ZABBIX MEETUP ONLINE '21

OUT OF THE BOX DATABASE MONITORING

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CLASSIC ODBC MONITORING

WHAT IS ODBC

- Standard application programming interface (API) for accessing database management systems (DBMS).
- Drivers exist for most DBMSs:
  - Oracle
  - PostgreSQL
  - MySQL
  - Microsoft SQL Server
  - Sybase ASE
  - SAP HANA
  - DB2
- Because different technologies have different capabilities, most ODBC drivers do not implement all functionality defined in the ODBC standard

WHAT TO MONITOR

Monitor any possible database performance metrics and incidents using the ready-to-use Zabbix templates.

Typical areas to monitor:

- Database performance
- Database engine availability
- Configuration changes

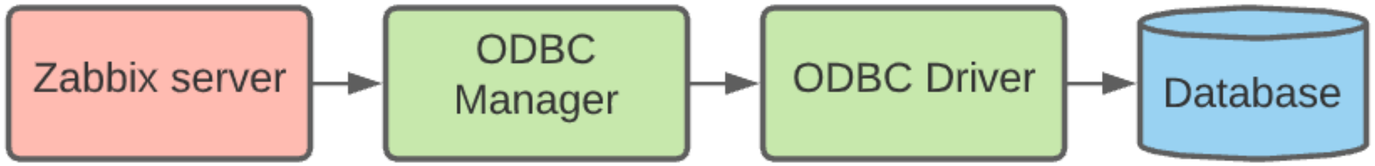
See the full list of metrics in template descriptions.

HOW DOES IT WORK

No direct connection to the databases by Zabbix, queries are sent to ODBC Manager for processing, which loads the ODBC Driver to connect to database.

Timeout parameter is used as the ODBC login timeout

Zabbix does not limit the query execution time



Two configuration files are used for this process

- odbc.ini – holds a list of installed ODBC database drivers
- odbcinst.ini – holds definitions of data sources

WHERE TO START – CLASSIC WAY

- Install relevant ODBC driver

```
# yum -y install unixODBC unixODBC-devel
```

- Modify ODBC driver configuration files

odbc.ini

```
[root@localhost ~]# cat /etc/odbc.ini
[MySQL]
Description=NewDatabase
Driver=MariaDB
Server=localhost
User=root
Password=VerySecurePassword
Port=3306
Database=DatabaseName
```

odbcinst.ini

```
[root@localhost ~]# cat /etc/odbcinst.ini
[MySQL]
Description=ODBC for MySQL
Driver=/usr/lib/libmyodbc5.so
Setup=/usr/lib/libodbcmyS.so
Driver64=/usr/lib64/libmyodbc8a.so
Setup64=/usr/lib64/libmyodbc8a.so
FileUsage=1
```

WHERE TO START – CLASSIC WAY

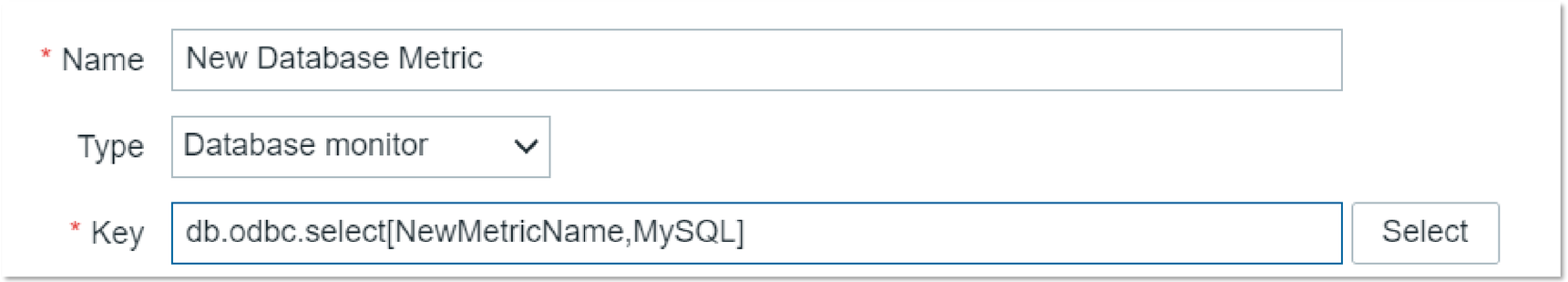
- Test the ODBC configuration using isql

```
[root@localhost ~]# isql MySQL
+---------------------------------------+
| Connected!                            |
|                                       |
| sql-statement                         |
| help [tablename]                      |
| quit                                  |
|                                       |
+---------------------------------------+
SQL>
```

