



EXTENDED OUT OF THE BOX MONITORING WITH

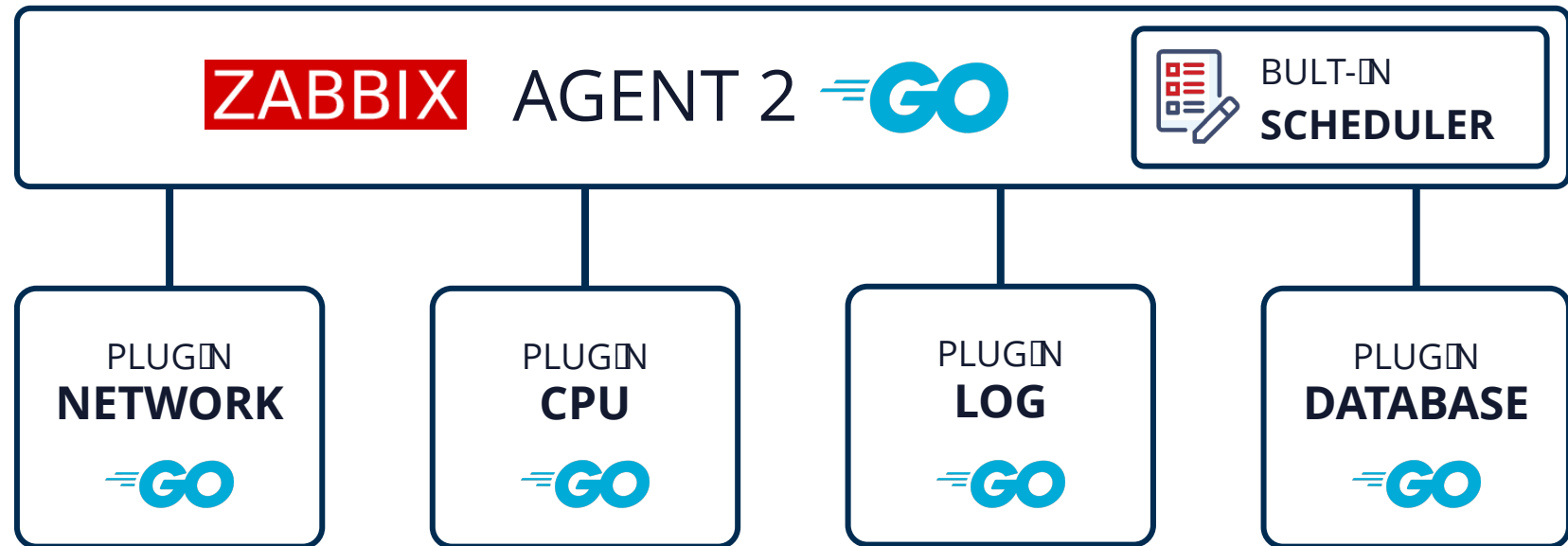
# AGENT 2


all our microphones are muted

ask your questions in Q&A, not in the Chat

use Chat for discussion, networking or applause

# AGENT 2 OVERVIEW




 scheduled/flexible intervals

 written in Go

 less TCP connections

 older configuration file support

 easily extendable

 out-of-the-box systemd monitoring

1

New Functionality



## Zabbix Agent 2

# NEW FUNCTIONALITY

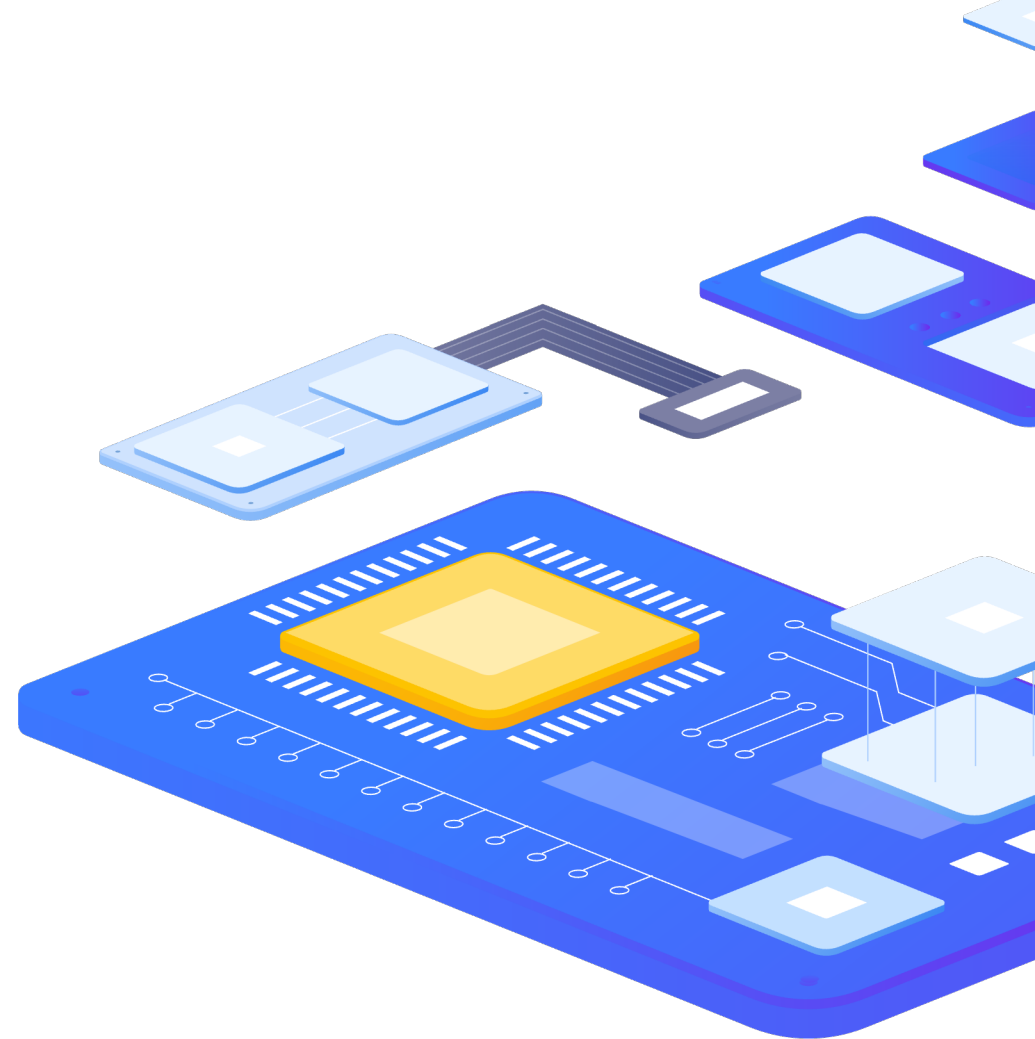
Zabbix Agent 2 is written in Go (Golang)

Drop-in replacement for Zabbix agent

- › Supports all previous functionality (same item keys)
- › Supports old configuration file format

Has been developed to

- › Reduce the number of TCP connections
- › Be easily extendable with plugins



## Zabbix Agent 2

# NEW FUNCTIONALITY

### Improved active checks

- ▶ Active checks support scheduled/flexible intervals
- ▶ Parallel execution of multiple active checks for each ServerActive

