_set_system			utf8							
collation_connection			utf8_general_ci							
collation_database			utf8_general_ci							
collation_server			utf8_general_ci							
completion_type			NO_CHAIN							
concurrent_insert			AUTO							

#### Alarm

In the event alarms are generated for the indicators for which threshold values have been set up in the Admin's Alarm Setup, the alarm details of the corresponding time will be logged. You can check the alarm time and details through the Performance Analyzer.

> When you find red (or yellow) points on the graph, it means that alerts have been generated for the corresponding time according to the threshold values set by the user.

100											Max: 100.00
											52 🔳 CPU
50											
00:00:00	02:00:00	04:00:00	06:00:00	0R:00:00	10:00:00	12:00:00	14:00:00	16:00:00	18:00:00	20:00:00	22:00:00

2. Click on the corresponding time and go to the Alarm Tab and you will find the details of alarms generated as shown below.

ype	All		00:00	✓ Recovery - Row Recovery - Server Clear	r Filter			S (	Download   📇
	Check?	Level	ServerID	Event Name	Event Value	Description	Log Time 🔻	Recovery Time	Reason
1	NO Check	CRITICAL	225	Bytes_sent	5266		2015-01-26 01:00:55		
2	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:55		
3	NO Check	CRITICAL	225	CPU	50		2015-01-26 01:00:55		
4	NO Check	CRITICAL	225	Bytes_sent	5267		2015-01-26 01:00:50		
5	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:50		
6	NO Check	CRITICAL	225	CPU	50		2015-01-26 01:00:50		
7	NO Check	CRITICAL	225	Bytes_sent	4544		2015-01-26 01:00:45		
8	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:45		
9	NO Check	CRITICAL	225	CPU	57		2015-01-26 01:00:45		
10	NO Check	CRITICAL	225	x Slow Query Query Time	30	select sleep(30)	2015-01-26 01:00:42		
11	NO Check	CRITICAL	225	Bytes_sent	4931		2015-01-26 01:00:40		
12	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:40		
13	NO Check	CRITICAL	225	CPU	53		2015-01-26 01:00:40		
14	NO Check	CRITICAL	225	Bytes_sent	5237		2015-01-26 01:00:35		
15	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:35		
16	NO Check	CRITICAL	225	CPU	50		2015-01-26 01:00:35		
17	NO Check	CRITICAL	225	Bytes_sent	7047		2015-01-26 01:00:30		
18	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:30		
19	NO Check	CRITICAL	225	CPU	53		2015-01-26 01:00:30		
20	NO Check	CRITICAL	225	Bytes_sent	4011		2015-01-26 01:00:25		
21	NO Check	WARNING	225	active memory(%)	67		2015-01-26 01:00:25		
22	NO Check	CRITICAL	225	CPU	50		2015-01-26 01:00:25		
23	NO Check	CRITICAL	225	Bytes_sent	4788		2015-01-26 01:00:20		

#### **Slow Query**

Provides the Slow Query information. Displays the slow queries within the 1 minute of the time period searched with an X symbol. You can select a specific segment with a mouse drag and navigate to its details to use the Plan and Thread Tracking function.

