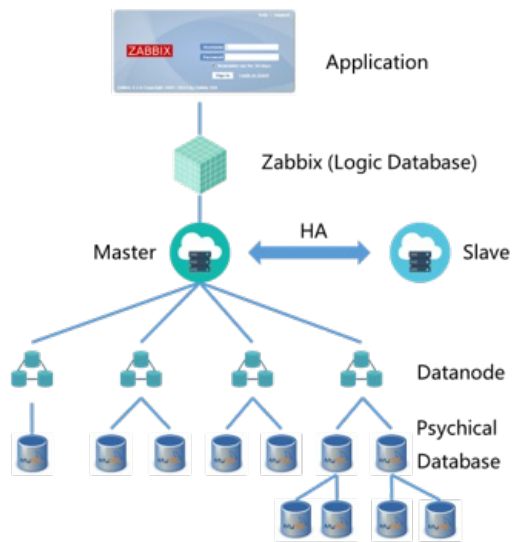


HotDB For Zabbix(Standard) Installation

Introduction



HotDB For Zabbix (Standard) Architecture

HotDB for Zabbix (Standard) is a distributed database solution especially used under Zabbix 2.2/3.0/3.2.

It can provide centralized database experience under distributed database environment.

- It can monitor more than 100,000 devices and application services(more than 500,000 NVPS).
- It can scale up database storage ability to more than 64TB.
- There's no need to change any code in Zabbix.
- HotDB for Zabbix(Standard) has already divided tables into different databases and also provides auto-installation script.

Server Parameter Recommendation

Usage	Amount	Server parameter Recommendation
HotDB-Server	1	Memory : >32G Disk : >50G available space
MySQL	4	Memory: >60G Disk : according to monitor

Installation

1. Packet Decompression

You need to download and extract two packages below:

```
tar zxvf hotdb-for-zabbix-rpm.tar.gz
tar zxvf hotdb-for-zabbix-v2.5.8_user.tar.gz
```

```
-rw-r--r-- 1 root root 311609316 Jun 14 16:50 hotdb-for-zabbix-rpm.tar.gz
drwxr-xr-x 5 root root 4096 May 24 17:40 hotdb-for-zabbix-v2.5.8
-rw-r--r-- 1 root root 52142195 Jun 14 16:50 hotdb-for-zabbix-v2.5.8_user.tar.gz
drwxr-xr-x 5 root root 4096 May 4 01:43 rpm
[root@hotdb52 test]#
```

Then move rpm folder to **hotdb-for-zabbix-v2.5.8** folder:

```
mv rpm hotdb-for-zabbix-v2.5.8
```

```
-rw-r--r-- 1 root root 311609316 Jun 14 16:50 hotdb-for-zabbix-rpm.tar.gz
drwxr-xr-x 6 root root 4096 Jun 14 16:56 hotdb-for-zabbix-v2.5.8
-rw-r--r-- 1 root root 52142195 Jun 14 16:50 hotdb-for-zabbix-v2.5.8_user.tar.gz
[root@hotdb52 test]#
```

Enter **hotdb-for-zabbix-v2.5.8** folder to start installation:

```
drwxr-xr-x. 2 root root 4096 3月 29 12:34 conf
drwxr-xr-x. 2 root root 4096 4月 6 16:38 hotdb
drwxr-xr-x. 2 root root 4096 4月 6 19:11 include
-rwxr-xr-x. 1 root root 1586 4月 6 19:12 install_hotdb_for_zabbix.sh
drwxr-xr-x. 4 root root 4096 3月 31 10:47 rpm
```

conf : yum source

hotdb : HotDB program files

include : script files

rpm: JDK rpm file and MySQL rpm

install_hotdbforzabbix.sh : installation script

2. Install MySQL

Execute installation script below on four MySQL databases:

```
sh install_hotdb_for_zabbix.sh
```

```
[root@localhost hotdb-for-zabbix]# sh install_hotdb_for_zabbix.sh
(1) install MySQL
(2) install HotDB
(3) exit
Please enter your Choice[1-3]:1
```

Enter one then continue

2.1 Judgement of successful installation

If you have installed correctly, you will get results below:

a. Check port 3306

```
netstat -tnlp | grep mysql
```

```
[root@localhost hotdb-for-zabbix]# netstat -tnlp | grep mysql
tcp        0      0  :::3306          :::*              LISTEN      5112/mysqld
```

b. Login MySQL and check user tables and database tables

```
select user,host from mysql.user;
```

```
root@localhost:(none) 5.6.29-log 07:06:29> select user,host from mysql.user;
+-----+-----+
| user      | host      |
+-----+-----+
| hotdb_config | %         |
| hotdb_datasource | %         |
| repl      | %         |
| root      | 127.0.0.1 |
| root      | localhost |
+-----+-----+
5 rows in set (0.00 sec)
```

```
show databases;
```

```
root@localhost:(none) 5.6.35-log 10:11:32> show databases
+-----+-----+
| Database |
+-----+-----+
| information_schema |
| db01         |
| mysql        |
| performance_schema |
| test         |
+-----+-----+
5 rows in set (0.00 sec)
```

Otherwise, you have failed to install MySQL databases.