\* Name

Type

\* Key

Type of information

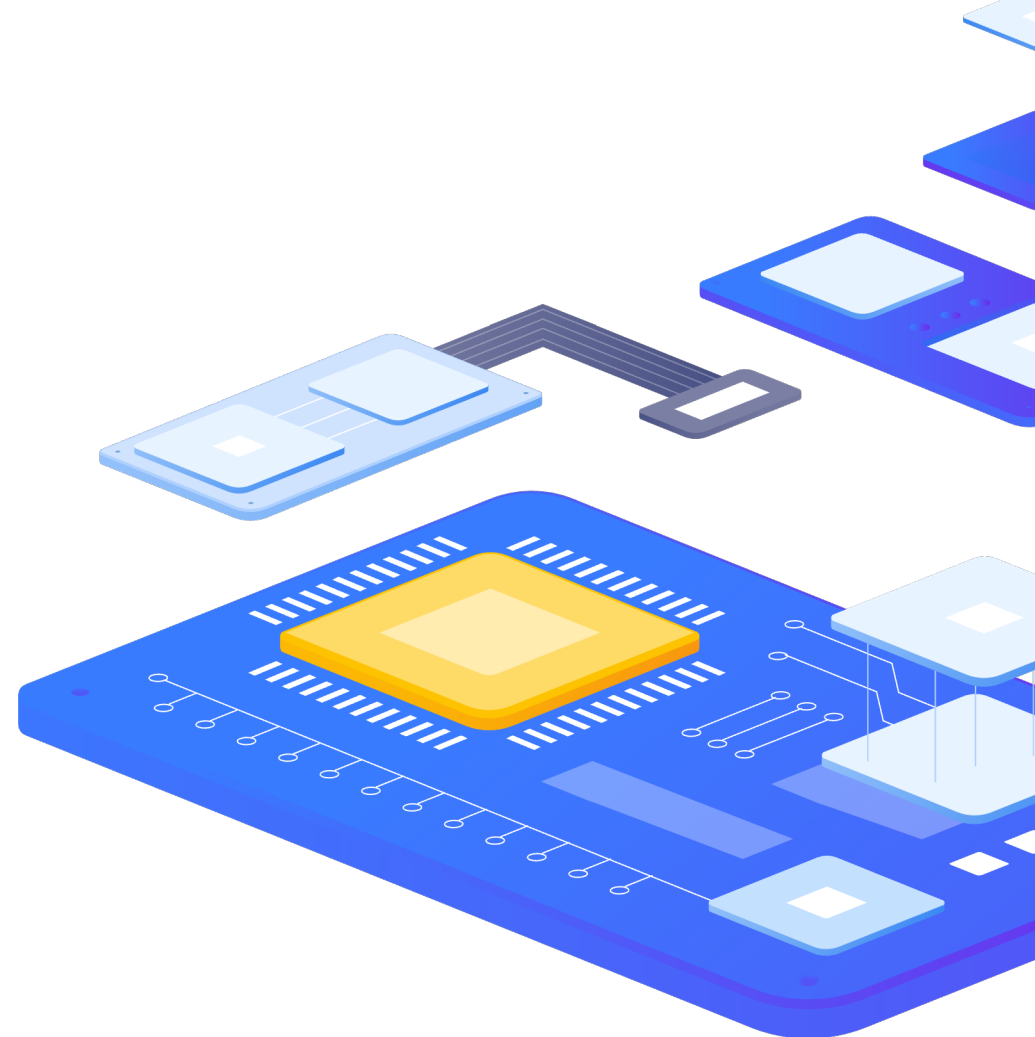
Units

\* Update interval

| Custom intervals                    | Type     | Interval                                | Period                           | Action  |                                       |
|-------------------------------------|----------|---|----------------------------------|---|---------------------------------------|
| <input checked="" type="checkbox"/> | Flexible | <input type="text" value="Scheduling"/> | <input type="text" value="10s"/> | <input type="text" value="1-5, 09:00-10:00"/> | <input type="button" value="Remove"/> |

[Add](#)

- ▶ Limited system support



## Zabbix Agent 2

# AGENT 2 BUFFER

Two types of buffer are supported by Agent2 in active mode

- ▶ Memory buffer
- ▶ Buffer using SQLite engine

Persistent buffer is supported both on Unix-like systems and Windows hosts

Configurable via Agent 2 configuration file

- ▶ Enable persistent buffer:

```
EnablePersistentBuffer=1
```


- ▶ Specify the location of the buffer file:

```
PersistentBufferFile=C:\temp\buffer
```

## Zabbix Agent 2

# AGENT 2 BUFFER

The buffer file is created on agent startup in your specified location

| Name   | Date modified    | Type | Size  |
|--|------------------|------|-------|
|  buffer | 30/09/2020 10:18 | File | 28 KB |

Additionally, persistent buffer period can be configured

- ▶ Default is 1 hour

```
PersistentBufferPeriod=1h
```

Remember that persistent buffer is used only for active checks

If persistent buffer is disabled, then in memory buffer is used

# AGENT 2 BUFFER

We can always take a look at what data is stored in the persistent buffer

```
sqlite> select * from data_1;  
9|1601470098|31578|-1|-1|-1|491974656||-1|-1|-1|1601470098|461886  
10|1601470099|31579|-1|-1|-1|47.336478||-1|-1|-1|1601470099|683697  
11|1601470100|31580|-1|-1|-1|1039331328||-1|-1|-1|1601470100|605187  
12|1601470155|31575|-1|-1|-1|859828224||-1|-1|-1|1601470155|973576  
13|1601470156|31576|-1|-1|-1|100.000000||-1|-1|-1|1601470156|1253467
```

- ▶ Using persistent buffer adds a layer of redundancy
- ▶ If server for some reason is unreachable, the data is still stored in the persistent buffer
- ▶ The data is still preserved after the agent restart, as opposed to in memory buffer



## Zabbix Agent 2

# ZABBIX 6.0 NEWS - agent/agent 2

### agent.variant

- ▶ New Item for installed variant since agent version 5.0.18

### 6.0 - HA settings

#### Count matching TCP/UDP sockets

- ▶ `net.tcp.socket.count[<laddr>,<lport>,<raddr>,<rport>,<state>]`

#### Additional file information such as file owner and file permissions

- ▶ `vfs.dir.get[dir,<regex_incl>,<regex_excl>,<types_incl>,<.....>]`

#### Parameter changes:

- ▶ `vfs.file.cksum[file,<mode>]`, `vfs.file.get[file]`, `vfs.file.owner[file,<ownertype>,<resulttype>]`

#### Collect agent host metadata as a metric

- ▶ `agent.hostmetadata`

Supports loading stand-alone plugins without having to recompile the Zabbix Agent2

## Zabbix Agent 2

# ZABBIX 6.2 NEWS - agent/agent 2

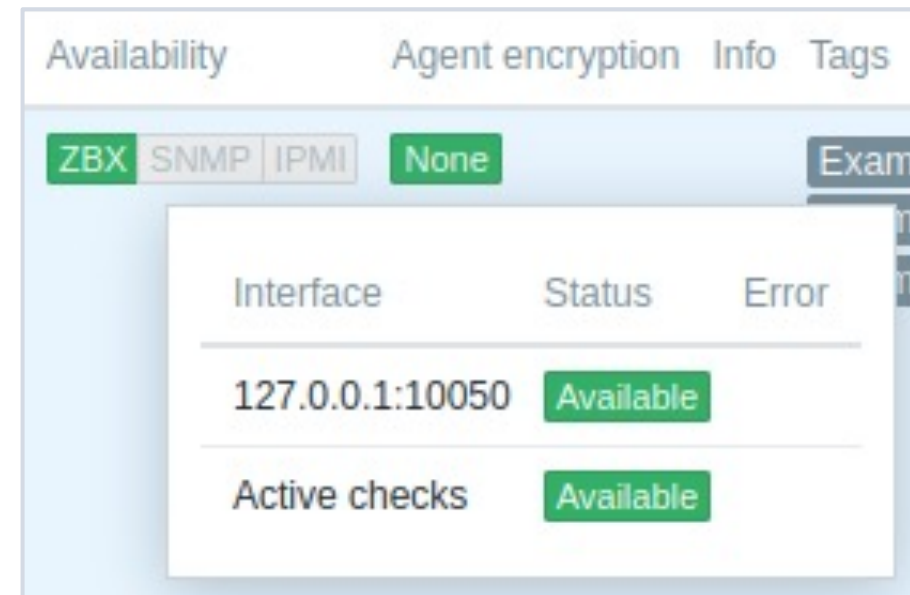
### Windows registry monitoring

- › `registry.get[key,<mode>,<name regexp>]`
- › `registry.data[key,<value name>]`

### Active checks affect host availability

- › `zabbix[host,active_agent,available]` internal item

6.2.7: Loadable plugin versioning PostgreSQL 1.2.1 -> PostgreSQL 6.2.7



The screenshot shows the Zabbix web interface for a host. At the top, there are tabs for 'Availability', 'Agent encryption', 'Info', and 'Tags'. Below the tabs, there are several status indicators: 'ZBX' (green), 'SNMP' (grey), 'IPMI' (grey), and 'None' (green). A dropdown menu is open, showing a table with the following data:

| Interface       | Status    | Error |
|-----------------|-----------|-------|
| 127.0.0.1:10050 | Available |       |
| Active checks   | Available |       |

# ZABBIX 6.4 NEWS - agent/agent 2

## Interface not required for some checks

It is no longer required to define an interface when creating items of the following type:

- ▶ Simple check
- ▶ External check
- ▶ SSH agent
- ▶ Telnet agent

## Instant refresh of active checks

- ▶ Previously Zabbix agent (in active mode) received from Zabbix server or Zabbix proxy a full copy of the configuration once every two minutes (default). By introducing incremental configuration sync, full configuration is no longer sent if there are no changes to host or global regular expressions, thus default sync interval **has been reduced to 5 seconds**.
- ▶ 'RefreshActiveChecks' parameter supported in a Zabbix agent configuration file default value is changed to 5 seconds (previously 120).

### 6.4.2: Mixing item key and session parameters in Zabbix agent 2 plugins

# ZABBIX 7.0 NEWS - agent/agent 2

## New key functionality

- ▶ eventlog.count - added to Zabbix agent/agent 2 on Windows
- ▶ system.hostname - now can return a Fully Qualified Domain Name
- ▶ system.sw.packages and system.sw.packages.get - supported on Gentoo Linux
- ▶ oracle.ts.discovery - now returns a new {#CON\_NAME} LLD macro with container name;
- ▶ oracle.ts.stats - item has a new conname parameter

## Buffer size

- ▶ The default value of the BufferSize configuration parameter has been increased from 100 to 1000.

## Empty values allowed

- ▶ Empty values are now allowed in plugin-related configuration parameters on Zabbix agent 2.

