

Zabbix

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[Zabbix](#) is a free open source infrastructure monitoring software with a PHP front end. Features are:

- monitoring of: networks, servers, applications, services, cloud resources, storage devices, databases, virtual machines, telephony, ...
- web-based monitoring and administration
- performance and security checks
- distributed monitoring, up to thousands of nodes

- autodiscovery
- charting, trending, SLA reporting
- sending alerts via e-mail, SMS and Jabber
- data stored in a relational database

[Zabbix](#) ships with an API for developers that provides access to almost all functions in [Zabbix](#). It supports a two-way integration with most other software. The API can be used to integrate [Zabbix](#) functions into third-party software.

1 Debian Packages

1.1 Zabbix client

A `zabbix` client is called **agent** in `zabbix` lingo.

- `zabbix-agent`
- `zabbix-cli`
- `zabbix-frontend-php`

1.2 Zabbix server

- `zabbix-server-mysql` for MySQL/MariaDB
- `zabbix-server-pgsql` for PostgreSQL

1.3 Proxy and gateways

- `zabbix-proxy-mysql`
- `zabbix-proxy-pgsql`
- `zabbix-proxy-sqlite3`
- `zabbix-java-gateway`

2 Installing Zabbix on Debian 10 Buster

The following instructions will try to be as generic as possible. This guide will show how to install and configure the latest release (4.0.4) of [Zabbix](#) Server on Debian 10 with a MySQL (MariaDB) database, PHP for the front end and Apache Web Server 2 as the web interface. This is not the latest release that would run on Debian 10 Buster. Since this is the official version for Debian 10 Buster, updates will be available. However it is possible to install newer versions on Debian 10 Buster from the [Zabbix](#) web site.

2.1 Zabbix 4.0.4 Server

Install the [Zabbix](#) server with MySQL (MariaDB) support.

```
aptitude install zabbix-server-mysql
```

Secure the database server (if not already done). The questions are self-explanatory.

```
mysql_secure_installation
```

Create the database

```
mysql --defaults-extra-file=/etc/mysql/debian.cnf
CREATE DATABASE zabbix CHARACTER SET utf8 COLLATE utf8_bin;
CREATE USER 'zabbix'@'localhost' IDENTIFIED BY 'CHANGE_ME';
GRANT ALL PRIVILEGES ON `zabbix`.* TO 'zabbix'@'localhost';
FLUSH PRIVILEGES;
quit
```

Unfortunately the table definition of `host_inventory` has to be changed for the table to fit into the mariadb 10.3 dynamic table format. (see [row-size-too-large](#) for details)

Add the following two lines at the beginning of: `/usr/share/zabbix-server-mysql/schema.sql.gz`

```
SET GLOBAL innodb_default_row_format='dynamic';
SET SESSION innodb_strict_mode=ON;
```

And at about line 1280 change all `varchar()` definition within the table `host_inventory` with numbers smaller than 256 to 256 like so `varchar(256)`.

Populate the database

```
cd /usr/share/zabbix-server-mysql
zcat schema.sql images.sql data.sql | mysql zabbix --user=zabbix \
--password=CHANGE_ME
```

Add user database and password to `/etc/zabbix/zabbix_server.conf` and change user and permission of this file.

```
chown zabbix /etc/zabbix/zabbix_server.conf
chmod 640 /etc/zabbix/zabbix_server.conf
```

```
echo "DBName=zabbix" >> /etc/zabbix/zabbix_server.conf
echo "DBUser=zabbix" >> /etc/zabbix/zabbix_server.conf
echo "DBPassword=CHANGE_ME" >> /etc/zabbix/zabbix_server.conf
```

In case you use a firewall you have to open port `tcp/10051` . There is also the service `zabbix-server` for `firewalld` .

2.2 Zabbix 4.0.4 Front End

2.3 Timezone

Remember to specify a PHP date.timezone in `/etc/apache2/conf-available/zabbix-frontend-php.conf`

2.3.1 Securing Zabbix 4.0.4 PHP Front End

To restrict the directories allowed to be read by your [Zabbix](#) PHP front end, setting a PHP `open_basedir` directive is suggested.

Put this example in your `/etc/apache2/conf-available/zabbix-frontend-php.conf` , near the other `php_values`: (in **one** line, without the backslash)

```
php_admin_value open_basedir
↪ /usr/share/zabbix/:/var/lib/zabbix:/etc/zabbix:\
/usr/share/javascript:/usr/share/fonts
```

2.4 Setting Better Default Passwords

A one line command to set the `Admin` password.

```
PW=`/usr/bin/pwgen -y -N 1 $((8 + RANDOM % 12 ))|/usr/bin/perl -pe
↪ 'chomp'`; \
echo "$PW"; \
echo "update users set passwd=md5('$PW') where alias='Admin';"|mysql
↪ zabbix
```

A one line command to set the `guest` password.

```
PW=`/usr/bin/pwgen -y -N 1 $((8 + RANDOM % 12 ))|/usr/bin/perl -pe
↪ 'chomp'`; \
echo "$PW"; \
echo "update users set passwd=md5('$PW') where alias='guest';"|mysql
↪ zabbix
```

3 Zabbix 4.0.4 Client

The client in the [Zabbix](#) world is called `agent` . Installation is straight forward.

```
aptitude install zabbix-agent
```

Under Debian 10 Buster is the [Zabbix](#) client configured to use a [Zabbix](#) server on `localhost`. Of course this is seldom the case. To use a different server, add server IP to the entries of `Server` and `ServerActive` parameters inside the client configuration `/etc/zabbix/zabbix_agentd.conf`.

