



Webinar

# The power of tags

all our microphones are muted

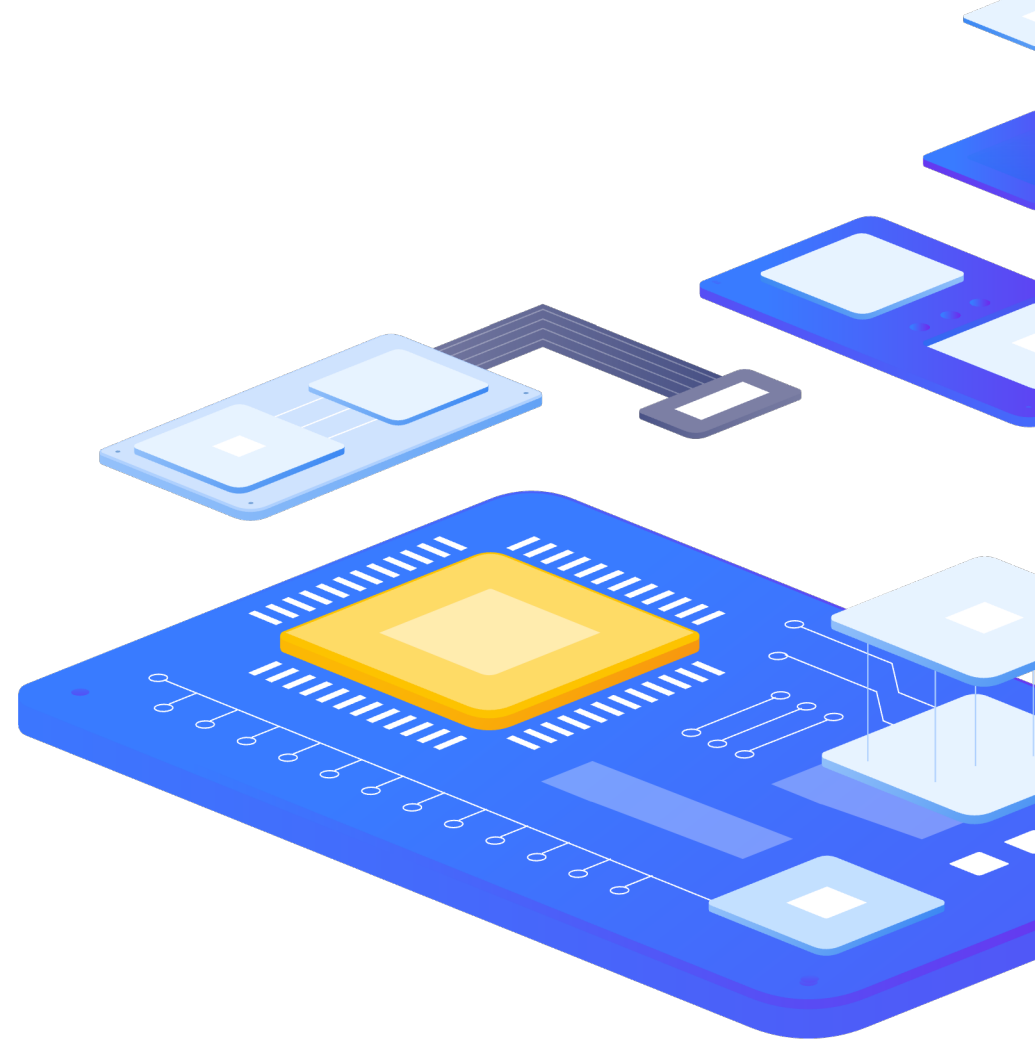
ask your questions in Q&A, not in the Chat

use Chat for discussion, networking or applause

## The power of tags

# WHAT ARE TAGS?

- › A tag is a keyword or term assigned to a piece of information.
- › Tags are generally chosen informally and personally by the entity's creator or by its viewer.
- › They may also be chosen from a controlled vocabulary, i.e., naming policy



## The power of tags

# WHAT ARE TAGS?

- › In Zabbix, tags are realized as a pair of the tag name and value.
- › But you can also use only the name or pair it with a value:

Tags 3 Macros Value mapping

Name	Value	Action
Database server	value	<a href="#">Remove</a>
Database server	MySQL	<a href="#">Remove</a>
Environment	Production	<a href="#">Remove</a>

[Add](#)

