



Webinar

The power of tags

all our microphones are muted

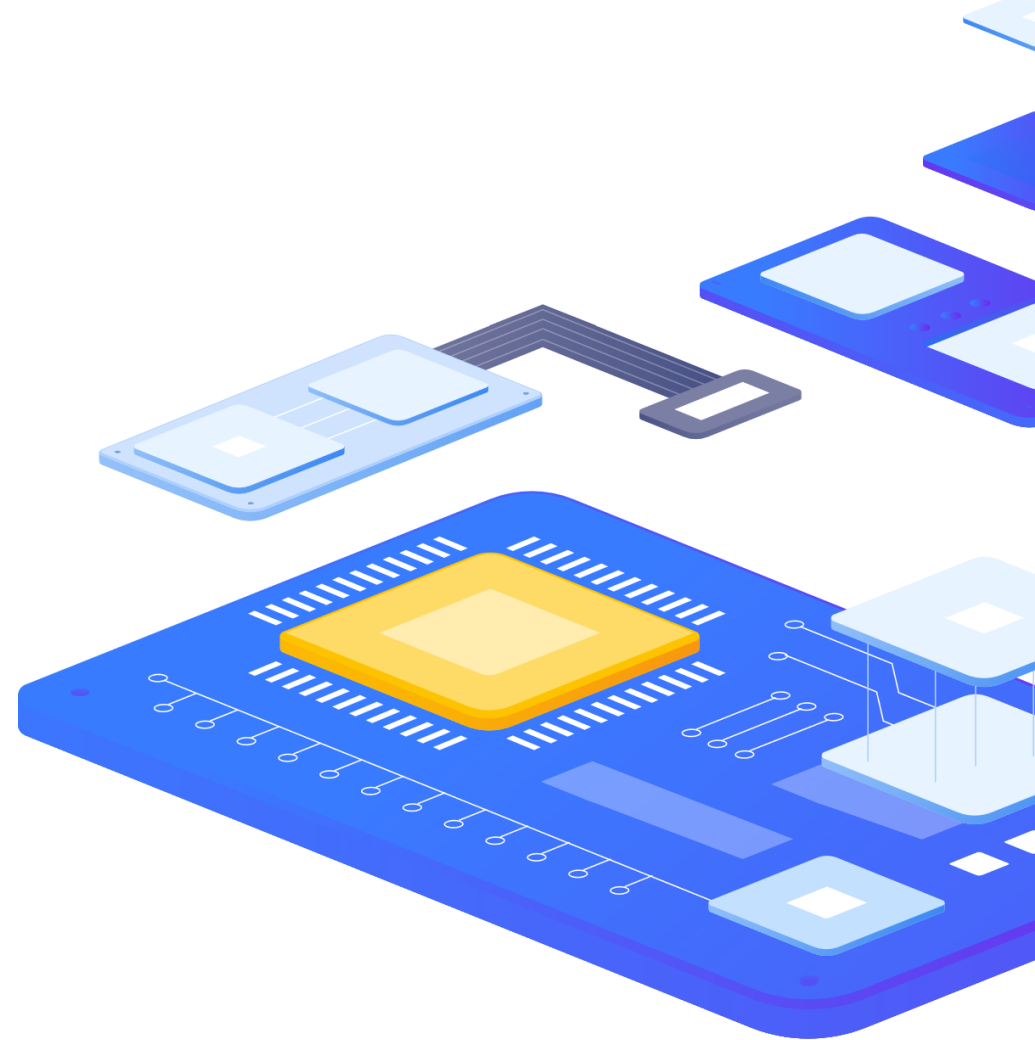
ask your questions in Q&A, not in the Chat