## Compatible plugins with 6.x versions

2

Installation



## Zabbix Agent 2

# AGENT 2 INSTALLATION

### Install Zabbix Agent2

```
# rpm -Uvh https://repo.zabbix.com/zabbix/6.4/rhel/9/x86\_64/zabbix-release-6.4-1.el9.noarch.rpm  
# dnf install zabbix-agent2 zabbix-agent2-plugin-*
```

### Start Zabbix Agent2

```
# systemctl start zabbix-agent2
```

### Enable auto start

```
# systemctl enable zabbix-agent2
```

# AGENT 2 INSTALLATION

## Configuration

```
Server=<IP/DNS> for passive agent checks
```

```
ServerActive=<IP/DNS> for active agent checks  
Hostname=Name of host for active checks
```

```
# systemctl restart zabbix-agent2
```

# AGENT 2 INSTALLATION on Windows - command line

- ▶ Available for download as archive or MSI install
- ▶ To install a single instance of Zabbix agent with the default configuration file `c:\zabbix_agentd.conf`:

```
zabbix_agent2.exe --install
```

- ▶ If you wish to use a configuration file other than `c:\zabbix_agentd.conf`, you should use the following command for service installation:

```
zabbix_agent2.exe --config <your_configuration_file> --install
```

```
"C:\Agent 2 6.4.8\bin\zabbix_agent2.exe" --install --config "C:\Agent 2 6.4.8\conf\zabbix_agent2.conf"
```

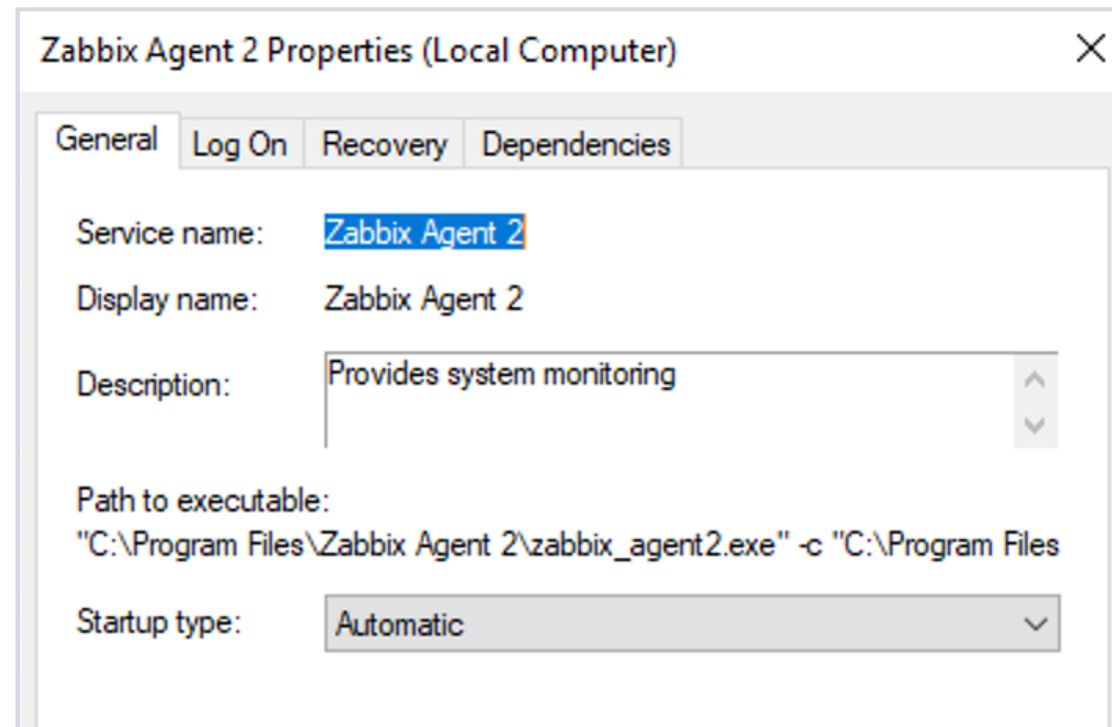


## Zabbix Agent 2

# AGENT 2 INSTALLATION on Windows – command line

Once installed, runs as a service under Local System account

```
zabbix_agent2 [20268]: 'Zabbix Agent 2' installed successfully
```



## Zabbix Agent 2

# AGENT 2 INSTALLATION on Windows – MSI

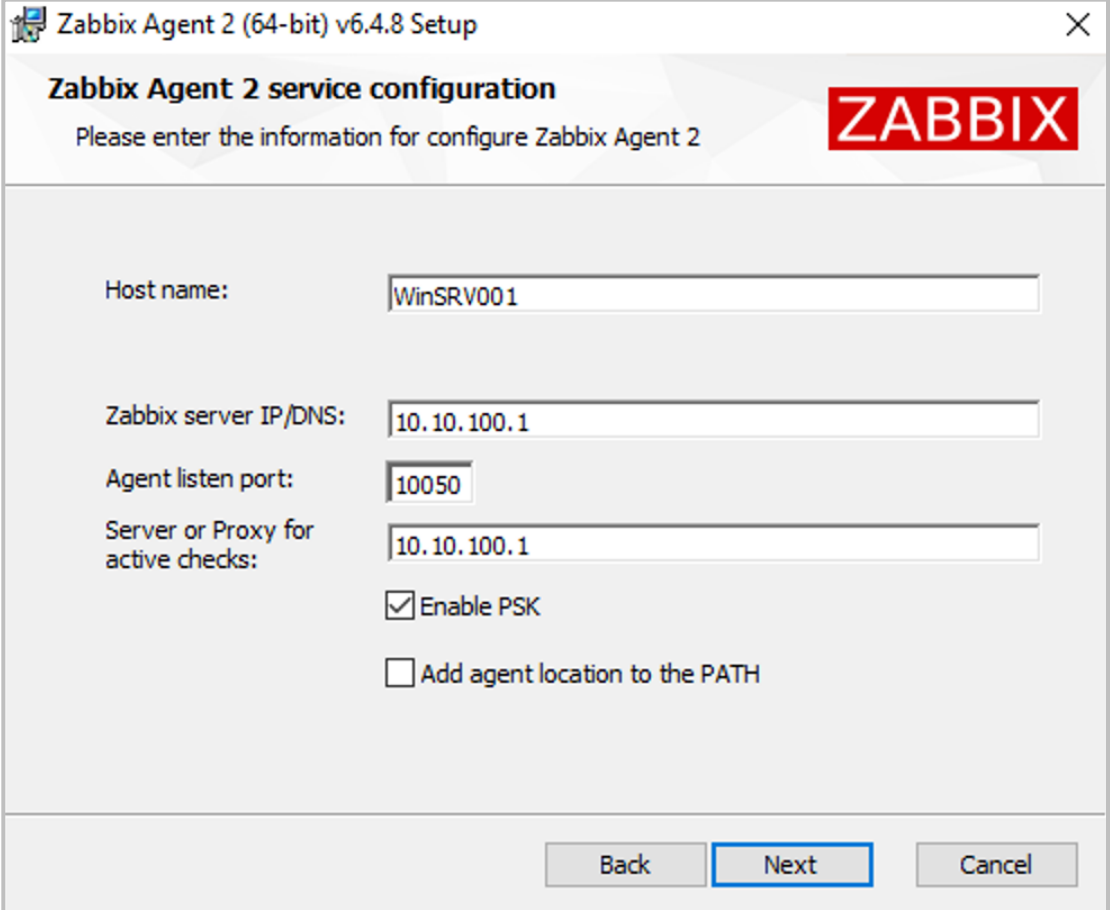
MSI Installer can be downloaded from Zabbix website

| OS DISTRIBUTION | OS VERSION | HARDWARE | ZABBIX VERSION | ENCRYPTION    | PACKAGING |
|-----------------|------------|----------|----------------|---------------|-----------|
| Windows         | Any        | amd64    | 6.4            | OpenSSL       | MSI       |
| Linux           |            | i386     | 6.2            | No encryption | Archive   |
| macOS           |            |          | 6.0 LTS        |               |           |
| AIX             |            |          | 5.4            |               |           |
| FreeBSD         |            |          | 5.2            |               |           |
| OpenBSD         |            |          | 5.0 LTS        |               |           |
| Solaris         |            |          | 4.4            |               |           |
|                 |            |          | 4.2            |               |           |
|                 |            |          | 4.0 LTS        |               |           |
|                 |            |          | 3.0 LTS        |               |           |

## Zabbix Agent 2

# AGENT 2 INSTALLATION on Windows – MSI

- ▶ Host name – Hostname parameter for active agent checks
- ▶ Zabbix server IP/DNS – Server parameter for passive checks
- ▶ Agent listen port – port on which the agent will listen for passive check requests
- ▶ Server or Proxy for active checks – ServerActive parameter for sending active agent data