3.Install HotDB

3.1 Modify IP address of MySQL

Find datasource_list file under include file fold, change 4 MySQL databases'IP information in format bellow:

```
1 192.168.56.201 3306 db01
2 192.168.56.202 3306 db01
3 192.168.56.203 3306 db01
4 192.168.56.204 3306 db01
```

From left to the right we can see: IP, port and database name. And you can only change the IP part.

INCORRECT IP ADDRESS WILL LEAD TO FAILURE OF HOTDB INSTALLATION.

3.2 Install HotDB

```
sh install_hotdb_for_zabbix.sh
```

Enter two then choose your Zabbix version (Default: v3.2)

```
[root@localhost hotdb-for-zabbix]# sh install_hotdb_for_zabbix.sh
(1) install MySQL
(2) install HotDB
(3) exit
Please enter your Choice[1-3]:2
Please select zabbix version for HotDB (Default Zabbix Version: 3.2.4)
You have 3 options for your Zabbix version select.
1: Select Zabbix version 2.2.17
2: Select Zabbix version 3.0.8
3: Select Zabbix version 3.2.4 (Default)
Enter your choice (1, 2 or 3):
```

If there's already a MySQL process that port is 3306,then you need to choose whether you want to use it as a repository.

```
Preparing... #####
package jdk-2000:1.7.0_80-fcs.x86_64 is already installed
there is a mysql process that port is 3306 , do you want to use this mysql as deplay database?
your choic(y/n):
```

There a logic database called Zabbix in HotDB for Zabbix, which can provide centralized database experience under distributed database environment. You need to choose whether to initialize it or you can create one by yourself.

```
Do you want to initialize Zabbix, please make your choice
Enter your choice (y/n): █
```

If you choose n, you will need to import Zabbix initial table and data, or migrate existed data in Zabbix database by yourself.

3.3 Judgement of successful installation

a. Check port 3323

```
netstat -tnlp | grep 3323
```

```
[root@localhost ~]# netstat -tnlp | grep 3323
tcp6      0      0 :::3323          :::*              LISTEN      14498/java
[root@localhost ~]# █
```

b. Log in

```
mysql -uroot -proot -P3323 -h127.0.0.1
```

```
[root@localhost ~]# mysql -uroot -proot -P3323 -h127.0.0.1
Warning: Using a password on the command line interface can be insecure.
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 2
Server version: 5.1.27-HotDB-Server-Zabbix HotDB Server by Hotpu Tech

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owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

root@127.0.0.1:(none) 5.1.27-HotDB-Server-Zabbix 11:26:46> █
```

3.4 HotDB Management (Web)

You can visit website to manage HotDB : <http://192.168.220.104:3324> (IP address here is HotDB's IP and we don't have English version)



Both username and password are "admin". Please use chrome or firefox.

HotDB for Zabbix has divided all the tables Zabbix used into 4 pieces, which we called datanode.

OTDB 数据库中间件 admin ZABBIX专用版

配置 用户信息 逻辑库 数据节点 数据源 故障切换 分片函数 分片函数参数 分片规则 表信息 子表信息

逻辑库管理

按逻辑库名称过滤...

逻辑库ID	逻辑库名称	物理表名称	数据节点	操作
1001	zabbix	acknowledges, actions, alerts, application_template, applications, auditlog, auditlog_details, autoreg_host, conditions, config, dbversion, dchecks, dhosts, drules, dservices, escalations, events, expressions, functions, globalmacro, globalvars, graph_discovery, graph_theme, graphs, graphs_items, group_discovery, group_prototype, groups, history, history_log, history_str, history_str_sync, history_sync, history_text, history_uint, history_uint_sync, host_discovery, host_inventory, hostmacro, hosts, hosts_groups, hosts_templates, housekeeper, httpstep, httpstepitem, httpstest, httpstestitem, icon_map, icon_mapping, ids, images, interface, interface_discovery, item_discovery, items, items_applications, maintenances, maintenances_groups, maintenances_hosts, maintenances_windows, mappings, media, media_type, node_cksum, nodes, opcommand, opcommand_grp, opcommand_hst, opconditions, operations, opgroup, opmessage, opmessage_grp, opmessage_usr, optemplate, profiles, proxy_autoreg_host, proxy_dhistory, proxy_history, regexps, rights, screens, screens_items, scripts, service_alarms, services, services_links, services_times, sessions, slides, slideshows, sysmap_element_url, sysmap_url, sysmaps, sysmaps_elements, sysmaps_link_triggers, sysmaps_links, timeperiods, trends, trends_uint, trigger_depends, trigger_discovery, triggers, user_history, users, users_groups, usrgroup, valuemaps, zabbix_installation_test, application_prototype, application_discovery, item_application_prototype, item_condition, opinventory, screen_user, screen_usrgroup, slideshow_user, slideshow_usrgroup, sysmap_user, sysmap_usrgroup, trigger_discovery_tmp, graph_discovery_tmp, ids_tmp, correlation, corr_condition, corr_operation, corr_condition_group, corr_condition_tag, corr_condition_tagpair, corr_condition_tagvalue, event_recovery, event_tag, problem, problem_tag, task, task_close_problem, trigger_tag	zadn01 zadn02 zadn03 zadn04	编辑 删除