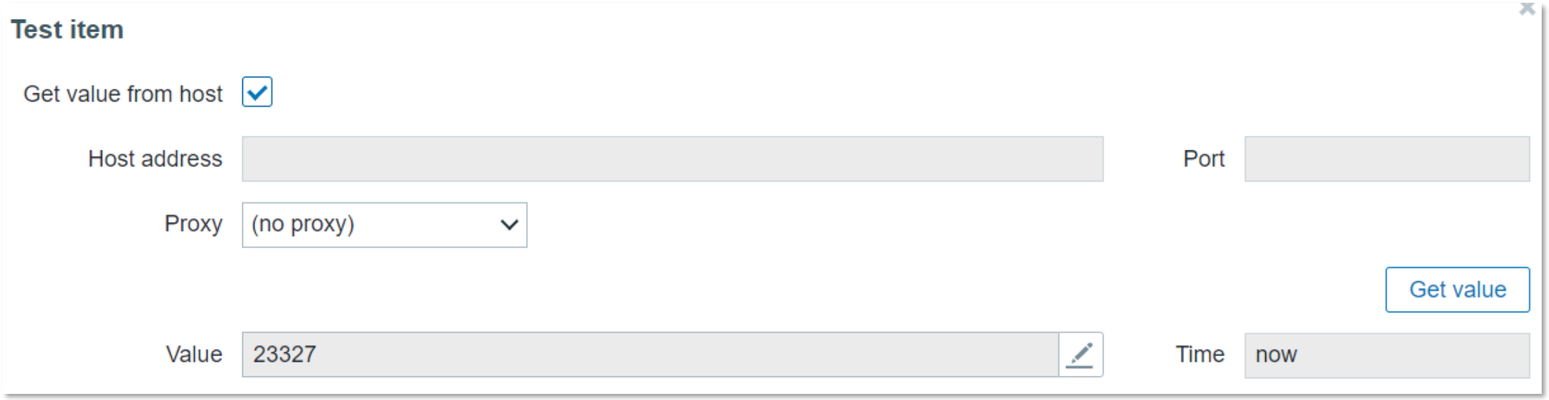
```
SQL> select itemid from items where
hostid=10084 limit 1;
+---------------------+
| itemid              |
+---------------------+
| 23327               |
+---------------------+
SQLRowCount returns 1
1 rows fetched
SQL>
```

WHERE TO START – CLASSIC WAY

- Create “Database monitor” item



- Specify the query needed
- Test the item, enjoy the metrics!



ODBC TEMPLATES

Assign a template

Name ▲	Hosts	Applications	Items	Triggers	Graphs	Dashboards	Discovery	Web
MSSQL by ODBC	Hosts	Applications 2	Items 70	Triggers 24	Graphs 17	Dashboards	Discovery 6	Web
MySQL by ODBC	Hosts 1	Applications 2	Items 41	Triggers 11	Graphs 6	Dashboards 1	Discovery 2	Web
Oracle by ODBC	Hosts	Applications 2	Items 73	Triggers 17	Graphs 7	Dashboards	Discovery 5	Web