**Zabbix Agent 2 (64-bit) v6.4.8 Setup**

**Zabbix Agent 2 service configuration**

Please enter the information for configure Zabbix Agent 2

**ZABBIX**

Host name: WinSRV001

Zabbix server IP/DNS: 10.10.100.1

Agent listen port: 10050

Server or Proxy for active checks: 10.10.100.1

Enable PSK

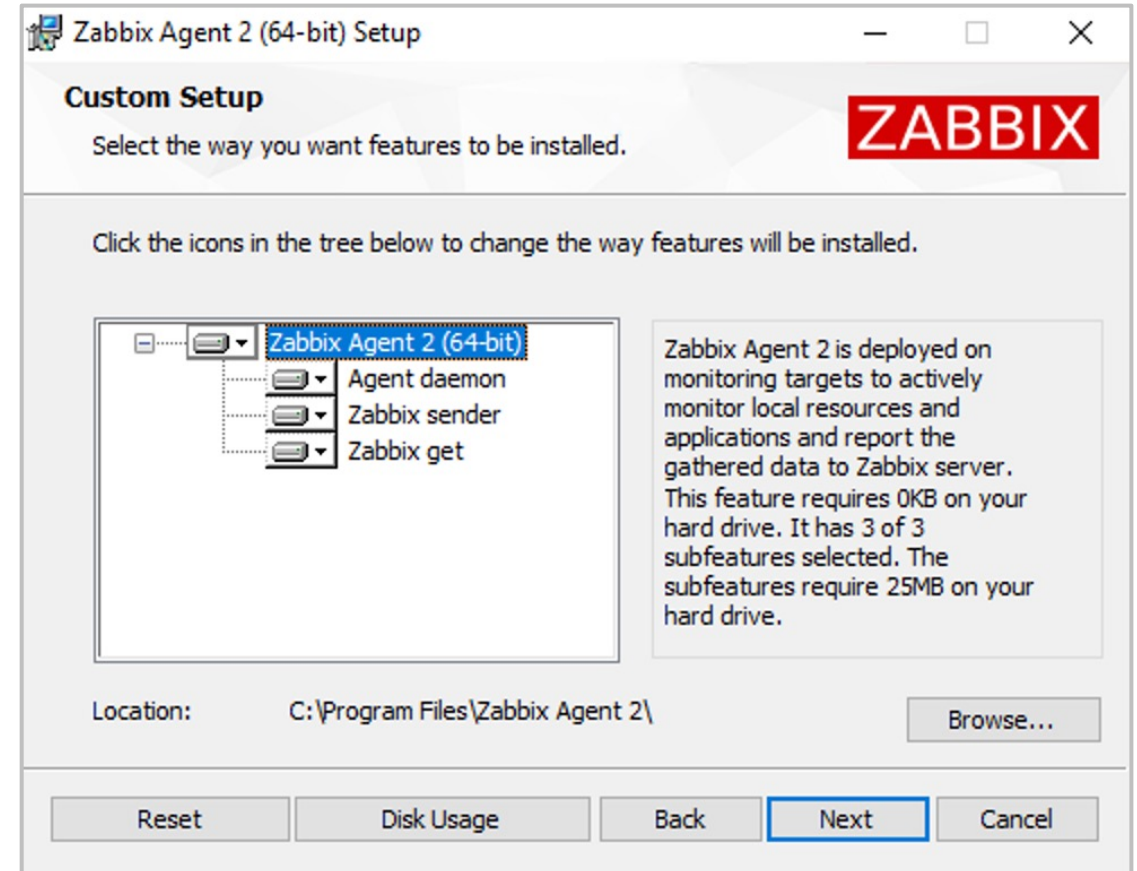
Add agent location to the PATH

Back Next Cancel

## Zabbix Agent 2

# AGENT 2 INSTALLATION on Windows – MSI

- › Location – Agent 2 install location
- › Disk Usage – disk space usage statistics
- › Agent 2 takes up ~17MB of disk space
- › Zabbix Sender and Zabbix Get also can be installed in newest versions



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Command line options



## Zabbix Agent 2

# AGENT 2 COMMAND LINE OPTIONS

```
# zabbix_agent2 -R help
Remote control interface, available commands:
  loglevel increase - Increase log level
  loglevel decrease - Decrease log level
  metrics - List available metrics
  version - Display Agent version
  help - Display this help message
```

- ▶ Zabbix Agent2 verze 7.0

```
#zabbix_agent2 -h
```

- ▶ Other C agent parameters such as - p (print), - t (test) etc. are also fully supported by Agent 2

```
#zabbix_agent2 -t agent.hostname
agent.hostname [s|LinuxHost]
```

## Zabbix Agent 2

# AGENT 2 PLUGIN STATUS

Available metric list is divided into plugin sections

- ▶ Displays per plugin statistics

```
# zabbix_agent2 -R metrics
[NetIf]
active: true
capacity: 0/100
tasks: 2
net.if.in: Returns incoming traffic statistics on network interface.
net.if.out: Returns outgoing traffic statistics on network interface.
net.if.total: Returns sum of incoming and outgoing traffic statistics on network interface.
```

## Zabbix Agent 2

# AGENT 2 PLUGIN STATUS

Status of running agent can be viewed via web browser

- › Status page will be accessible from anywhere
- › Can be set to any unused port
- › No default port setting
- › Agent restart is still required after making configuration changes

```
### Option: StatusPort  
#     Agent will listen on this port for HTTP status requests.  
StatusPort=8888
```



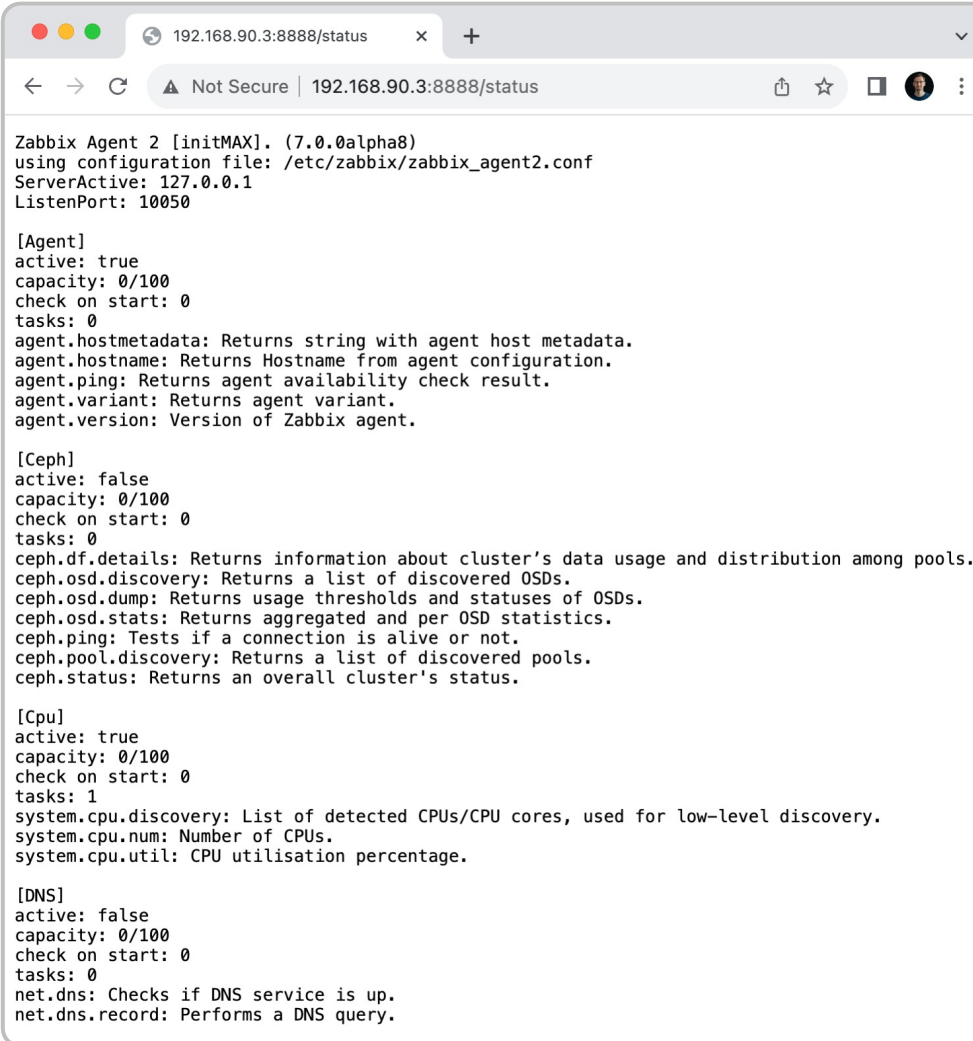
## Zabbix Agent 2

# AGENT 2 PLUGIN STATUS

In browser navigate to:

▶ <http://<IP/DNS>:8888/status>

Same as from the command line



```
Zabbix Agent 2 [initMAX]. (7.0.0alpha8)
using configuration file: /etc/zabbix/zabbix_agent2.conf
ServerActive: 127.0.0.1
ListenPort: 10050

[Agent]
active: true
capacity: 0/100
check on start: 0
tasks: 0
agent.hostmetadata: Returns string with agent host metadata.
agent.hostname: Returns Hostname from agent configuration.
agent.ping: Returns agent availability check result.
agent.variant: Returns agent variant.
agent.version: Version of Zabbix agent.

[Ceph]
active: false
capacity: 0/100
check on start: 0
tasks: 0
ceph.df.details: Returns information about cluster's data usage and distribution among pools.
ceph.osd.discovery: Returns a list of discovered OSDs.
ceph.osd.dump: Returns usage thresholds and statuses of OSDs.
ceph.osd.stats: Returns aggregated and per OSD statistics.
ceph.ping: Tests if a connection is alive or not.
ceph.pool.discovery: Returns a list of discovered pools.
ceph.status: Returns an overall cluster's status.

[Cpu]
active: true
capacity: 0/100
check on start: 0
tasks: 1
system.cpu.discovery: List of detected CPUs/CPU cores, used for low-level discovery.
system.cpu.num: Number of CPUs.
system.cpu.util: CPU utilisation percentage.

[DNS]
active: false
capacity: 0/100
check on start: 0
tasks: 0
net.dns: Checks if DNS service is up.
net.dns.record: Performs a DNS query.
```