首页 ← 上一页 当前第 1 页, 跳转 Go, 共 1 页 下一页 → 尾页

You can find all the tables here. MySQL databases are under datanodes. And you can install two MySQL databases under one datanode to keep high availability. You can set master-slave relationship in failover setting (the tab after datasource/MySQL database setting).

OTDB 数据库中间件 admin ZABBIX专用版

配置 用户信息 逻辑库 数据节点 数据源 故障切换 分片函数 分片函数参数 分片规则 表信息 子表信息

数据源管理

按数据源名称过滤...

添加数据源 删除数据源

ID	数据源名称	节点	主机名	端口	用户名	物理库	类型	状态	字符集	最大连接	初始连接	最大空闲连接	最小空闲连接	空闲检查周期(秒)	操作
1	ds_001	zadn01	192.168.56.101	3306	hotdb_datasource	db01	主库	可用	utf8	3000	5	6	5	600	编辑 删除
2	ds_002	zadn02	192.168.56.102	3306	hotdb_datasource	db01	主库	可用	utf8	3000	5	6	5	600	编辑 删除
3	ds_003	zadn03	192.168.56.103	3306	hotdb_datasource	db01	主库	可用	utf8	3000	5	6	5	600	编辑 删除
4	ds_004	zadn04	192.168.56.104	3306	hotdb_datasource	db01	主库	可用	utf8	3000	5	6	5	600	编辑 删除

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After you changed things in management, you need to press dynamic loading button to load information at HotDB-server.



Zabbix Data Migration

1. Statement

When exporting data from Zabbix, it is not recommended to modify Zabbix's configuration, template, and so on. If you want data from migration process to be retained in the new environment, then you need to open binlog in Zabbix's MySQL server, whose format is STATEMENT or MIXED (MIXED requires the database isolation level to be REPEATABLE-READ). After data import is complete, you need to perform optional data catch up steps.

As Zabbix use foreign key, and HotDB for Zabbix has not yet fully supported foreign key. To avoid such error while importing data, mysqldump order will be executed in several times, so the data is not derived in one transaction. Therefore, if there is an error about foreign key, you can ignore it or restart exporting data, you can also stop Zabbix service to export data. You may also notice that there will be a primary key conflict when catching up data, which also caused by data not derived in a transaction reasons, which can also be ignored.

2. Data Export

This section explains situation when Zabbix database use MySQL 5.6, any other MySQL version may require more or less necessary parameters when using the mysqldump command in the script.

Find script in `hotdb-server/conf/tool`, execute it and you will see parameters required:

```
[root@vm1 tmp]# sh zabbix_dump.sh
invalid input invalid mysqldumpcmd client command
```

Example

```
sh zabbixdump.sh
"mysqldump -h 127.0.0.1 -P 3306 -uroot -proot" zabbix /data
```

Parameter 1 : Require one mysqldump command that can connect Zabbix Database, which need MySQL connect information, such as IP/port or SOCKET address, username ,password. You need to use " "

Parameter 2 : The name of Zabbix database, default as Zabbix

Parameter 3 : File path of export data, default as /data

Since data export may take a long time, we suggest user use screen, then you will get result like below:

```
-rw-r--r-- 1 root root 48301 Dec 5 11:20 Zabbixdatadump20161205.sql
-rw-r--r-- 1 root root 10361 Nov 18 18:25 Zabbix_dump.sh
-rw-r--r-- 1 root root 90960 Dec 5 11:20 Zabbixschemadump20161205.sql
-rw-r--r-- 1 root root 2196863 Dec 5 11:20 Zabbixtemplatedump20161205.sql
```

- Zabbixschemadump20161205.sql is a table structure
- Zabbixtemplatedump20161205.sql is basic data, which cannot be imported concurrently
- Zabbixdatadump20161205.sql is monitor data, which has large volume so that we recommend to import concurrently

3. Data Import

You can login HotDB for Zabbix like the way you login MySQL.