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

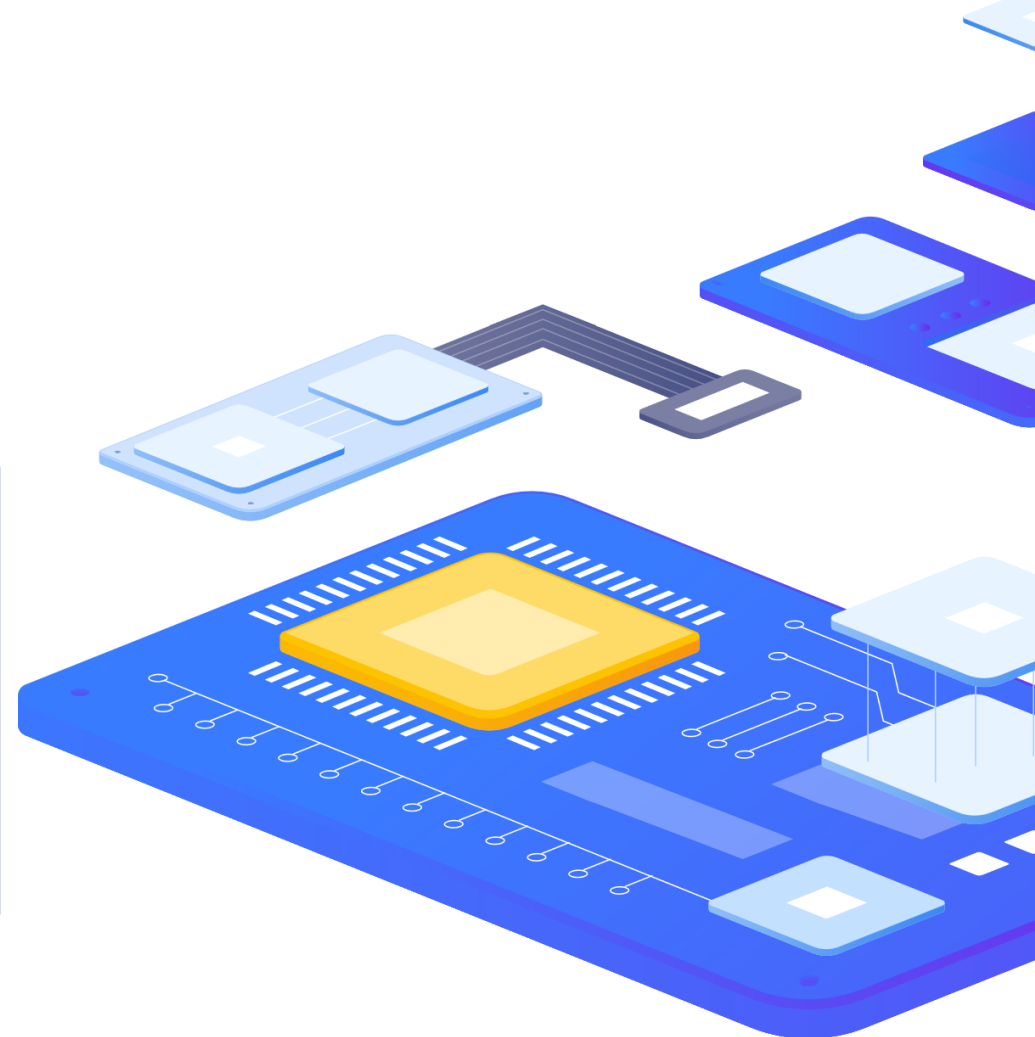
WHAT ARE TAGS?

- › 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
<input type="text" value="Database server"/>	<input type="text" value="value"/>	Remove
<input type="text" value="Database server"/>	<input type="text" value="MySQL"/>	Remove
<input type="text" value="Environment"/>	<input type="text" value="Production"/>	Remove

[Add](#)