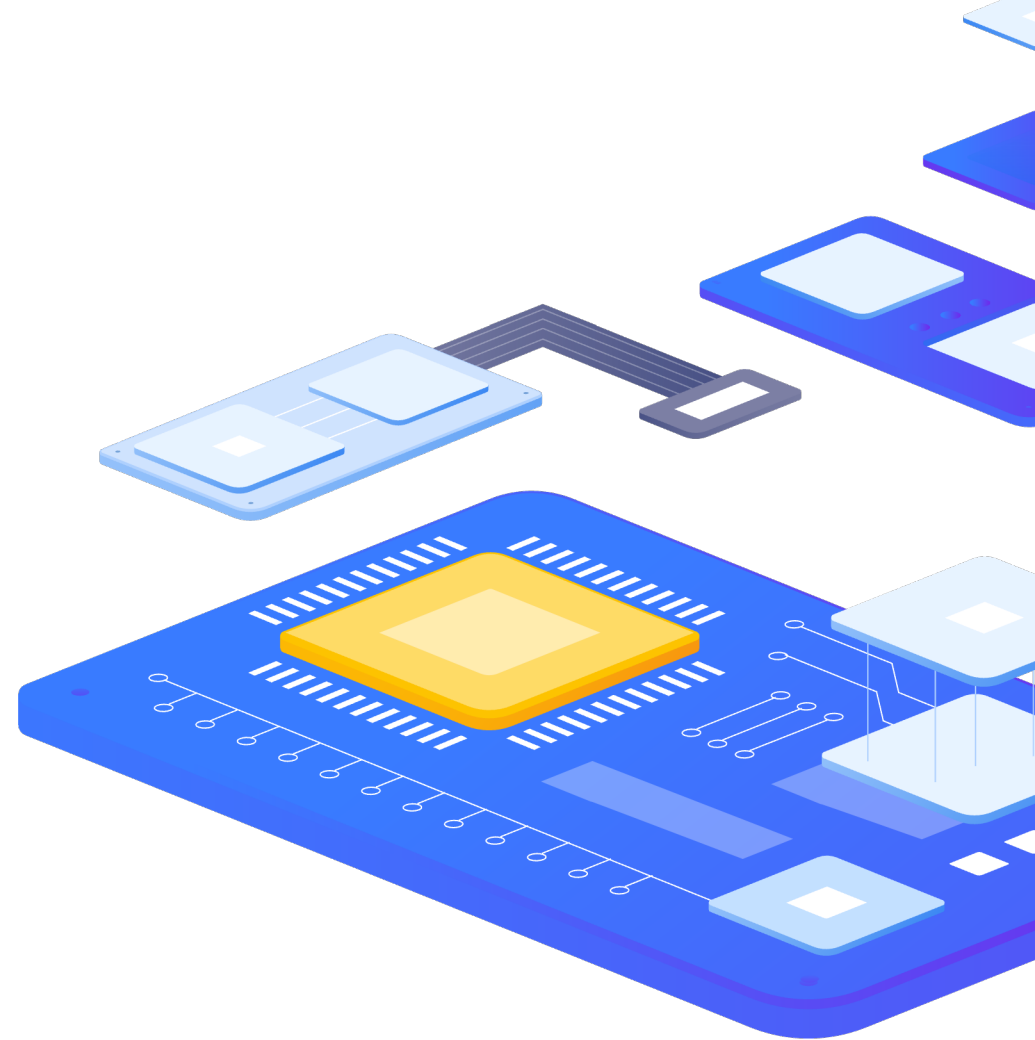
Add Cancel

## The power of tags

# Where can we define tags?

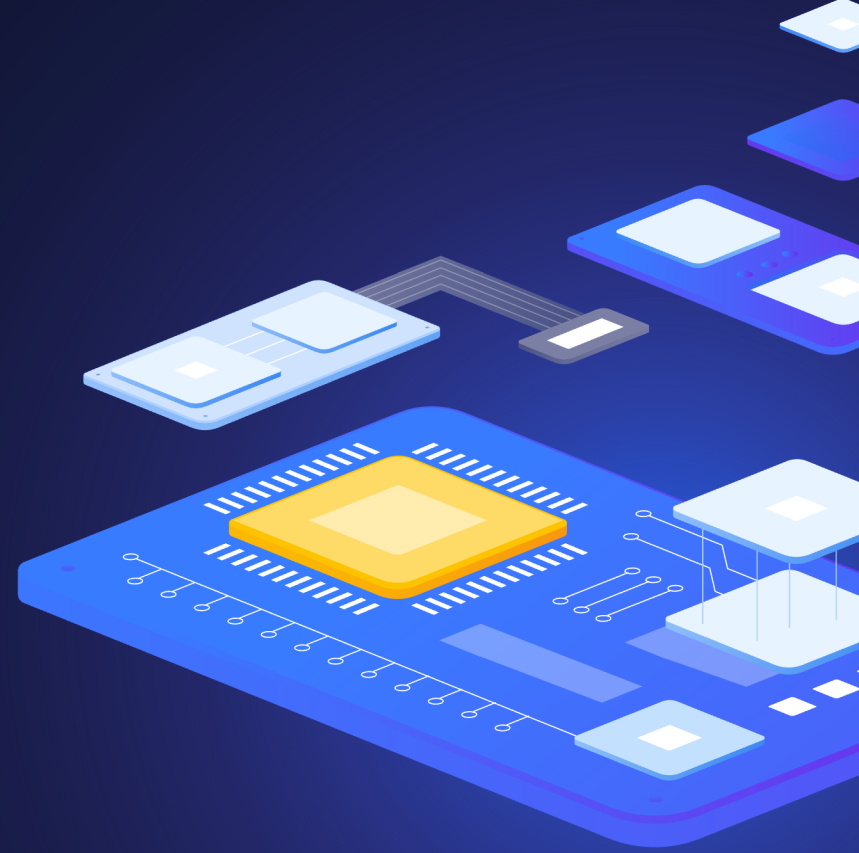
Tags can be defined for various entities in Zabbix:

- › templates
- › hosts
- › items
- › web scenarios
- › triggers
- › template items and triggers
- › host, item and trigger prototypes
- › Services