Execute the discovery rules

Databases discovery: MySQL: Size of database mysql	db.odbc.select[mysql_size,"{$MYSQL.DSN}"]	5m	7d	123d	Database monitor	MySQL	Enabled
Databases discovery: MySQL: Size of database performance_schema	db.odbc.select[performance_schema_size,"{$MYSQL.DSN}"]	5m	7d	123d	Database monitor	MySQL	Enabled
Databases discovery: MySQL: Size of database sys	db.odbc.select[sys_size,"{$MYSQL.DSN}"]	5m	7d	123d	Database monitor	MySQL	Enabled

Check the latest data

MySQL: Buffer pool efficiency mysql.buffer_pool_efficiency	1m	7d	123d	Calculated	2021-03-12 02:31:34	0.00173 %	-0.0000001725 %	Graph
MySQL: Buffer pool utilization mysql.buffer_pool_utilization	1m	7d	123d	Calculated	2021-03-12 02:31:35	87.4756 %	-0.02441 %	Graph
MySQL: Bytes received mysql.bytes_received.rate		7d	123d	Dependent i…	2021-03-12 02:31:31	2.22 KBps	+49.0792 Bps	Graph

WHERE TO FIND TEMPLATES

- Fresh installation of Zabbix
- https://git.zabbix.com/projects/ZBX/repos/zabbix/browse/templates
- https://www.zabbix.com/integrations

- https://share.zabbix.com/

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SYNTHETIC MYSQL MONITORING

PREPARATION

- Create new UserParameters

```
UserParameter=mysql.ping[*], mysqladmin -h"$1" -P"$2" ping
UserParameter=mysql.get_status_variables[*], mysql -h"$1" -P"$2" -sNX -e "show
global status"
UserParameter=mysql.version[*], mysqladmin -s -h"$1" -P"$2" version
UserParameter=mysql.db.discovery[*], mysql -h"$1" -P"$2" -sN -e "show
databases"
```

- Make sure the commands work
- Create .my.cnf under /var/lib/zabbix with the following content

```
[client]
user='zbx_monitor'
password='<password>'
```

- Confirm that user has necessary permisions to access DB
- Use zabbix_get utility to test the UserParameter keys
- If everything is working, assign MySQL by Zabbix agent template

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DB MONITORING WITH ZABBIX AGENT 2

ZABBIX AGENT 2

Zabbix agent 2 – new and improved version of Zabbix agent

Features:

- Custom intervals with active checks
- Written in Go
- Optimized
- Plugins
- Supports older configuration files

Installation:

```
# yum -y install zabbix-agent2
```

WHY ZABBIX AGENT 2

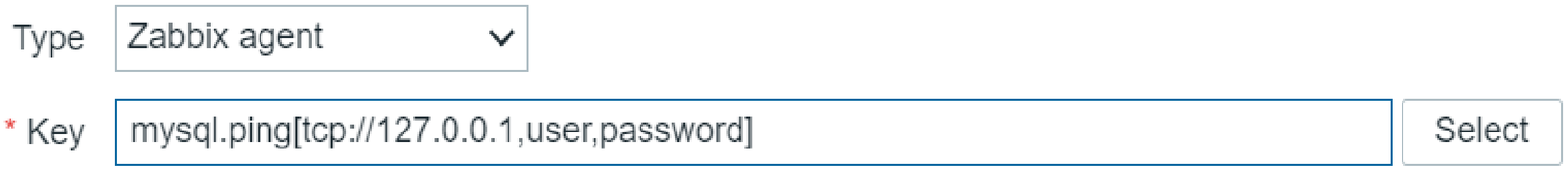
- No need to install ODBC drivers because plugins do all the work.