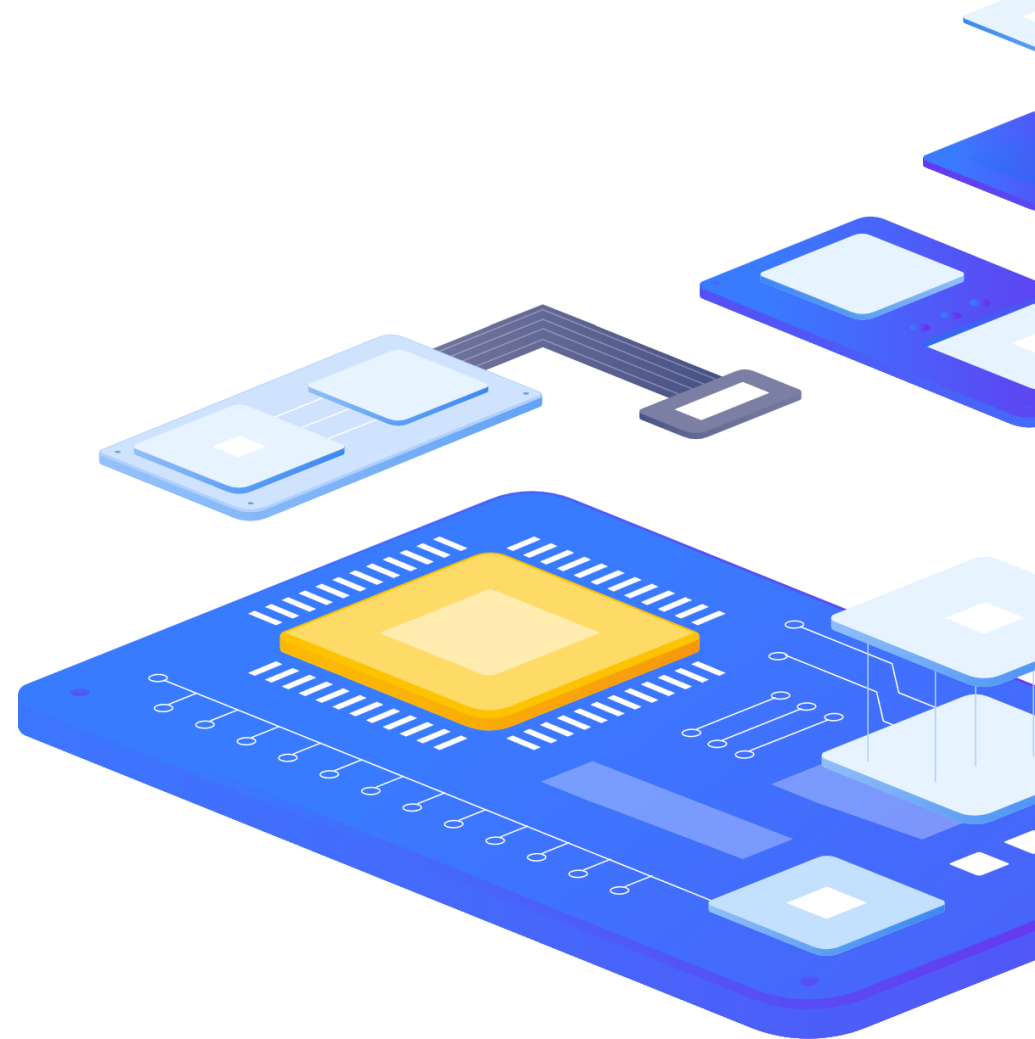


The power of tags

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



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The purpose of the tags

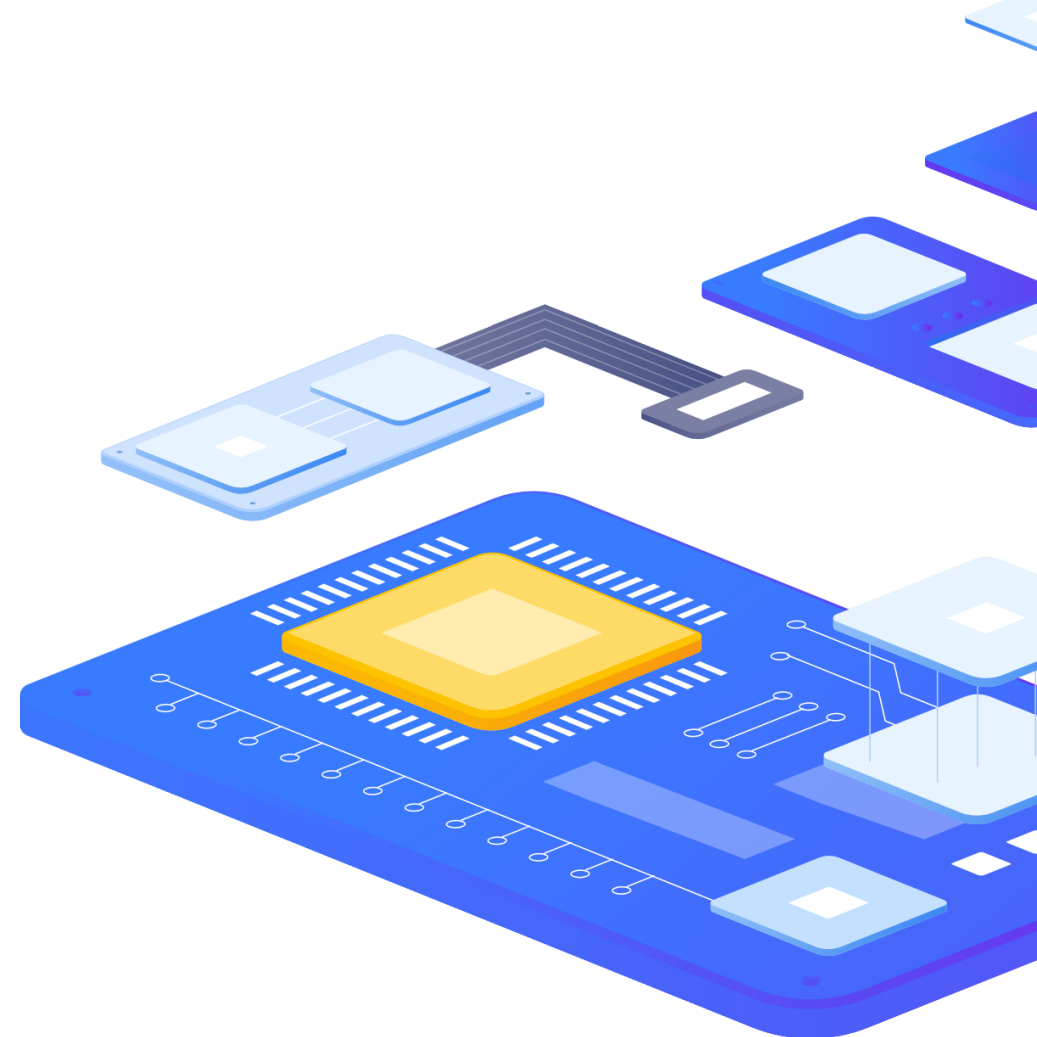


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WHY DO WE NEED TAGS ?

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



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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.

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Marking events

Template level:

Templates Tags 2 Macros Value mapping

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

[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"/>	Remove

[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"/>	Remove

[Add](#)

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Marking events

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

Tags And/Or Or

[Add](#)

Show tags Tag name

Tag display priority

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

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Marking events

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

Name ▲	Interface	Availability	Tags	Problems
Pre-release server	172.10.127.1:10050	ZBX	Application: PostgreSQL Environment: Develop...	
SRVSQL02P			DB servers DB servers: MySQL Environment: Production	1
Zabbix server	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"/> Pre-release server	Available memory ?	2022-01-07 14:06:35	813.24 MB		Application: Memory
<input type="checkbox"/> Zabbix server	Available memory ?	2022-01-07 14:13:19	828.29 MB	-30.79 MB	Application: Memory
<input type="checkbox"/> Zabbix server	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.