1

The purpose of the tags

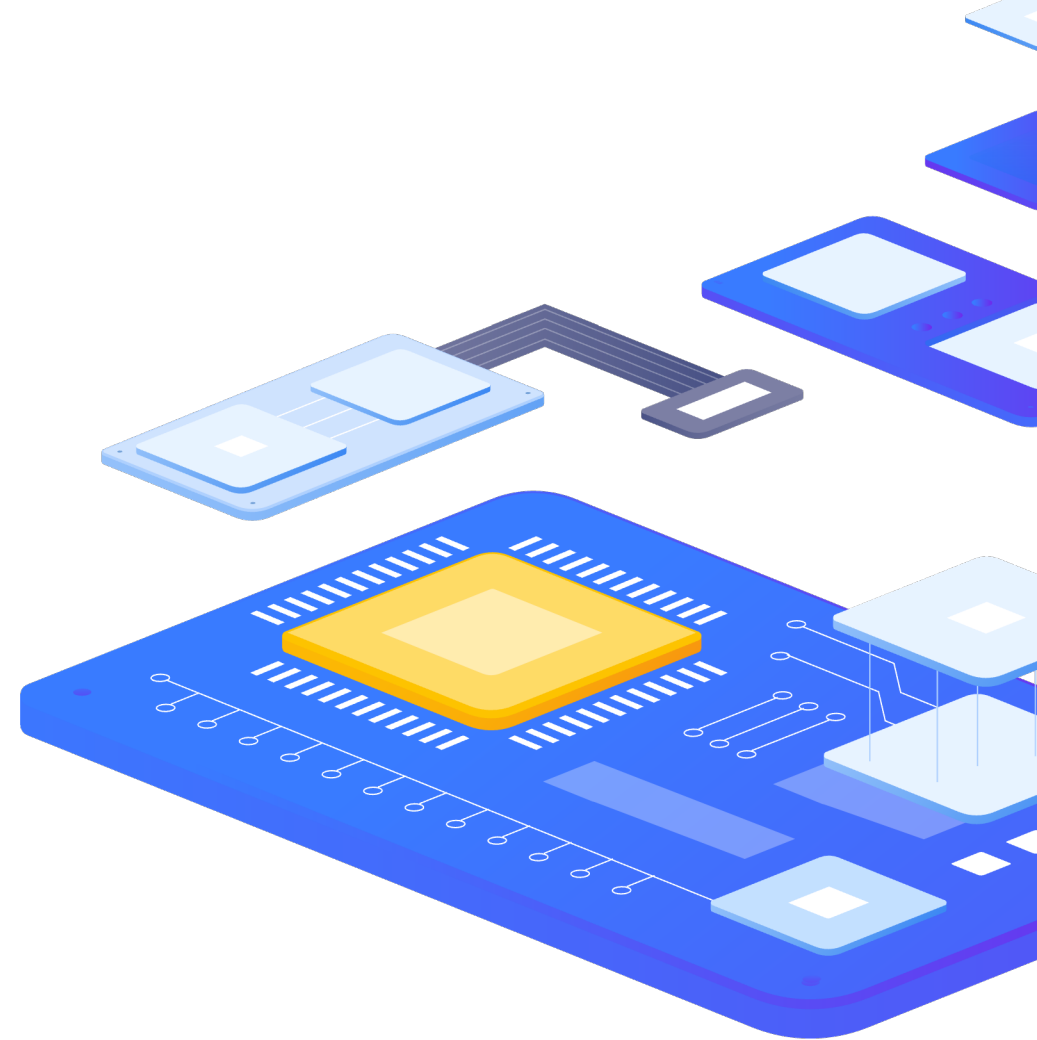


## The power of tags

# WHY DO WE NEED TAGS ?

Tags have several uses, most notably, to mark events. If entities are tagged, the corresponding new events get marked accordingly:

- › with tagged templates - any host problems created by relevant entities (items, triggers, etc) from this template will be marked
- › with tagged hosts - any problem of the host will be marked
- › with tagged items, web scenarios - any data/problem of this item or web scenario will be marked
- › with tagged triggers - any problem of this trigger will be marked



## The power of tags

# Marking events

Depending on location of tag, different types of macros can be used:

- ▶ {HOST.HOST}, {HOST.NAME}, {HOST.CONN}, {HOST.DNS}, {HOST.IP}, {HOST.PORT} and {HOST.ID}
- ▶ {INVENTORY.\*} macros
- ▶ User macros

A problem event inherits all tags from the whole chain of templates, hosts, items, web scenarios, triggers.

Identical tag:value combinations (after resolved macros) are merged into one, when marking the event.

## The power of tags

# Marking events

Template level:

[Templates](#) [Tags 2](#) [Macros](#) [Value mapping](#)

Name	Value	Action
<input type="text" value="DB servers"/>	<input type="text" value="value"/>	<a href="#">Remove</a>
<input type="text" value="DB servers"/>	<input type="text" value="MySQL"/>	<a href="#">Remove</a>

[Add](#)

Host level:

[Host](#) [IPMI](#) [Tags 1](#) [Macros](#) [Inventory](#) [Encryption](#) [Value mapping](#)

Name	Value	Action
<input type="text" value="Environment"/>	<input type="text" value="Production"/>	<a href="#">Remove</a>

[Add](#)

Item level:

[Item](#) [Tags 1](#) [Preprocessing](#)

Item tags

Inherited and item tags

Name	Value	Action
<input type="text" value="Availability"/>	<input type="text" value="value"/>	<a href="#">Remove</a>

[Add](#)



## The power of tags

# Marking events

We will get a problem event, which we can easily track down using Monitoring - > Problems page tag filters:

Tags

And/Or

Or

DB servers

Exists

▼

Remove

Add

Show tags

None

1

2

3

Tag name

Full

Shortened

None

Tag display priority

comma-separated list

And it will be marked with all previously created tags:

Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
Disaster		PROBLEM		SRVSQL02P	Database node 2 is down on SRVSQL02P	16m 20s	No		Availability DB servers DB servers: MySQL Environment: Production

## The power of tags

# Marking events

We can mark hosts, by using Hosts level and Template level tags:

Name ▲	Interface	Availability	Tags	Problems
<a href="#">Pre-release server</a>	172.10.127.1:10050	ZBX	Application: PostgreSQL Environment: Develop...	
<a href="#">SRVSQL02P</a>			DB servers DB servers: MySQL Environment: Production	1
<a href="#">Zabbix server</a>	127.0.0.1:10050	ZBX	Application: Zabbix Environment: Production	