- Plugins are also written in GO language
- Out of the box DB monitoring plugins:
  - MySQL
  - Oracle
  - PostgreSQL
- Templates for agent 2

Name ▲	Hosts	Applications	Items	Triggers	Graphs	Dashboards	Discovery	Web
MySQL by Zabbix agent 2	Hosts	Applications 2	Items 41	Triggers 11	Graphs 6	Dashboards 1	Discovery 2	Web
Oracle by Zabbix Agent 2	Hosts	Applications 2	Items 77	Triggers 16	Graphs 7	Dashboards	Discovery 5	Web
PostgreSQL Agent 2	Hosts	Applications 2	Items 60	Triggers 4	Graphs	Dashboards 1	Discovery 1	Web

CONFIGURATION

- Two ways to configure:
  - keys' parameters in frontend



  - named sessions in zabbix_agentd2.conf (case sensitive)

```
Plugins.Mysql.Sessions.Prod.Uri=tcp://192.168.1.1:3306
Plugins.Mysql.Sessions.Prod.User=<UserForProd>
Plugins.Mysql.Sessions.Prod.Password=<PasswordForProd>
```

- Create an item or apply a template
- Check available MySQL related item keys documentation page

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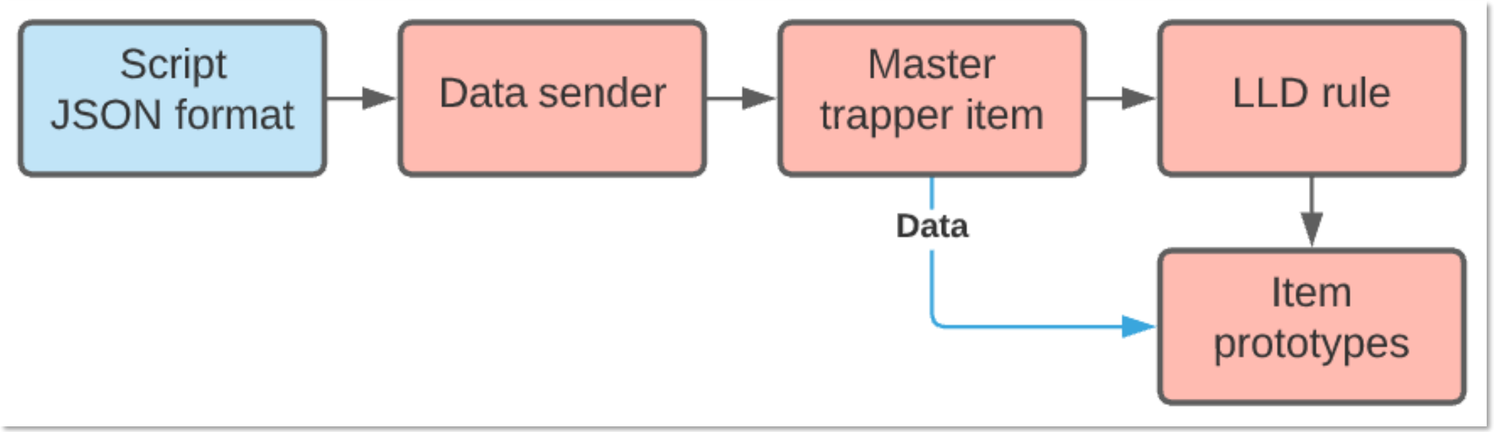
LLD FOR DB MONITORING

WHY LLD

- Automatically creates items, triggers, and graphs for different entities on a host.
- Parses data, received in Zabbix-specific JSON format
- Different sources can be used:
  - Built in discovery keys
  - Dependent on a built-in item key
  - Dependent on a custom script/custom UserParameter