#### (X-View : Slow query 1minute Data )

Stat All Stat W	ait Lock Tree 0	/5 Stat Parameter	Error Log Alarm	Slow Query	Session List	Dead Lock I	nnodb Status	Database Size Info	Slave Lag	
X-View Detail View	1									
Start Time 00:00:07	▼ T0 00:00:16 ▼	Server ID	~	Query Time	5 🗘 ~ (be	etween) 12	Rows Exami	ined >=		
User Host %		SQL Text %						ок		
LogTime	Start Time	Us	er Host	Query Time	Lock Time	Rows Sent	Rows Examined	Server ID	SQL Text	
2014-08-18 00:00:14.0	2014-08-18 00:00:07.0	mysql[mysql] @ [192.1	68.123.200]	00:00:05	00:00:00	1	0	0 SEI	LECT '2014-08-18 00:00:08.085' , sleep(5.246234176270949);	*
2014-08-18 00:00:16.0	2014-08-18 00:00:08.0	mysql[mysql] @ [192.1	68.123.200]	00:00:06	00:00:00	1	0	0 SEI	LECT '2014-08-18 00:00:08.701' , sleep(6.715490132262842);	
2014-08-18 00:00:16.0	2014-08-18 00:00:08.0	mysql[mysql] @ [192.1	68.123.200]	00:00:07	00:00:00	1	0	0 SEI	LECT '2014-08-18 00:00:08.899' , sleep(7.223290440561625);	
2014-08-18 00:00:18.0	2014-08-18 00:00:08.0	mysql[mysql] @ [192.1	68.123.200]	00:00:08	00:00:00	1	0	0 SE	LECT '2014-08-18 00:00:09.767' , sleep(8.085649309466733);	
2014-08-18 00:00:18.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.1	68.123.200]	00:00:07	00:00:00	1	0	0 SEI	LECT '2014-08-18 00:00:09.487' , sleep(7.607283436476675);	
2014-08-18 00:00:18.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.1	68.123.200]	00:00:08	00:00:00	1	0	0 SEI	LECT '2014-08-18 00:00:09.453' , sleep(8.581919007467953);	
2014-08-18 00:00:18.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.1	68.123.200]	00:00:08	00:00:00	1	. 0	0 SEI	LECT '2014-08-18 00:00:09.334' , sleep(8.744749825536015);	
2014-08-18 00:00:20.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.1	68.123.200]	00:00:09	00:00:00	1	. 0	0 SEI	LECT '2014-08-18 00:00:09.833' , sleep(9.378171645592708);	
2014-08-18 00:00:20.0	2014-08-18 00:00:10.0	mysql[mysql] @ [192.1	58.123.200]	00:00:07	00:00:00	1	0	0 SEI	LECT '2014-08-18 00:00: 10.684' , sleep(7.90185204716796);	

#### **Details View Screen**

Plan Refresh F	ormat SQL								
1 SELECT 2 2014-06 3 , sleep(	-18 00:00:09.487 7.607283436476675	5);							
identifier	select_type	table	type	possible_keys	key	key_len	ref	rows	filtered
1	SIMPLE								



Start Time 00:00:07	▼ To 00:00:16 ▼	Server ID		<b>\$</b>	Query Time 5	🔷 ~ (betwe	een) 12	Rows Examined	i >= 🗧	2			
User Host %		SQL Text %						OK					
LogTime	Start Time	L	User Host		Query Time	Lock Time	Rows Sent	Rows Examined	Server ID		SQL Text		
2014-08-18 00:00:14.0	2014-08-18 00:00:07.0	mysql[mysql] @ [192.	2. 168. 123. 200	1	00:00:05	00:00:00	1	0	0 S	ELECT '2014-08-18 00:00:0	8.085' , sleep(5.246	5234176270949);	
2014-08-18 00:00:16.0	2014-08-18 00:00:08.0	mysql[mysql] @ [192.	2. 168. 123. 200	1	00:00:06	00:00:00	1	0	0 S	ELECT '2014-08-18 00:00:0	8.701', sleep(6.71	5490132262842);	
2014-08-18 00:00:16.0	2014-08-18 00:00:08.0	mysql[mysql] @ [192.	2. 168. 123. 200	]	00:00:07	00:00:00	1	0	0 S	ELECT '2014-08-18 00:00:0	8.899' , sleep(7.22	3290440561625);	
2014-08-18 00:00:18.0	2014-08-18 00:00:08.0	mysql[mysql] @ [192.	2. 168. 123. 200	]	00:00:08	00:00:00	1	0	0 S	ELECT '2014-08-18 00:00:0	9.767 , sleep(8.08	5649309466733);	
2014-08-18 00:00:18.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.	2. 168. 123. 200	]	00:00:07	00:00:00	1	Copy to Cliphon	0 5	ELECT '2014-08-18 00:00:0	9.487 , sleep(7.60)	7283436476675);	
2014-08-18 00:00:18.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.	2. 168. 123. 200	]	00:00:08	00:00:00	1	copy to capode	0 5	ELECT '2014-08-18 00:00:0	9.453', sleep(8.58)	1919007467953);	
2014-08-18 00:00:18.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.	2. 168. 123. 200	]	00:00:08	00:00:00	1	Save All	0 s	ELECT '2014-08-18 00:00:0	9.334' , sleep(8.74-	4749825536015);	
2014-08-18 00:00:20.0	2014-08-18 00:00:09.0	mysql[mysql] @ [192.	2.168.123.200	]	00:00:09	00:00:00	1	Thread Tracking	7 0 S	ELECT '2014-08-18 00:00:0	9.833' , sleep(9.378	8171645592708);	
2014-08-18 00:00:20.0	2014-08-18 00:00:10.0	mysql[mysql] @ [192.	2. 168. 123. 200	]	00:00:07	00:00:00	1	0	0 S	ELECT '2014-08-18 00:00:1	0.684 , sleep(7.90	185204716796);	
2014-08-18 00:00:20.0	2014-08-18 00:00:10.0	mysql[mysql] @ [192.	2. 168. 127										
2014-08-18 00:00:22.0	2014-08-18 00:00:10.0	mysql[mysql] @ [192.	2. 168. 12	eau Tracking									
2014-08-18 00:00:20.0	2014-08-18 00:00:11.0	mysql[mysql] @ [192.	E. 168. 12	apsedTime(s)	ID	Thread ID	Event ID	User	Host	Wait Time(ms)	Event Name	SQL Text	Comr
2014-08-18 00:00:20.0	2014-08-18 00:00:11.0	mysql[mysql] @ [192.	2. 168. 123	6	14580	0		mysql	192.168.123	3.20 0		SELECT '2014-0	
2014-08-18 00:00:22.0	2014-08-18 00:00:11.0	mysql[mysql] @ [192.	2. 168. 123	1	14580	0		mysql	192.168.123	3.20 0		SELECT '2014-0	
Threads Process L	ist		4										•