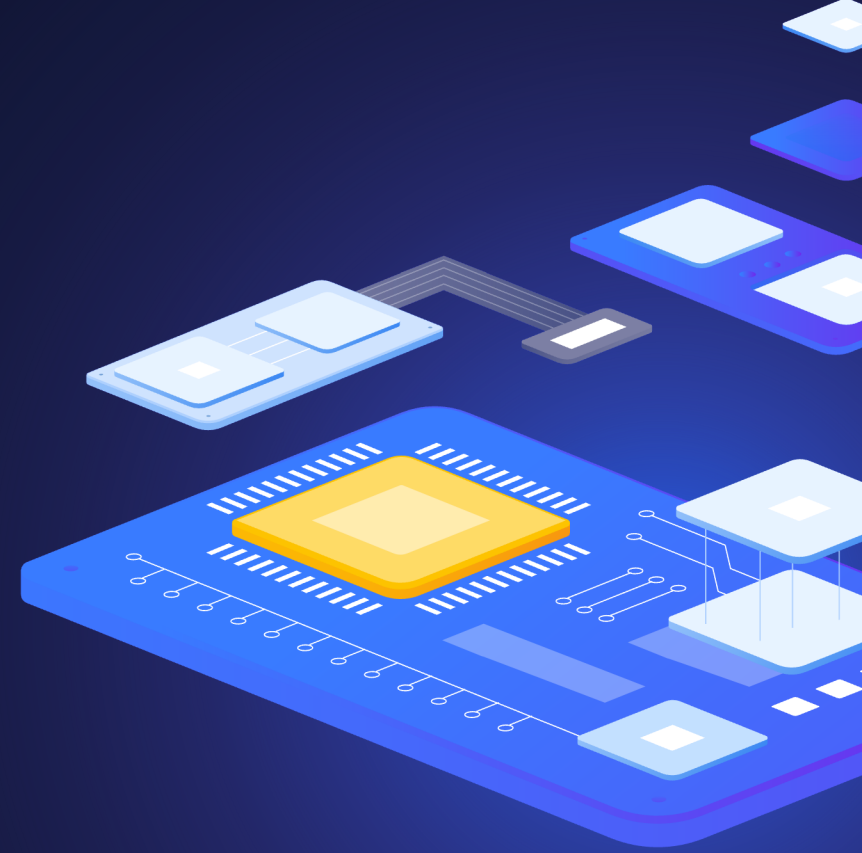
We can mark items, by using item level tags:

<input type="checkbox"/> Host	Name ▲	Last check	Last value	Change	Tags
<input type="checkbox"/> <a href="#">Pre-release server</a>	Available memory ?	2022-01-07 14:06:35	813.24 MB		Application: Memory
<input type="checkbox"/> <a href="#">Zabbix server</a>	Available memory ?	2022-01-07 14:13:19	828.29 MB	-30.79 MB	Application: Memory
<input type="checkbox"/> <a href="#">Zabbix server</a>	Available memory in % ?	2022-01-07 14:13:17	45.5874 %	-1.9352 %	Application: Memory

Allowing us to mark, group, find and understand current state of our infrastructure and, do much more.

# 2

## Tag use cases



## The power of tags

# DIFERRENT TAG USE CASES

Limit MySQL administrators to only see MySQL server problems.

- › Go to Administration → User groups
- › Click on Create user group or select an existing one
- › Click on the Tag filter tab, select a host group and specify tag DB severs:MySQL

User groupPermissionsTag filter

Permissions

Host group	Tags	Action
<div>Templates/Databases ✕ type here to search</div> <div><input type="checkbox"/> Include subgroups</div> <div>Add</div>	<div>Select</div>	<div>DB seversMySQL</div>

Update

Delete

Cancel

## The power of tags

# DIFERRENT TAG USE CASES

Notify PostgreSQL administrators only about PostgreSQL server problems.

- › Go to Configuration → Actions → Trigger actions
- › Click on Create action
- › Name the action
- › Selection condition type: Tag value and specify tag DB servers: PostgreSQL

Action

Operations

\* Name

Notify PostgreSQL administrators

Type of calculation

And/Or

A and B

Conditions

Label	Name	Action
A	Value of tag <i>DB Servers</i> equals <i>PostgreSQL</i>	<a href="#">Remove</a>
B	Problem is not suppressed	<a href="#">Remove</a>
<a href="#">Add</a>		

Enabled

☒

\* At least one operation must exist.

Add

Cancel

## The power of tags

# DIFERRENT TAG USE CASES

Supress Oracle related problems, while database is under maintenance

- › Go to Configuration → Maintenance
- › Click on Create maintenance period
- › Fill in required fields, Select host groups or hosts
- › Specify tag DB Servers:Oracle

Host groups

Production ×

type here to search

Select

Hosts

type here to search

Select

\* At least one host group or host must be selected.

Tags

And/Or

Or

DB servers

Contains

Equals

Oracle

[Remove](#)

## The power of tags

# DIFERRENT TAG USE CASES

Use information extracted from item value as tag

- › Go to trigger configuration
- › Fill in the required fields
- › Use an `{{ITEM.VALUE<N>}.regsub()}}` macro in the tag value

[Trigger](#) [Tags 2](#) [Dependencies](#)

Trigger tagsInherited and trigger tags

Name	Value	Action
Environment	Productions	<a href="#">Remove</a>
Error	<code>{{ITEM.VALUE}.regsub(pattern,output)}</code>	<a href="#">Remove</a>

[Add](#)

Add

Cancel

## The power of tags

# DIFERRENT TAG USE CASES

Aggregation by tag:value

- › Go to item configuration
- › Select type Calculated
- › Create a custom key
- › Specify the calculation formula

Item

Tags

Preprocessing

\* Name

Database server ued space

Type

Calculated

▼

\* Key

productiondb.used.space

Select

Type of information

Numeric (unsigned)