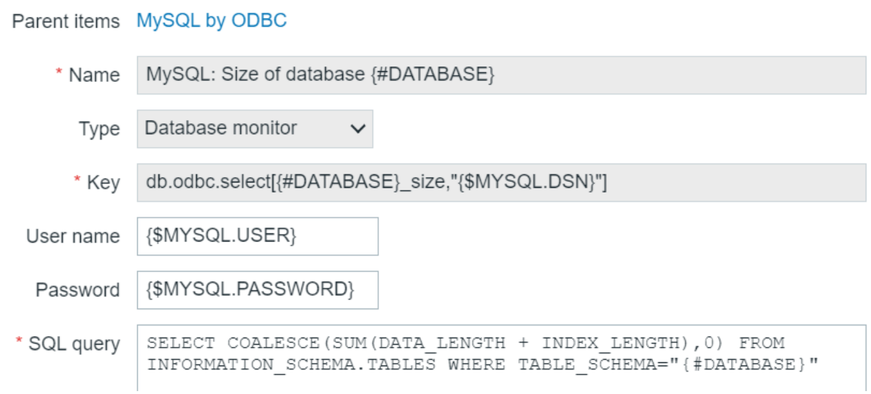


HOW TO CONFIGURE CUSTOM LLD

- Decide on the payload delivery method (script, sender,UserParameter).
- Make sure payload is in the following format:

```
[{"{#DATABASE}":"information_schema"},{"{#DATABASE}":"mysql"},{"{#DATABASE}":"performance_schema"},{"{#DATABASE}":"sys"},{"{#DATABASE}":"zabbix"}]
```

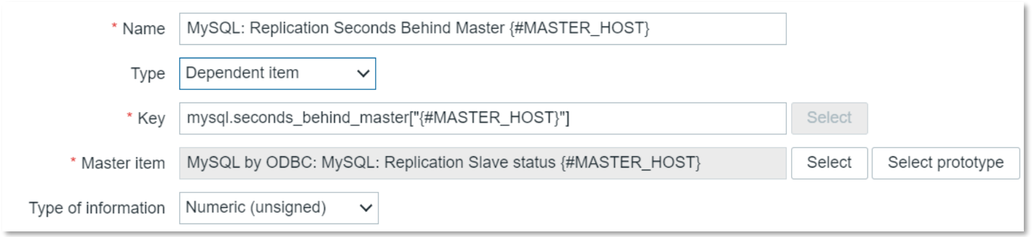
- Create LLD rule with type according to delivery method.
- Test the rule, if possible.
- Create filters or overrides, if required.
- Create prototypes.

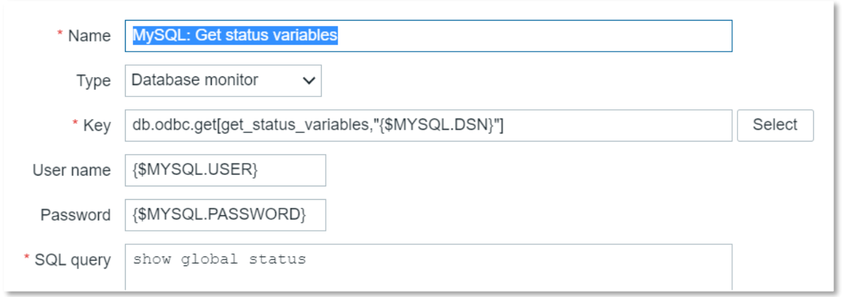


EASY WAY - TEMPLATES

- Modify LLD rules of the official templates
  - Modify/Create new entities
  - Clone the templates
  - Refer to templated discovery rule configuration

Zabbix server	MySQL by ODBC: Databases discovery	Item prototypes 1	Trigger prototypes	Graph prototypes	Host prototypes	db.odbc.discovery[databases,"{$MYSQL.DSN}"]	1h	Database monitor	Enabled
Zabbix server	MySQL by ODBC: Replication discovery	Item prototypes 4	Trigger prototypes 4	Graph prototypes	Host prototypes	db.odbc.discovery[replication,"{$MYSQL.DSN}"]	1h	Database monitor	Enabled





MSSQL: Get performance counters: MSSQL DB '{#DBNAME}': Active transactions	mssql.db.active_transactions["{#DBNAME}"]	7d	365d	Dependent item
MSSQL: Get performance counters: MSSQL DB '{#DBNAME}': Data file size	mssql.db.data_files_size["{#DBNAME}"]	7d	365d	Dependent item
MSSQL: Get performance counters: MSSQL DB '{#DBNAME}': Log bytes flushed per second	mssql.db.log_bytes_flushed_sec.rate["{#DBNAME}"]	7d	365d	Dependent item

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QUESTIONS?

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THANK YOU!

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