## Zabbix Agent 2

# AGENT 2 PLUGIN CONFIGURATION

- › Each Agent 2 item belongs to a specific plugin
- › Plugins can be individually configured by changing plugin parameters
- › All plugins are configured using "Plugins.\*" parameter in "zabbix\_agent2.conf"

C Agent MaxLines configuration (plugin-less):

```
MaxLinesPerSecond=20
```

«Go Agent MaxLines configuration – Via Log Plugin:

```
Plugins.Log.MaxLinesPerSecond=20
```

# AGENT 2 PLUGINS

All of Zabbix agent 2 items utilize some sort of a plugin written by Zabbix developers

Plugins provide an option to extend the monitoring capabilities of Zabbix

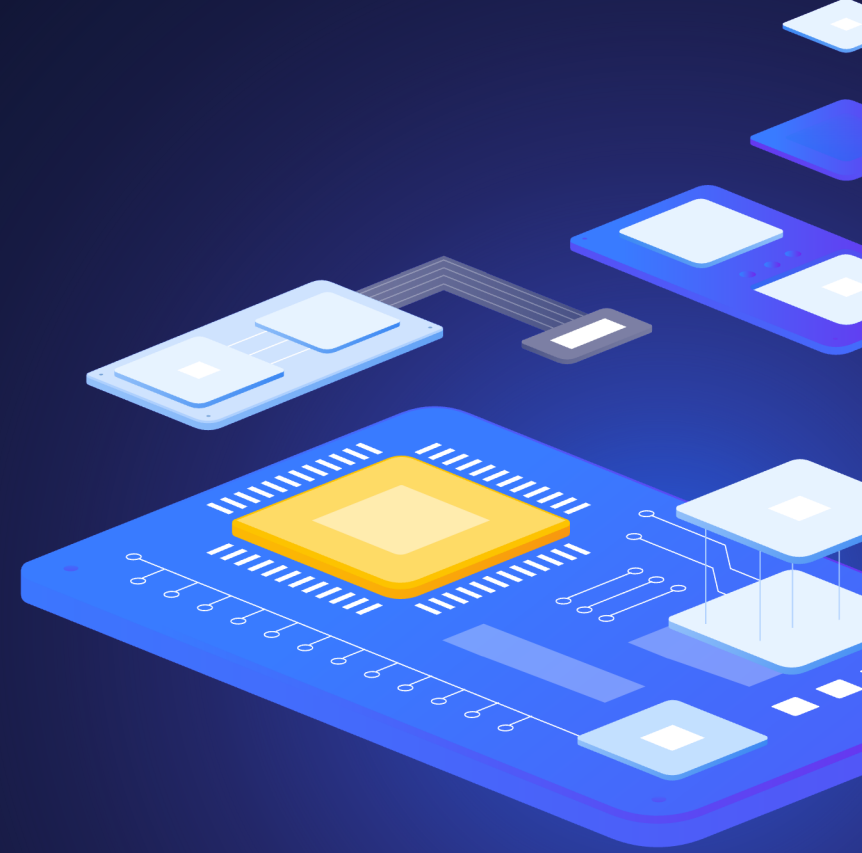
- ▶ Written in Go programming language and supported for Zabbix agent 2 only
- ▶ Alternative to "loadable modules" (written in C)

Each plugin can be configured by editing the plugin specific parameters in Zabbix agent 2 configuration file

- ▶ Syntax: `Plugins.<PluginName>.<Parameter>=<Value>`

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Named sessions

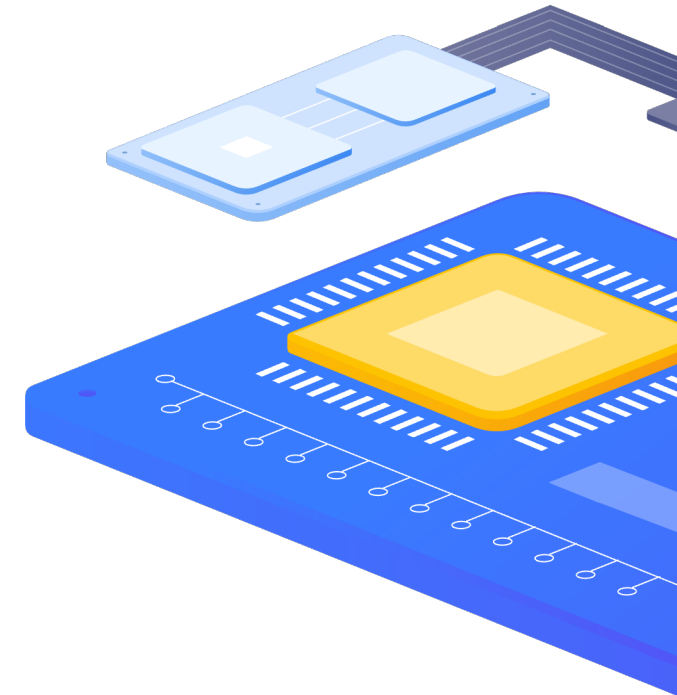


## Zabbix Agent 2

# AGENT 2 NAMED SESSIONS

### Named sessions

- › Represent an additional level of plugin parameters
- › Can be applied only to specific plugins
  - › Mysql
  - › Postgres
  - › Redis
  - › Memcached
  - › More as they are released in the future
- › Mostly related to Agent 2 DB monitoring plugins
- › Used to define separate sets of authentication parameters
  - › URI - Uniform Resource Identifier
  - › User - Username which is used for obtaining the metrics from the resource
  - › Password - Password for the specified user



## Zabbix Agent 2

# AGENT 2 NAMED SESSIONS

Example:

- ▶ Monitoring of two sessions "MySQL1" and "MySQL2"

```
Plugins.Mysql.Sessions.MySQL1.Uri=tcp://127.0.0.1:3306
Plugins.Mysql.Sessions.MySQL1.User=<UsernameForMySQL1>
Plugins.Mysql.Sessions.MySQL1.Password=<PasswordForMySQL1>
Plugins.Mysql.Sessions.MySQL2.Uri=tcp://127.0.0.1:3307
Plugins.Mysql.Sessions.MySQL2.User=<UsernameForMySQL2>
Plugins.Mysql.Sessions.MySQL2.Password=<PasswordForMySQL2>
```

- ▶ We can now use the defined session names – "MySQL1" and "MySQL2" as connectionString parameters in our mysql agent 2 item keys

## Zabbix Agent 2

# AGENT 2 NAMED SESSIONS

Example keys:

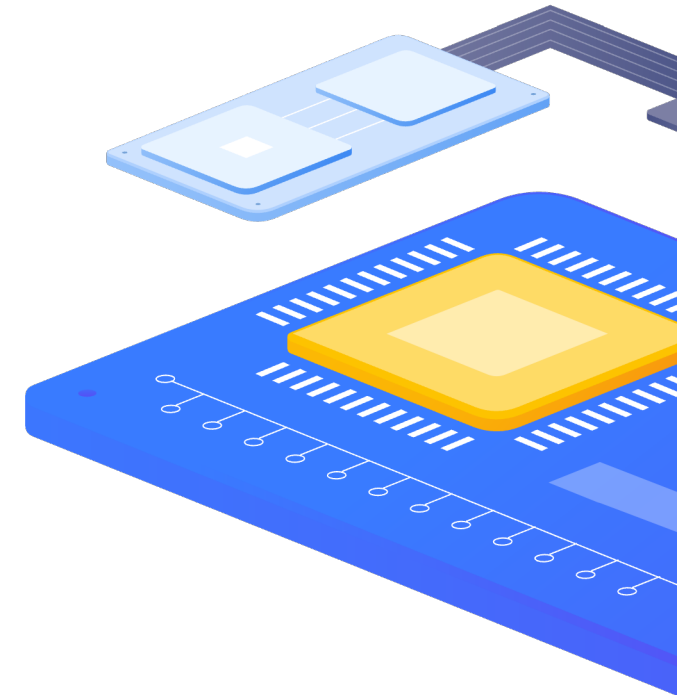
- › `mysql.db.size[connString,username,password,dbName]`
- › `mysql.ping[connString,username,password]`
- › `mysql.db.discovery[connString,username,password]`

Using named session names in key parameters:

- › `mysql.db.size[MySQL1,,,productionDB]`
- › Note that we still need to specify the DB name "productionDB" directly in the key

Parameters also can be specified directly if needed:

- › `mysql.db.size[tcp://localhost,root,P445W0RD,productionDB]`



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Templates



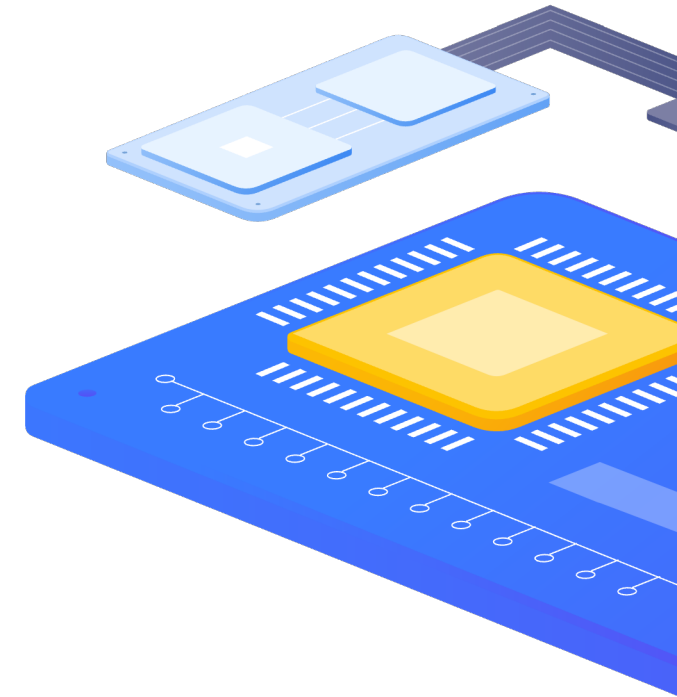


## Zabbix Agent 2

# AGENT 2 TEMPLATES

Integrated plugins and templates are available out of the box

- › DB MySQL
- › DB PostgreSQL
- › DB Redis
- › DB Oracle
- › App Docker
- › App Memcached
- › App Systemd
- › App Ceph
- › Certificate
- › **More templates will be published in the future**



## Zabbix Agent 2

# AGENT 2 TEMPLATES

- › Zabbix agent 2 out of box templates can be further configured by customizing User Macros or Plugin parameters
- › Basic configuration can be done by simply adjusting the user macros

### Template

Templates Tags **Macros 11** Value mapping 1

Template macros Inherited and template macros

| Macro                                    | Value          |   | Description  |                        |
|--|----------------|---|--|------------------------|
| {MYSQL.ABORTED_CONN.MAX.WARN}            | 3              | T | Number of failed attempts to connect to the MySQL server for trigger expression.       | <a href="#">Remove</a> |
| {MYSQL.BUFF_UTIL.MIN.WARN}               | 50             | T | The minimum buffer pool utilization percentage for trigger expression.                 | <a href="#">Remove</a> |
| {MYSQL.CREATED_TMP_DISK_TABLES.MAX.WARN} | 10             | T | The maximum number of created tmp tables on a disk per second for trigger expressions. | <a href="#">Remove</a> |
| {MYSQL.CREATED_TMP_FILES.MAX.WARN}       | 10             | T | The maximum number of created tmp files on a disk per second for trigger expressions.  | <a href="#">Remove</a> |
| {MYSQL.CREATED_TMP_TABLES.MAX.WARN}      | 30             | T | The maximum number of created tmp tables in memory per second for trigger expressions. | <a href="#">Remove</a> |
| {MYSQL.DSN}                              | <Put your DSN> | T | System data source name such as <tcp://host:port or unix:/path/to/socket/>.            | <a href="#">Remove</a> |
| {MYSQL.INNODB_LOG_FILES}                 | 2              | T | Number of physical files in the InnoDB redo log for calculating innodb_log_file_size.  | <a href="#">Remove</a> |
| {MYSQL.PASSWORD}                         | value          | T | MySQL user password.   | <a href="#">Remove</a> |
| {MYSQL.REPL_LAG.MAX.WARN}                | 30m            | T | The lag of slave from master for trigger expression.                                   | <a href="#">Remove</a> |
| {MYSQL.SLOW_QUERIES.MAX.WARN}            | 3              | T | The number of slow queries for trigger expression.                                     | <a href="#">Remove</a> |
| {MYSQL.USER}                             | value          | T | MySQL user name.   | <a href="#">Remove</a> |

[Add](#)

[Update](#) [Clone](#) [Delete](#) [Delete and clear](#) [Cancel](#)

# AGENT 2 TEMPLATES

Deeper customization can be achieved by configuring the plugin itself

```
### Option: Plugins
#     A plugin can have one or more plugin specific configuration parameters in format:
#     Plugins.<PluginName>.<Parameter1>=<value1>
#     Plugins.<PluginName>.<Parameter2>=<value2>
```

```
### Option: Plugins.Redis.Uri
#     Connection string. Can be overwritten by the first parameter of an item's key.
#
# Mandatory: no
# Range: Must matches the URI format.
# Default:
# Plugins.Redis.Uri=tcp://localhost:6379
```

## Zabbix Agent 2

# AGENT 2 Exclusive keys

Zabbix agent 2 has many new built-in keys

For Docker

- › `docker.data_usage` - Information about current data usage
- › `docker.containers.discovery` - A list of containers. Used for low-level discovery

For MySQL

- › `mysql.get_status_variables` - get mysql variable data
- › `mysql.db.discovery` - Result of the “show databases” SQL query in LLD JSON format

For PostgreSQL

- › `pgsql.dbstat` - Collects statistics per database
- › `pgsql.db.discovery` - List of the PostgreSQL databases

## Zabbix Agent 2

# AGENT 2 Exclusive keys

- ▶ Many more Agent 2 keys are available
- ▶ Many of those keys are used as master items
- ▶ Dependent items preprocess the obtained values and provide more granular and detailed data overview

Item Tags 1 Preprocessing 2

\* Name

Type

\* Key

Type of information

\* Master item

Item Tags 1 Preprocessing 2

Preprocessing steps ?

|    | Name   | Parameters                                      | Custom on fail           | Actions                                     |
|----|--|---|--------------------------|---|
| 1: | <input type="text" value="JSONPath"/>          | <input type="text" value="\$.Aborted_clients"/> | <input type="checkbox"/> | <a href="#">Test</a> <a href="#">Remove</a> |
| 2: | <input type="text" value="Change per second"/> |   | <input type="checkbox"/> | <a href="#">Test</a> <a href="#">Remove</a> |

[Add](#) [Test all steps](#)

# AGENT 2 Master/dependent items - Docker

| Items <span style="float: right;">Create item</span>   |  |          |                               |          |         |        |                |         |  |
|--|--|----------|-------------------------------|----------|---------|--------|----------------|---------|--|
| All templates / Docker by Zabbix agent 2 <span>Items 44</span> <span>Triggers 3</span> <span>Graphs 5</span> <span>Dashboards 1</span> <span>Discovery rules 2</span> <span>Web scenarios</span> <span style="float: right;">Filter</span> |  |          |                               |          |         |        |                |         |  |
| <input type="checkbox"/>   | Name ▲   | Triggers | Key                           | Interval | History | Trends | Type           | Status  | Tags                                     |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Architecture</a>           |          | docker.architecture           |          | 7d      |        | Dependent item | Enabled | component: os                            |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Cgroup driver</a>          |          | docker.cgroup_driver          |          | 7d      |        | Dependent item | Enabled | component: os                            |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Containers paused</a>      |          | docker.containers.paused      |          | 7d      | 365d   | Dependent item | Enabled | component: containers                    |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Containers running</a>     |          | docker.containers.running     |          | 7d      | 365d   | Dependent item | Enabled | component: containers                    |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get data_usage: Docker: Containers size</a>  |          | docker.containers_size        |          | 7d      | 365d   | Dependent item | Enabled | component: containers component: storage |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Containers stopped</a>     |          | docker.containers.stopped     |          | 7d      | 365d   | Dependent item | Enabled | component: containers                    |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Containers total</a>       |          | docker.containers.total       |          | 7d      | 365d   | Dependent item | Enabled | component: containers                    |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: CPU CFS Period enabled</a> |          | docker.cpu_cfs_period.enabled |          | 7d      | 365d   | Dependent item | Enabled | component: cpu                           |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: CPU CFS Quota enabled</a>  |          | docker.cpu_cfs_quota.enabled  |          | 7d      | 365d   | Dependent item | Enabled | component: cpu                           |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: CPU Set enabled</a>        |          | docker.cpu_set.enabled        |          | 7d      | 365d   | Dependent item | Enabled | component: cpu                           |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: CPU Shares enabled</a>     |          | docker.cpu_shares.enabled     |          | 7d      | 365d   | Dependent item | Enabled | component: cpu                           |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Debug enabled</a>          |          | docker.debug.enabled          |          | 7d      | 365d   | Dependent item | Enabled | component: application                   |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Default runtime</a>        |          | docker.default_runtime        |          | 7d      |        | Dependent item | Enabled | component: application                   |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get info: Docker: Docker root dir</a>        |          | docker.root_dir               |          | 7d      |        | Dependent item | Enabled | component: system                        |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get containers</a>                           |          | docker.containers             | 1m       | 0       |        | Zabbix agent   | Enabled | component: raw                           |
| <input type="checkbox"/>   | ... <a href="#">Docker: Get data_usage</a>                           |          | docker.data_usage             | 1m       | 0       |        | Zabbix agent   | Enabled | component: raw                           |