▼

\* Formula

```
sum(last_foreach(/*vfs.fs.size[* ,used]?[group="Database servers" and tag="Environment:production"])
```

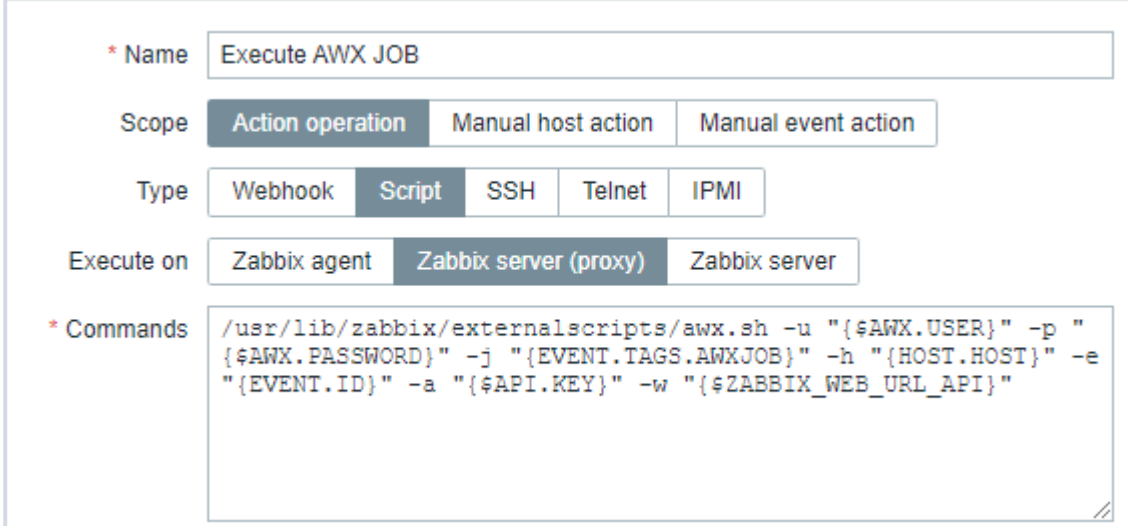


## The power of tags

# DIFERRENT TAG USE CASES

Executing script with parameter tag:value

- › How to pass parameters to script?
- › Set Tag in trigger
- › Pass Tag value to script



\* Name: Execute AWX JOB

Scope: Action operation | Manual host action | Manual event action

Type: Webhook | Script | SSH | Telnet | IPMI

Execute on: Zabbix agent | Zabbix server (proxy) | Zabbix server

\* Commands: `/usr/lib/zabbix/externalscripts/awx.sh -u "${AWX.USER}" -p "${AWX.PASSWORD}" -j "${EVENT.TAGS.AWXJOB}" -h "${HOST.HOST}" -e "${EVENT.ID}" -a "${API.KEY}" -w "${ZABBIX_WEB_URL_API}"`

<input type="checkbox"/>	Severity	Name ▲	Operational data	Expression	Status	Tags
<input type="checkbox"/>	Warning	APP1 is not installed		<code>last(/LAB01/vfs.file.exists["C:\program files\app1\app1.exe"])=0</code>	Enabled	AWXJOB: AWX_Instal...
<input type="checkbox"/>	Warning	Zabbix Agent version is not installed with actual version		<code>last(/LAB01/agent.version)&lt;&gt;"6.0.5"</code>	Enabled	AWXJOB: AWX_Install_App1 AWXJOB: AWX_Install_Agent