( Thread Tracking function on the Mouse Right-Click Menu 능 )

#### Threads

This function allows the user to enter specific time period and conditions to search the corresponding session information from the logged Threads list.

If you check the Last Elapsed Time condition, you can search for the SQL's Last Query Time executed by the same thread.

Threads De	etails Menu							
	TIME	Logged time search condition						
	HOST NAME	Connection HOST search condition						
	DB NAME	SCHEMA search condition						
Search Options	USER NAME	DB USER search condition						
	ID	ID search condition						
	ELAPSED TIME(S)	QUERY TIME search condition						
	SQL TEXT	SQL TEXT search condition						
LAST ELAPS	ED TIME	For long running threads, the logs may be duplicated and in such a case, you can use this option to check the last time. Grouped by THREAD ID + ID + SQL TEXT.						

Stat All Stat	Wait Lock T	ree 0/5 Stat	Parameter	Error Log	Alarm Slow Query	Session List Dea	ad Lock Inn	nodb Status Da	itabase Size Info	Slave Lag
From 00:00:00 Elapsed Time(s)	) ▼ To 00:01: >= ▼ 0	Host	t Name % ID		DB Name 9 SQL Text 9	6	User	Name % OK		🔲 Last Elapsed Time
ElapsedTime(s)	ID	Thread ID	Event ID	User	Host	Wait Time(ms)	Event Name	SQL Text	Command	Operation
7	14569	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	<u>*</u>
5	14587	0		mysql	192.168.123.20	0		SELECT '2014-0	Query	
1	14588	0		mysql	192.168.123.20	0		SELECT '2014-0	Query	
5	14589	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	
8	14583	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	
3	14582	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	
8	14585	0		mysql	192.168.123.20	0		SELECT '2014-0	Query	
7	14584	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	
3	14581	0		mysql	192.168.123.20	0		SELECT '2014-0	Query	
6	14580	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	
1	14590	0		mysql	192.168.123.20	0		SELECT '2014-0	Query	
3	14579	0		mysql	192.168.123.20	0		SELECT '2014-0	Query	
1	14591	0		mysql	192, 168, 123, 20	0		SELECT '2014-0	Query	-

#### Deadlock

This function allows you to check the DEADLOCK details. Logging occurs if any changes occur for every 1 minute.



#### **Innodb Status**

This function allows you to check the Innodb Status information. The data is logged every 5 minute.