# AGENT 2 Master/dependent items - PostgreSQL

| Items  |   |          |  |          |         |        |                |         |                     |  | Create item |            |        |              |                   |               |        |
|--|---|----------|--|----------|---------|--------|----------------|---------|---------------------|--|-------------|------------|--------|--------------|-------------------|---------------|--------|
| All templates / PostgreSQL by Zabbix agent 2 |   |          |  |          |         |        |                |         |                     |  | Items 65    | Triggers 6 | Graphs | Dashboards 1 | Discovery rules 2 | Web scenarios | Filter |
| <input type="checkbox"/>                     | Name ▲  | Triggers | Key  | Interval | History | Trends | Type           | Status  | Tags                |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get archive: Archive: Count of archived files                                 |          | ppgsql.archive.count_archived_files        |          | 7d      | 365d   | Dependent item | Enabled | component: archive  |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get archive: Archive: Count of failed attempts to archive files               |          | ppgsql.archive.failed_trying_to_archive    |          | 7d      | 365d   | Dependent item | Enabled | component: archive  |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get archive: Archive: Count of files in archive_status need to archive        |          | ppgsql.archive.count_files_to_archive      |          | 7d      | 365d   | Dependent item | Enabled | component: archive  |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get archive: Archive: Size of files need to archive                           |          | ppgsql.archive.size_files_to_archive       |          | 7d      | 365d   | Dependent item | Enabled | component: archive  |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get bgwriter: Bgwriter: Buffers allocated per second                          |          | ppgsql.bgwriter.buffers_alloc.rate         |          | 7d      | 365d   | Dependent item | Enabled | component: bgwriter |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get bgwriter: Bgwriter: Buffers written directly by a backend per second      |          | ppgsql.bgwriter.buffers_backend.rate       |          | 7d      | 365d   | Dependent item | Enabled | component: bgwriter |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get bgwriter: Bgwriter: Number of bgwriter cleaning scan stopped per second   |          | ppgsql.bgwriter.maxwritten_clean.rate      |          | 7d      | 365d   | Dependent item | Enabled | component: bgwriter |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get bgwriter: Bgwriter: Times a backend executed its own fsync per second     |          | ppgsql.bgwriter.buffers_backend_fsync.rate |          | 7d      | 365d   | Dependent item | Enabled | component: bgwriter |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get bgwriter: Checkpoint: Buffers written by the background writer per second |          | ppgsql.bgwriter.buffers_clean.rate         |          | 7d      | 365d   | Dependent item | Enabled | component: bgwriter |  |             |            |        |              |                   |               |        |
| <input type="checkbox"/>                     | *** PostgreSQL: Get bgwriter: Checkpoint: Buffers written during checkpoints per second       |          | ppgsql.bgwriter.buffers_checkpoint.rate    |          | 7d      | 365d   | Dependent item | Enabled | component: bgwriter |  |             |            |        |              |                   |               |        |

# AGENT 2 Master/dependent items - MySQL

| Items                                   |  |                            |                               |          |         |        |                |         |                    |  | Create item |             |          |              |                   |               |        |
|---|--|----------------------------|-------------------------------|----------|---------|--------|----------------|---------|--------------------|--|-------------|-------------|----------|--------------|-------------------|---------------|--------|
| All templates / MySQL by Zabbix agent 2 |  |                            |                               |          |         |        |                |         |                    |  | Items 48    | Triggers 11 | Graphs 6 | Dashboards 1 | Discovery rules 3 | Web scenarios | Filter |
| <input type="checkbox"/>                | Name ▲   | Triggers                   | Key                           | Interval | History | Trends | Type           | Status  | Tags               |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Aborted clients per second</a>     |                            | mysql.aborted_clients.rate    |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Aborted connections per second</a> | <a href="#">Triggers 1</a> | mysql.aborted_connects.rate   |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Binlog cache disk use</a>          |                            | mysql.binlog_cache_disk_use   |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Buffer pool efficiency</a>                                      |                            | mysql.buffer_pool_efficiency  | 1m       | 7d      | 365d   | Calculated     | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Buffer pool utilization</a>                                     | <a href="#">Triggers 1</a> | mysql.buffer_pool_utilization | 1m       | 7d      | 365d   | Calculated     | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Bytes received</a>                 |                            | mysql.bytes_received.rate     |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Bytes sent</a>                     |                            | mysql.bytes_sent.rate         |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Calculated value of innodb_log_file_size</a>                    |                            | mysql.innodb_log_file_size    | 1m       | 7d      | 365d   | Calculated     | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Command Delete per second</a>      |                            | mysql.com_delete.rate         |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Command Insert per second</a>      |                            | mysql.com_insert.rate         |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |
| <input type="checkbox"/>                | ... <a href="#">MySQL: Get status variables: MySQL: Command Select per second</a>      |                            | mysql.com_select.rate         |          | 7d      | 365d   | Dependent item | Enabled | Application: MySQL |  |             |             |          |              |                   |               |        |

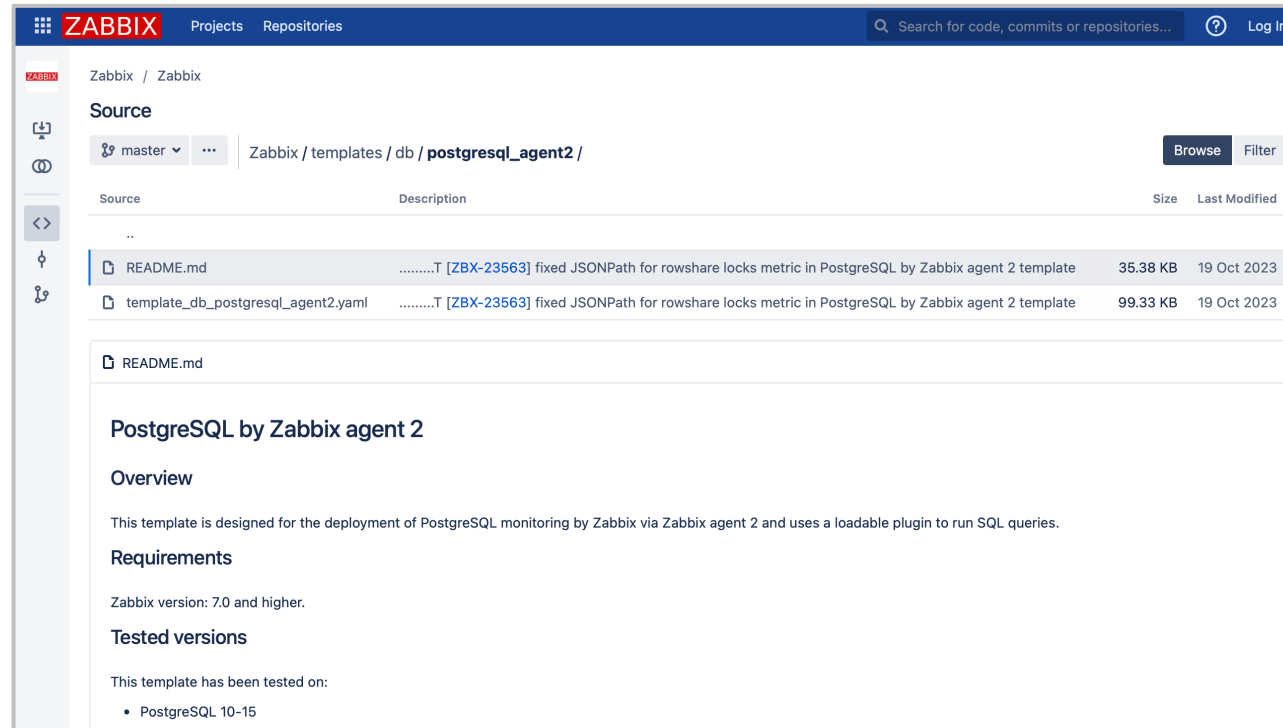


## Zabbix Agent 2

# AGENT 2 TEMPLATES

### Documentation

- ▶ [https://www.zabbix.com/documentation/current/en/manual/config/items/itemtypes/zabbix\\_agent/zabbix\\_agent2](https://www.zabbix.com/documentation/current/en/manual/config/items/itemtypes/zabbix_agent/zabbix_agent2)
- ▶ <https://git.zabbix.com/projects/ZBX/repos/zabbix/browse/templates>



The screenshot shows the Zabbix Git repository page for the `postgresql_agent2` template. The page is titled "Zabbix / Zabbix" and shows the source code for the `postgresql_agent2` template. The repository path is `Zabbix / templates / db / postgresql_agent2 /`. The page displays a table of files and their descriptions, sizes, and last modified dates.

| Source                             | Description  | Size     | Last Modified |
|------------------------------------|--|----------|---------------|
| ..                                 |  |          |               |
| README.md                          | .....T [ZBX-23563] fixed JSONPath for rowshare locks metric in PostgreSQL by Zabbix agent 2 template | 35.38 KB | 19 Oct 2023   |
| template_db_postgresql_agent2.yaml | .....T [ZBX-23563] fixed JSONPath for rowshare locks metric in PostgreSQL by Zabbix agent 2 template | 99.33 KB | 19 Oct 2023   |

The page also includes a `README.md` section with the following content:

### PostgreSQL by Zabbix agent 2

#### Overview

This template is designed for the deployment of PostgreSQL monitoring by Zabbix via Zabbix agent 2 and uses a loadable plugin to run SQL queries.