# 3

## Event correlation



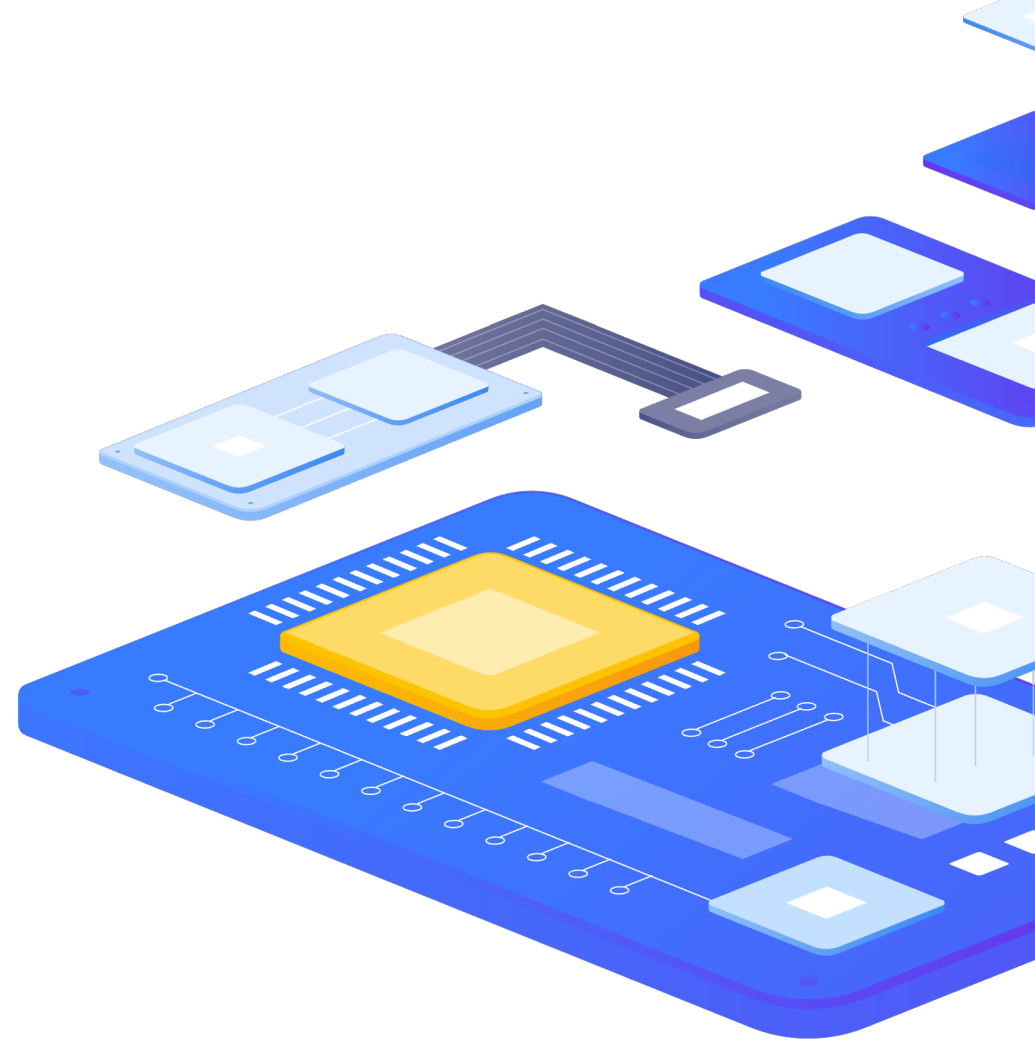
## The power of tags

# EVENT CORRELATION

In Zabbix, it is possible to correlate problem events with their resolution.

- › On trigger level - Allows to correlate separate problems reported by one trigger, need to have Multiple Problem Event Generation mode enabled for a trigger
- › Globally - Problems reported from different triggers can be correlated using global correlation rules

Avoid using common tag names that may end up being used by different correlation configurations



## The power of tags

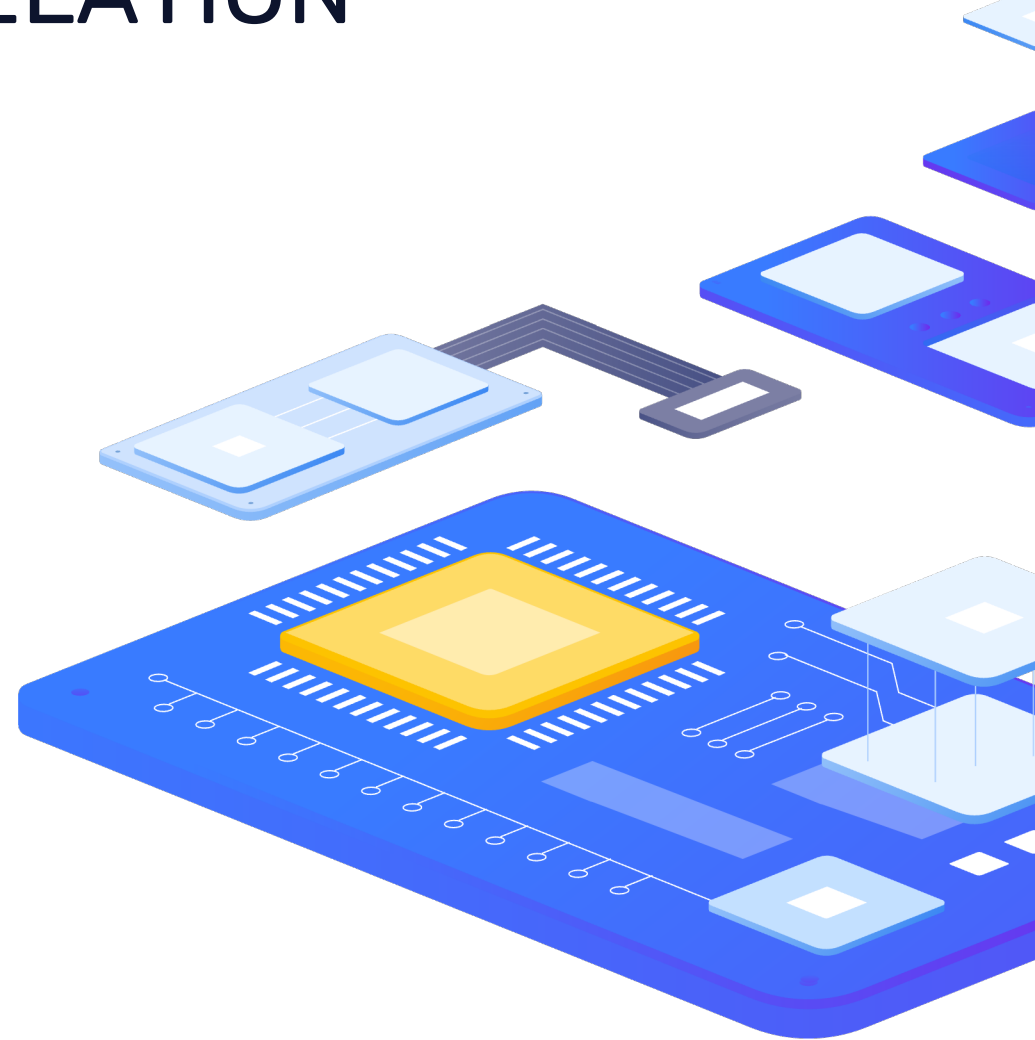
# TRIGGER-BASED EVENT CORRELATION

In general, an OK event closes all problem events created by one trigger, but there are cases when we require a more detailed approach.

Correlate separate problems reported by one trigger

- › Tags are used to extract values and create identification for problem events
- › Problems can be closed individually based on matching tags and their values

Useful for events, log files, SNMP traps, etc.



