ZABBIX
5.4
RELEASE DAY!
ENGLISH

SCALABILITY IMPROVEMENTS

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MORE EFFICIENT DATABASE USE

- In the past not only database syncers, but also pollers were having a dedicated persistent connection to the database
- These connections were necessary for:
  - Calculated items and aggregate checks
  - Updating host availability status
Why it was decided to avoid these connections in Zabbix 5.4?

- Don’t work well with the default database configuration (PostgreSQL, Oracle). For example, max_connections in PostgreSQL is set to 100 by default
- Can cause locking
- Inefficient memory and CPU utilization
- It was impossible to fine-tune the number of connections
NEW WORKER PROCESSES

Since Zabbix 5.4 two new worker processes are introduced:

- History pollers
- Availability manager
NEW WORKER PROCESSES

/usr/sbin/zabbix_server: history poller #1 [got 0 values in 0.000008 sec, idle 1 sec]
/usr/sbin/zabbix_server: history poller #2 [got 2 values in 0.000186 sec, idle 1 sec]
/usr/sbin/zabbix_server: history poller #3 [got 0 values in 0.000050 sec, idle 1 sec]
/usr/sbin/zabbix_server: history poller #4 [got 0 values in 0.000010 sec, idle 1 sec]
/usr/sbin/zabbix_server: history poller #5 [got 0 values in 0.000012 sec, idle 1 sec]
/usr/sbin/zabbix_server: availability manager #1 [queued 0, processed 0 values, idle 5.016162 sec during 5.016415 sec]
HISTORY POLLERS

What they are used for:

☐ Calculated items
☐ Aggregate checks
☐ Several internal items (zabbix[*] item keys)
NEW CONFIGURATION PARAMETER

The StartHistoryPollers value should be increased if history pollers are too busy, but should be kept low if possible to avoid unnecessary connections to the database.

### Option: StartHistoryPollers
- Number of pre-forked instances of history pollers.
- Only required for calculated, aggregated and internal checks.
- A database connection is required for each history poller instance.
- Mandatory: no
- Range: 0-1000
- Default: StartHistoryPollers=5
In the past pollers, unreachable pollers, JMX pollers and the IPMI manager would update host availability directly in the database with a separate transaction for each host.

Now all processes queue host availability updates to the availability manager and that queue is flushed by the availability manager to the database every 5 seconds.
Since Zabbix 5.2 new trigger functions like trendavg, trendmax, etc. were introduced which operate on the trends data for long periods of time. Similarly to calculated items these triggers used database queries to obtain the necessary data.

In 5.4 the trend cache has been implemented. It stores the results of calculated trends functions. If the value is not available in the cache yet, Zabbix will query the database and update the cache.

Its effectiveness can be monitored using internal check: 
```
zabbix[tcache,cache,<parameter>]
```

It can be used to set the relevant TrendFunctionCacheSize parameter value.
NEW CONFIGURATION PARAMETER

✔️ The StartHistoryPollers value should be increased if history pollers are too busy, but should be kept low if possible to avoid unnecessary connections to the database.

### Option: TrendFunctionCacheSize
- Size of trend function cache, in bytes.
- Shared memory size for caching calculated trend function data.
- Mandatory: no
- Range: 128K-2G
- Default: TrendFunctionCacheSize=4M
Now it's possible to have as many database connections as you really need.

If you're using trend functions with triggers and large periods of time, these changes will benefit you by drastically decreasing the load on the database.
MORE SERVER RESILIENCY

☑ Proxies can keep a backlog that's very useful for the scenarios where the communication between the server and the proxy can break for some reason, e.g.:
   ☑ Server maintenance
   ☑ A remote site has lost the Internet access, etc.
☑ But when the communication restores, the proxies can easily overload the server, especially after a long downtime, and especially in large installations
MORE SERVER RESILIENCY

☑️ Since Zabbix 5.4 the server will let the proxies know if it’s busy and the proxies will throttle data sending
☑️ This change has also been backported to 5.0 and 5.2
THANK YOU!

QUESTIONS?