#### Requirements

Zabbix version: 7.0 and higher.

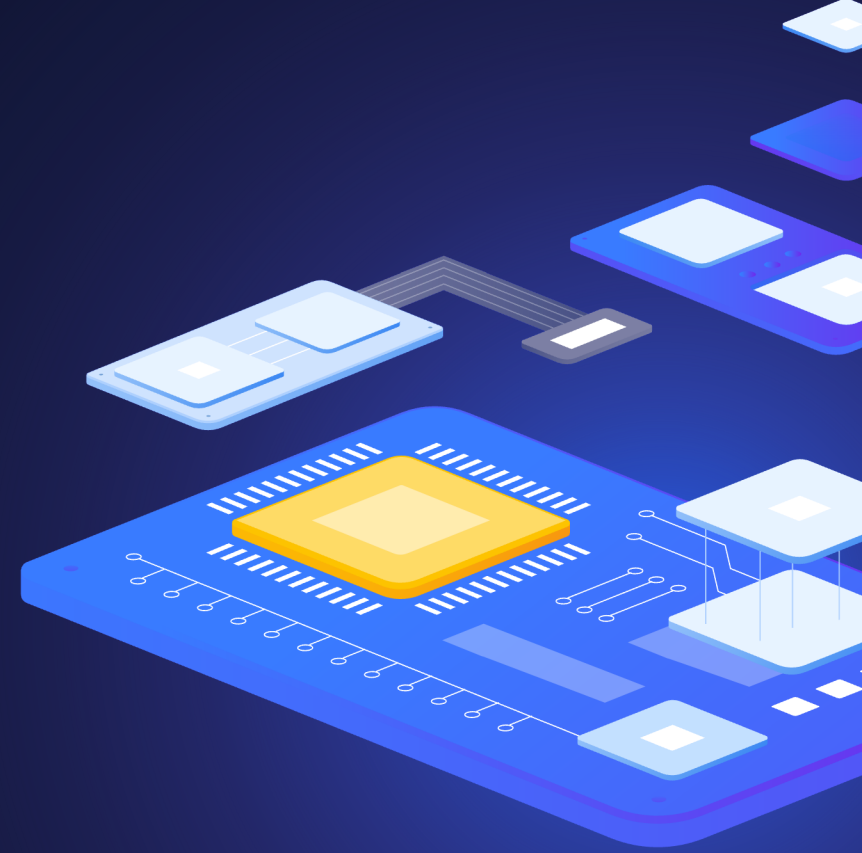
#### Tested versions

This template has been tested on:

- PostgreSQL 10-15

# 4

## Developing plugins



# DEVELOPING an AGENT 2 PLUGIN

The Go agent features multiple plugin interfaces which can be used for different types of tasks

- › Exporter interface
- › Watcher interface
- › Collector interface
- › Runner interface
- › Configurator interface

A Go agent plugin must implement one or several plugin interfaces.

ZABBIX BLOG

<https://blog.zabbix.com/developing-plugins-for-zabbix-agent-2/9682/>

[https://www.zabbix.com/documentation/current/en/devel/plugins/how\\_to](https://www.zabbix.com/documentation/current/en/devel/plugins/how_to)

# DEVELOPING AN AGENT 2 plugin

Exporter is a very simple interface that polls metrics and returns a value, several values, an error, or nothing at all. It accepts a prepared key, its parameters and context

```
type Exporter interface {  
    Export(key string, params []string, context ContextProvider) (result interface{}, err error)  
}
```

# DEVELOPING AN AGENT 2 plugin

With Watcher you can implement a metric polling process without using Scheduler. This interface is mostly used to wait for data and upon receiving it send the results to the server, e.g. log file monitoring.

```
type Watcher interface {  
    Watch(requests []*Request, context ContextProvider)  
}
```

# DEVELOPING AN AGENT 2 plugin

Collector is used for plugins that need to collect data regularly. However, it can't return data, so you'll need Exporter for that.

```
type Collector interface {  
    Collect() error  
    Period() int  
}
```

- ▶ The main use case for this interface is when we need to collect data often and store it in cache until Zabbix server requests it.

# DEVELOPING AN AGENT 2 plugin

Runner provides a way to perform initialization when a plugin is activated (the Start() function) and deinitialization when it is stopped (the Stop() function).

```
type Runner interface {  
    Start()  
    Stop()  
}
```

- ▶ With this interface a plugin can, for example, start or stop a background thread, release unused resources, close connections, etc.
- ▶ Activates plugins when there are metrics ready to be processed for passive checks or a task is assigned to it for active checks.

# DEVELOPING AN AGENT 2 plugin

Configurator serves for configuring plugins.

```
type Configurator interface {  
    Configure(globalOptions *GlobalOptions, privateOptions interface{})  
    Validate(privateOptions interface{}) error  
}
```

- ▶ Configure() loads configuration parameters in a structure defined by the developer.
- ▶ Validate() checks the configuration file for errors. If it finds any, the agent won't start, and we'll get an error notification.



# DEVELOPING AN AGENT 2 plugin

Agent 2 is constantly in development. We have many new features planned for future releases:

- › Building loadable plugins as dynamic libraries
  - › Removes the need to rebuild the agent to add a new plugin
- › Updating agent configuration in runtime
  - › No need restart the agent when changing configuration
- › New out of the box plugins to use with Agent 2
  - › Support for new applications and systems
- › Ongoing optimizations, bug fixes and other new features

## Zabbix Agent 2

# FAQ

Should I use the C agent or the Go agent?

- › Use the Go agent if you need the extra monitoring features or want to implement your own custom plugin
- › `systemctl` won't report back the agent status on startup

Will you still support the C agent?

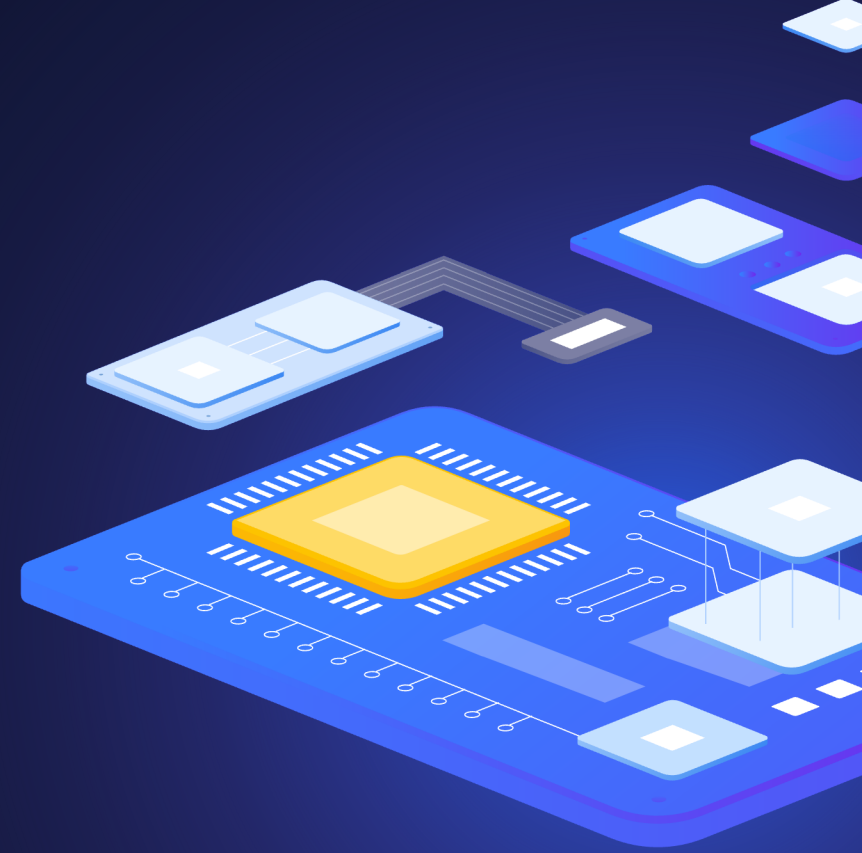
- › Yes, of course! C agent will still get updates, fixes, etc. We have no plans to deprecate it.

Can I use both agents in my environment?

- › Yes! You can use the Go agent in environments where you need the new features and keep the C agent on all other hosts.

5

Demonstration





Questions?



# Contact us:

Phone:



+420 800 244 442

Web:



<https://www.initmax.cz>

Email:



[tomas.hermanek@initmax.cz](mailto:tomas.hermanek@initmax.cz)

LinkedIn:



<https://www.linkedin.com/company/initmax>

Twitter:



<https://twitter.com/initmax>

Tomáš Heřmánek:



+420 732 447 184