## The power of tags

# TRIGGER-BASED EVENT CORRELATION

Substring extraction is usually used for populating the tag name or tag value, with a specific value using a macro function, i.e. :

```
{{ITEM.VALUE}.regsub(pattern, output)}  
{{ITEM.VALUE}.iregsub(pattern, output)}  
{{#LLDMACRO}.regsub(pattern, output)}  
{{#LLDMACRO}.iregsub(pattern, output)}
```

- › By applying a regular expression to the value obtained by the {ITEM.VALUE}, {ITEM.LASTVALUE} macro or a low-level discovery macro

## The power of tags

# TRIGGER-BASED EVENT CORRELATION

So, creating a trigger with an example tag:

Trigger Tags 1 Dependencies

Trigger tags

Inherited and trigger tags

Name	Value	Action
ErrorID	{{ITEM.VALUE}.regsub("ID.([0-9]+)", \1)}	<a href="#">Remove</a>

[Add](#)

Update

Clone

Delete

Cancel

Would allow us to extract error ID from a log line:

Error ID:123 encountered

To create a problem that would be informative and possible to correlate:

Time ▼	<input type="checkbox"/> Severity	Recovery time	Status	Info	Host	Problem	Duration	Ack	Actions	Tags
16:57:26	<input type="checkbox"/> Average				SRVSQL02P	MySQL error	1m 35s	No		DB severs: MySQL Environment: Production ErrorID: 32

The power of tags

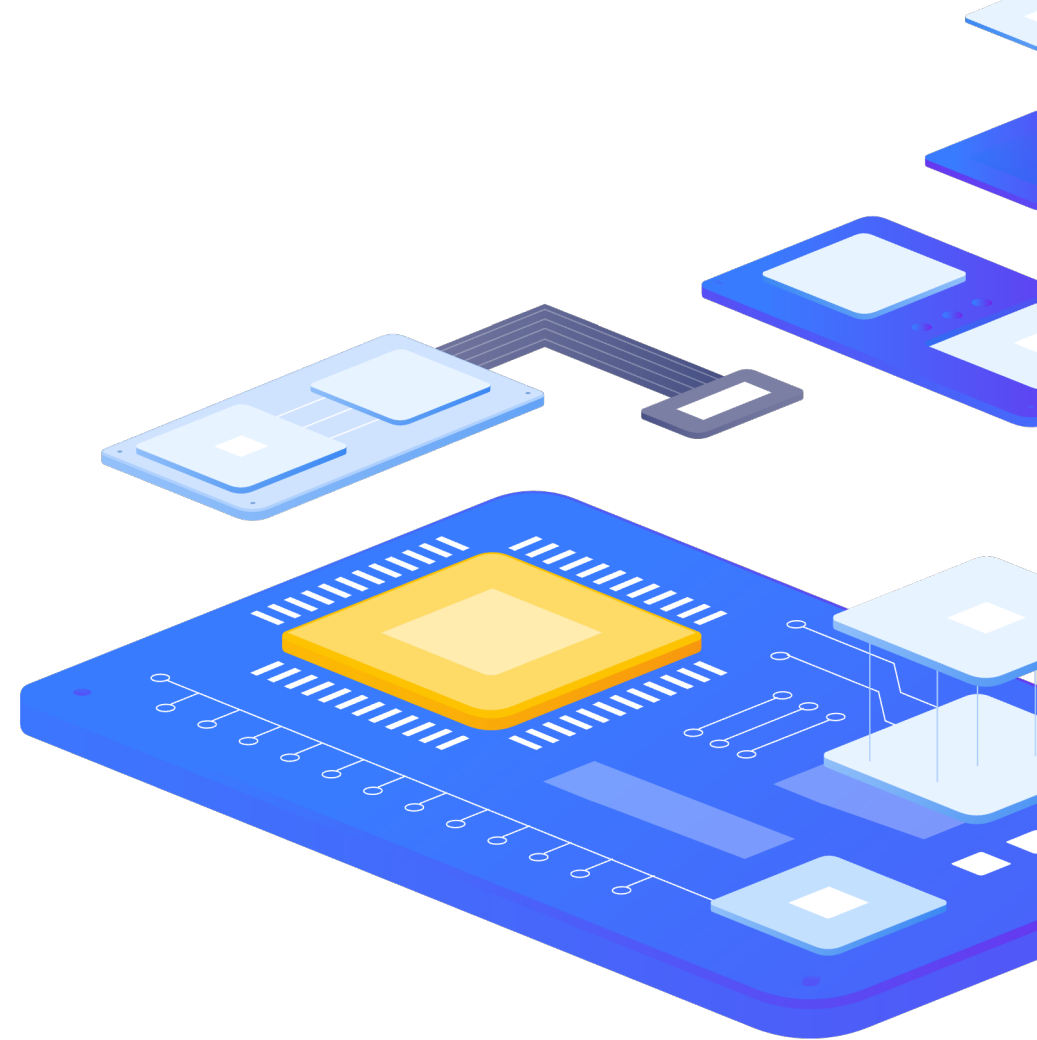
# GLOBAL EVENT CORRELATION

Global event correlation allows to reach out over all metrics monitored by Zabbix and create correlations

Resolves problems reported by one trigger with completely different trigger

- › Problems matching correlation rules are closed automatically
- › Events are still generated, but actions are not executed

Focus on root causes of a problem by saving yourself from repetitive notifications



## The power of tags

# GLOBAL EVENT CORRELATION

Configuring global correlation rules is available to Zabbix Super Admins only

- › Open Configuration > Event correlation to configure global event correlation rules
- › Define conditions for the correlation rule

Correlation

Operations

\* Name

Correlate problems

Type of calculation

And/Or

A and B and C

\* Conditions

Label	Name	Action
A	New event host group equals <i>DB Servers</i>	<a href="#">Remove</a>
B	Value of old event tag <i>Application</i> equals value of new event tag <i>Application</i>	<a href="#">Remove</a>
C	Value of old event tag <i>Environment</i> equals <i>Prod</i>	<a href="#">Remove</a>
<a href="#">Add</a>		

Description

Correlate problems with applications on production database servers

Enabled

☒

Add

Cancel



## The power of tags

# GLOBAL EVENT CORRELATION

Operations define what to do in case of a match:

- › Close old events – close old events when a new event happens
- › Close new event – close new event immediately when it happens

### Event correlation rules

CorrelationOperations

Close old events ☒

Close new event ☐

\* At least one operation must be selected.