+ Ill Stat Wa	it Lock Tree	0	/S Stat V Parameter V Error & OS Log V Alarm V Slow Query V Threads V Dead Lock Innodb Status Database Size Info	+
Log Time	Time	1		-
2015-01-26 21:09:00.0	2015-01-26 21:09:00	<b>A</b> 3	2015-01-26 21:09:00 71e078686700 INNODE MONITOR OUTPUT	
2015-01-26 23:29:00.0	2015-01-26 23:29:00	45	Per second averages calculated from the last 0 seconds	
2015-01-26 00:00:00.0	2015-01-26 00:00:00	6	BATYSDOTIND THDEAD	
2015-01-26 00:05:00.0	2015-01-26 00:05:00	8		
2015-01-26 00:10:00.0	2015-01-26 00:10:00	10	srv_master_thread loops: ZoitoS srv_active_U srv_smutdown, ZisS srv_loie srv_master_thread log Flush and writes: Z5546	
2015-01-26 00:15:00.0	2015-01-26 00:15:00	11	SFIAAHINES	
2015-01-26 00:20:00.0	2015-01-26 00:20:00	13	CE NUT ADAY INCO. separately 2000	
2015-01-26 00:25:00.0	2015-01-26 00:24:59	15	GS WAIT ARRAY INFD: signal court 138659	
2015-01-26 00:30:00.0	2015-01-26 00:30:00	17	Mutex spin waits 115107, nounds 700-5003, US waits 13476 Mu-shared spin 41884, nounds 360-556, US waits 11681	
2015-01-26 00:35:00.0	2015-01-26 00:35:00	18	RW-excl spins 15199, rounds 332182, DS weits 4368 Spin rounds ner wit: 5 16 mitex 8 75 RW-excl 21 86 RW-excl	
2015-01-26 00:40:00.0	2015-01-26 00:40:00	20		
2015-01-26 00:45:00.0	2015-01-26 00:45:00	22		
2015-01-26 00:50:00.0	2015-01-26 00:50:00	23	2015-01-05-21:06:00 / Reback/9700 ++++ (1) TRANGATION:	
2015-01-26 00:55:00.0	2015-01-26 00:55:00	25	TRANSACTION 250146766, ACTIVE 0 sec inserting weal tables in use 1, locked 1	
2015-01-26 01:00:00.0	2015-01-26 01:00:00	27	LDDX WAIT 6 lock struct(s), hear size 1240, 7 row lock(s), undo log entries 3 WOOD thread Ld 520, 05, thread heard to OXIndMedRADD, expression to the set hear 127,0,0,1 were under a	
2015-01-26 01:05:00.0	2015-01-26 01:05:00	29	Note the add of a start and the owned water to get y the zonors to cannot zz.o.o. Hyset operate INSERT IMPORE. INTO hash processing that during the start and the start and the start and the start and the start	
2015-01-26 01:10:00.0	2015-01-26 01:10:00	30	vPLDcs (IHIG, pvslue, ILOgetine) *** (1) Waltine for His Look to BE granted:	
2015-01-26 01:15:00.0	2015-01-26 01:15:00	32	(RECORD LDCKS space id 3231 page no 5 n bits 264 index 'PRIMARY' of table 'exem', 'hash_processlist' /+ Partition 'p20150126' +/ trx id 250146766 lock mode S locks rec but not. Record lock bean on 19 PMS/ICM PECORD: n bitds 5: compact formet: info bits 0.	gap
2015-01-26 01:20:00.0	2015-01-26 01:20:00	34	0: Inn 8: hex 8c:284/5FY(20:556; asc # X): 6: 1: Inn 8: hex 8c:284/5FY(20:556; asc # X): 6:	
2015-01-26 01:25:00.0	2015-01-26 01:25:00	36	2: len (5; hex 0000248efrid) asc 3:	
2015-01-26 01:30:00.0	2015-01-26 01:29:59	37	3 ten f; nex cDuuudpcruude; asc 4 ten 30 hex 706/734877255733420617374657220643330203139322e3136382e3132; asc postgres: aster d30 192,168,12; (total 47 bytes);	
2015-01-26 01:35:00.0	2015-01-26 01:35:00	39	+++ (2) TRANSACTION:	
2015-01-26 01:40:00.0	2015-01-26 01:40:00	41	TRANSACTION 250145765, ACTIVE 0 sec inserting weed tables in use in the control of the control o	
2015-01-26 01:45:00.0	2015-01-26 01:45:00	43	5 lock struct(s), head size 1248, 4 row lock(s), updo log entries 2	
2015-01-26 01:50:00.0	2015-01-26 01:50:00	44	(MYSL thread id 524, US thread handle UK/Hedac/37UU, query id 2/815US/ idcainost 127.U.U.1 mysql update (MSERT IGNOE IND hash_processiist (hid, value, logtime)	•
2015-01-26 01:55:00.0	2015-01-26 01:54:59	■ 46 42		С.

#### To find out more about MaxGauge or If you have interesting about this product, contact MaxGauge.

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#### ABOUT US

MaxGauge, INC is a solution based technology company that has been providing database optimization and tuning services since 2001 with our software solution. We have served 450 clients across a wide range of industries including finance, manufacturing, government, healthcare, telecommunication, etc.