In case you use a firewall you have to open port `tcp/10050`. There is also the service `zabbix-agentd` for `firewalld`.

There are different ways to add a client to the [Zabbix](#) server. One method is to log into the web front end and select 'Configuration', 'Hosts' and press the blue button `Create host` in the upper right corner. Add a template via 'Configuration' -> 'Host' -> click on host name under name column -> 'Templates' (of that host).

4 Links

- [zabbix](#)
- [documentation](#)
- [row-size-too-large](#)

5 Critique Zabbix 4.0.4

While the installation of [Zabbix](#) is easy and straight forward and a lot of data can be collected easily with templates and nice graphs can be made visible, [Zabbix 4.0.4](#) (and likely others) suffers from architecture deficits, probably resulting from the very flexible data model.

- Automatic setup of Zabbix server templates differs from other servers
- Host groups do not allow to apply automatic template assignments
- Template assignments have to be done on a per host basis
- Not working/supported templates distributed (MySQL)
- Not working/supported templates can be chosen
- When chosen a not supported template [Zabbix](#) will not complain
- Working data queries are not always displayed, but only problems: seeing no problems, do not mean that there is no problem, as some [Zabbix](#) problems are discarded silently: this is a no go for a monitoring system (this forbids to use [Zabbix](#) as the only monitoring system for an installation)
- No easy default graph setup. All graphs have to be chosen for each host
- No default dashboard/ overview over working services/data collection

- Encryption not default setup
- Discovered hosts can not be added via web interface
- Maps are not updated automatically (and not added/updated from database)
- Difficult to add templates/ data queries (for inexperienced people)
- Number of unsupported items are displayed in dashboard, but no link and difficult to understand which item is not supported
- When adding a template to a host, not a button like “update” (as displayed under the form) but the link “add” inside the form has to be clicked: this breaks usability and is not intuitive. A button would be preferable.
- Naming of boxes are not intuitive: box 1 “Linked templates” and box 2 “Link new template”. Changing box 2 will update box 1. A different design with only 1 box would be better. Also the “add” link works as a **button** that do not add something, but link a template. How confusing can it be?
- Some hosts added to host groups are shown in the inventory, but others are not. This points to the fact that some concepts are not understandable via the web interface and that some data dependency concepts are implicit and can only be understood via a manual
- Most functions of the web interface have no default query, but need a manual query. While this clearly has the advantage of flexibility, junior admins would probably do not know what to query in the first place.
- Default query of Audit Report says ‘no data’
- Default query of Action log Report says ‘no data’
- No host specific reports
- When clicking a top level tab like “Monitoring” the sub level tab is updated, but not the page content and a second click on the sub level tab has to be performed. This is clearly a bug
- ...

Therefore one get the impression that the web interface in its fresh installed form is not programmed with the vision in mind to monitor computer systems but to query a database in as many as possible ways.

However, there are good preconfigured [Zabbix](#) instances that have a plethora of graphs, dash boards and other aggregated data points from which a system administrator can understand the situation (an not only the problems) of an installation/cluster. As a consequence, there is a huge added value, for a preconfigured [Zabbix](#) installation as some cluster administration stacks provide.

A word on [Zabbix](#) deployment. In case a preconfigured [Zabbix](#) server needs to be deployed to many sites or if it has to be set up for a certain hardware entity, like a rack or chassis (as a cluster entity for example), the [Zabbix](#) server configuration lies mostly in its database and not in from of configuration files. This means [Zabbix](#) has no separation of

configuration and process data. Therefore, if the configuration was only performed via the web interface, the content of the database has to be duplicated and host values/process data would need to be removed from the database for new hardware entities. This also would make [Zabbix](#) updates very difficult. The solution or an easy solution to this problem is not known to me, but seems like a major problem. Other monitor systems like [Icinga2](#) or [Nagios](#) which are configured via files can easily be distributed/cloned via git, puppet or other means, as they separate process data from configuration data.

6 History

Version	Date	Notes
0.1.3	2022-06-07	Client explanation, shell->bash
0.1.2	2020-12-27	Critique Zabbix 4.0.4
0.1.1	2020-12-18	Add hint for client configuration
0.1.0	2020-12-15	Initial release

7 Disclaimer of Warranty

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