Add

Cancel

## The power of tags

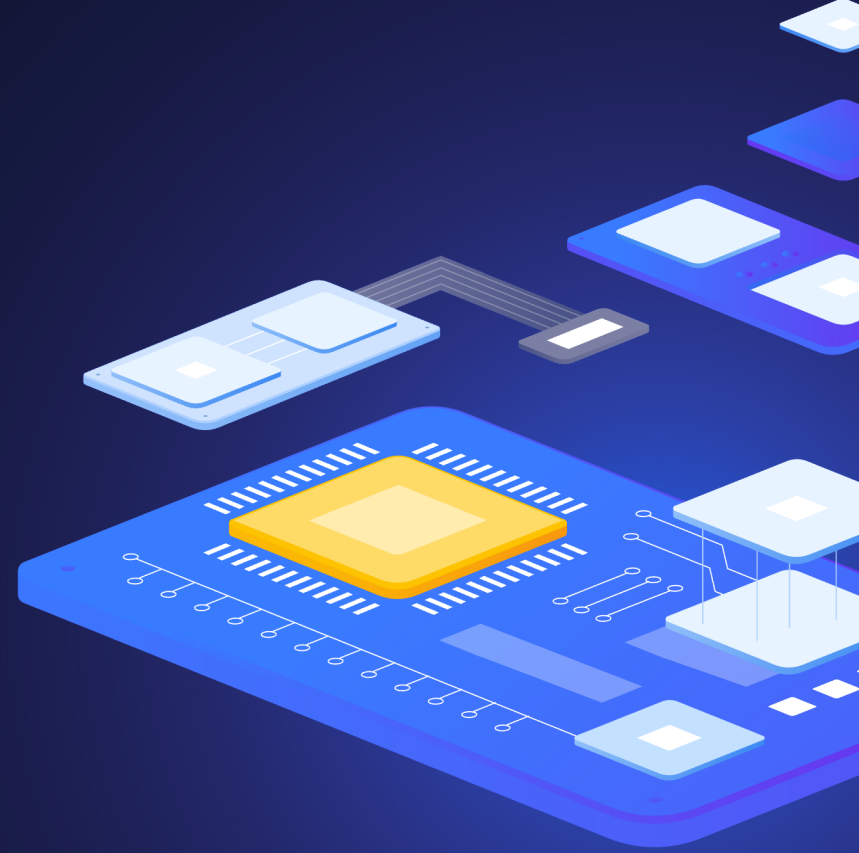
# GLOBAL EVENT CORRELATION

Global event correlation must be configured very carefully:

- › Always set a unique tag for the new event that is paired with old events
- › It can close all existing problems in the worst case
- › Use a condition based on the old event when using the "Close old event" operation
- › Keep the number of correlation rules limited to the ones you really need

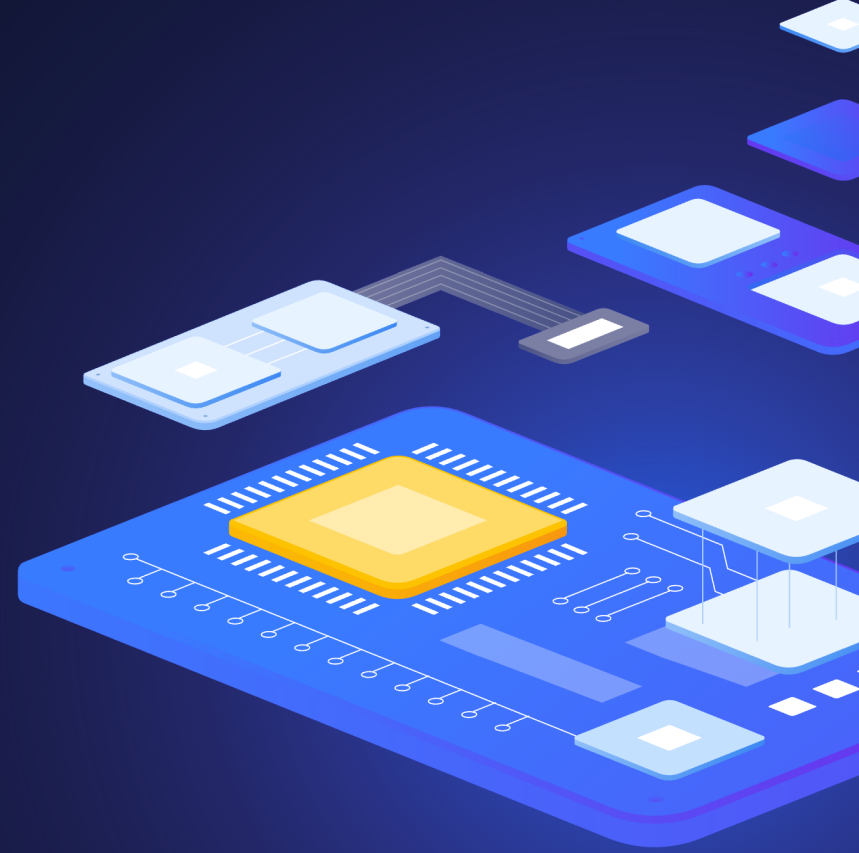
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Demonstration





Questions?



The power of tags

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