For example

```
mysql -h 127.0.0.1 -P 3323 -u root -proot
```

Import data like the way below:(Zabbix should be configured and loaded successfully)

```
mysql -h 127.0.0.1 -P 3323 -u root -proot < Zabbixschemadump20161205.sql
mysql -h 127.0.0.1 -P 3323 -u root -proot < Zabbixtemplatedump20161205.sql
```

Since Zabbixdatadump20161205.sql has large volume so that we need to import it concurrently, execute scripts below and you will see sample command :

```
[root@vm1 tmp]# sh splitimport.sh
```

Example

```
sh splitimport.sh
"mysql -h 127.0.0.1 -P 3323 -uhotdb -photdb hotdb" /tmp/data.sql
```

Parameter 1 : The command to connect target MySQL to import data, which require MySQL connect information, such as IP/port or SOCKET path, username ,password and database name. These content needs " " symbol.

Parameter 2 : The name of exported SQL file

Drop Table: If you need to drop tables, please find the SQL file under *hotdb-server/conf/inisqlza**. The number after za is present for zabbix version.

For example

util.sql under ini_sql_za32 is to drop tables of zabbix 3.2

util.sql under ini_sql_za30 is to drop tables of zabbix 3.0

4. Data Catch Up

HotDB for Zabbix cannot execute binlog in row format so that binlog's format will be the main reason whether data can catch up successfully.

Data catch up will use mysqlbinlog command to parse binlog into SQL statements using literals, and HotDB for Zabbix will execute them.

4.1 Find binlog in Zabbixtemplatedump20161205.sql.

For example

```
[root@vm1 tmp]# grep "CHANGE MASTER TO" Zabbixtemplatedump20161205.sql
-- CHANGE MASTER TO MASTER_LOG_FILE='mysql-bin.000029',
MASTER_LOG_POS=120;
```

4.2 Binlog Parsing and Execute in HotDB for Zabbix


```
mysqlbinlog -R -h 127.0.0.1 -P 3306 -u root -proot --base64-output=decode-rows --skip-gtids --short-form --to-last-log --stop-nev
```

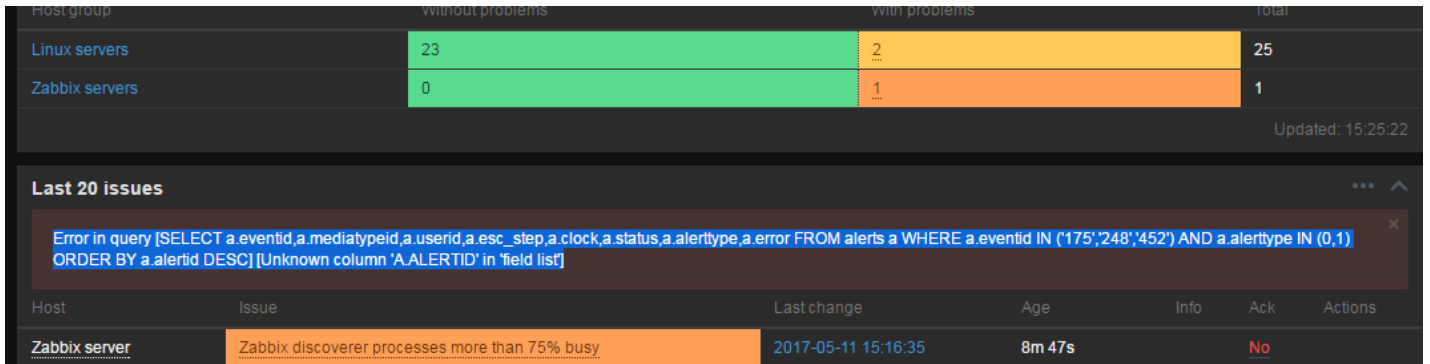
You need to replace **192.168.220.104** with the real IP address of HotDB.

```
--start-position=120 mysql-bin.000029
```

The binlog location here should be replaced with the real address, too.

FAQ

1. Why does this happen?



If you are using InnoDB tables, you should set this variable to 1 on all platforms to force names to be converted to lowercase.

If you have this problem. Please set **lower_casetablenames** as 1.

The solution below only suit for three situations here:

- HotDB does not have high availability
- MySQL does not have high availability
- MySQL databases are used all by HotDB for Zabbix

Solution

1. Change or add `lowercasetable_names=1` in every datasource, including my.cnf file
2. Stop Zabbix_Server to prevent partly submit (HotDB for Zabbix Standard version doesn't support strong consistency, partly submit may occur when database failover)
3. Restart all MySQL databases
4. Restart Zabbix_Server
5. Check whether problem has been solved