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Tag use cases

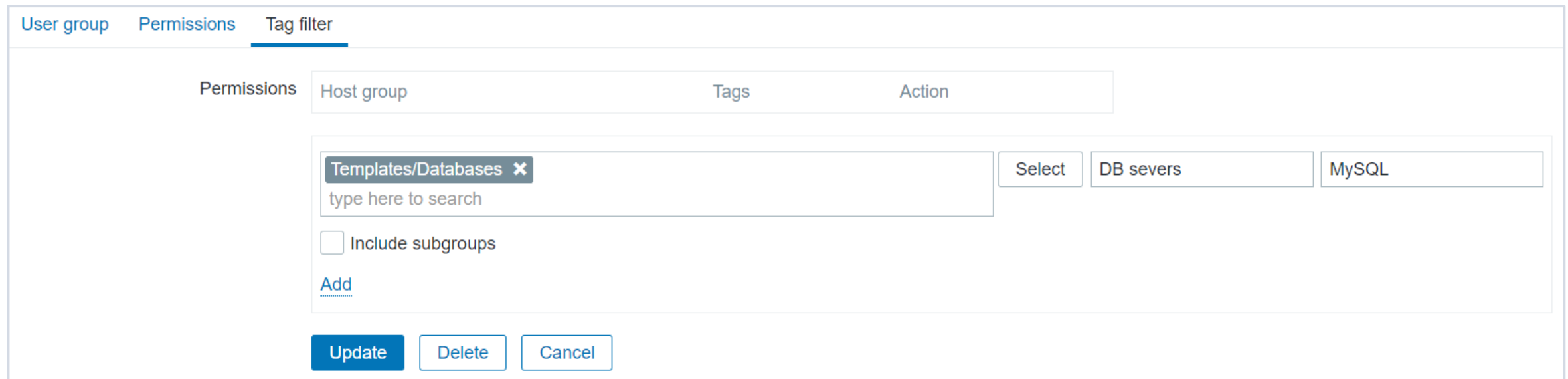


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DIFERRENT TAG USE CASES

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 servers:MySQL



The screenshot shows the 'Tag filter' tab of a user group configuration interface. It features a table with columns for 'Permissions', 'Host group', 'Tags', and 'Action'. A search box is present with a selected tag 'Templates/Databases' and a search input field containing 'type here to search'. Below the search box is an unchecked checkbox for 'Include subgroups' and an 'Add' link. At the bottom, there are three buttons: 'Update', 'Delete', and 'Cancel'. The 'Action' column of the table shows a 'Select' button, a 'DB servers' field with the value 'MySQL', and a 'MySQL' field.

Permissions	Host group	Tags	Action
		<input type="text" value="Templates/Databases x"/> <input type="text" value="type here to search"/>	<input type="button" value="Select"/> <input type="text" value="DB servers"/> <input type="text" value="MySQL"/>

Include subgroups
[Add](#)

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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

Type of calculation A and B

Conditions	Label	Name	Action
	A	Value of tag <i>DB Servers</i> equals <i>PostgreSQL</i>	Remove
	B	Problem is not suppressed	Remove
	Add		

Enabled

* At least one operation must exist.

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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
type here to search

Hosts

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

Tags

[Remove](#)

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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 tags Inherited and trigger tags

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

[Add](#)

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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

Type ▼

* Key

Type of information ▼

* Formula

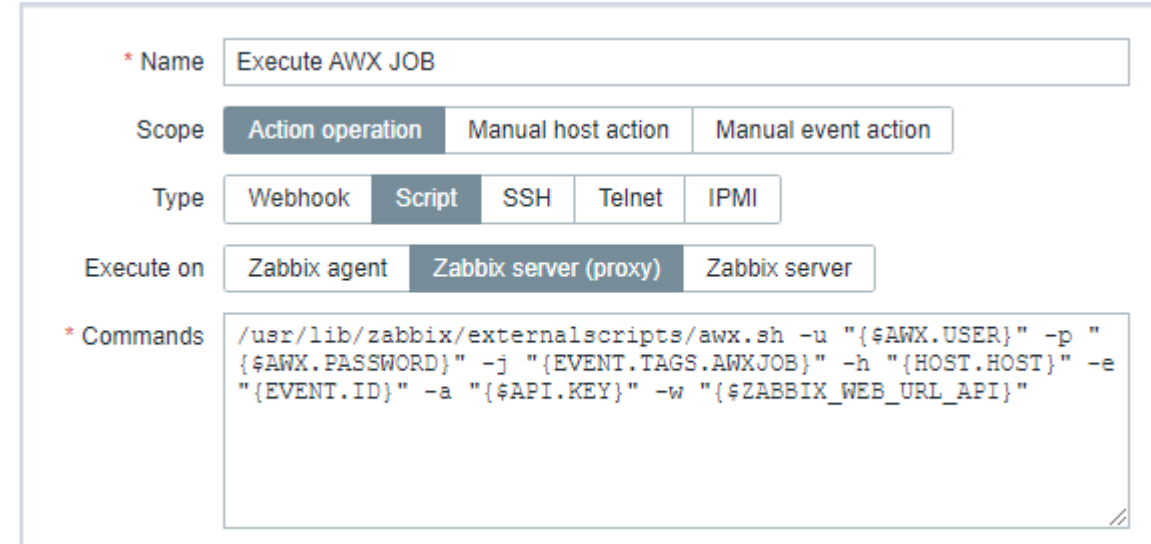
```
sum(last_foreach(/*vfs.fs.size[*,used]?[group="Database servers" and tag="Environment:production"])))
```


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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}"`

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

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Event correlation



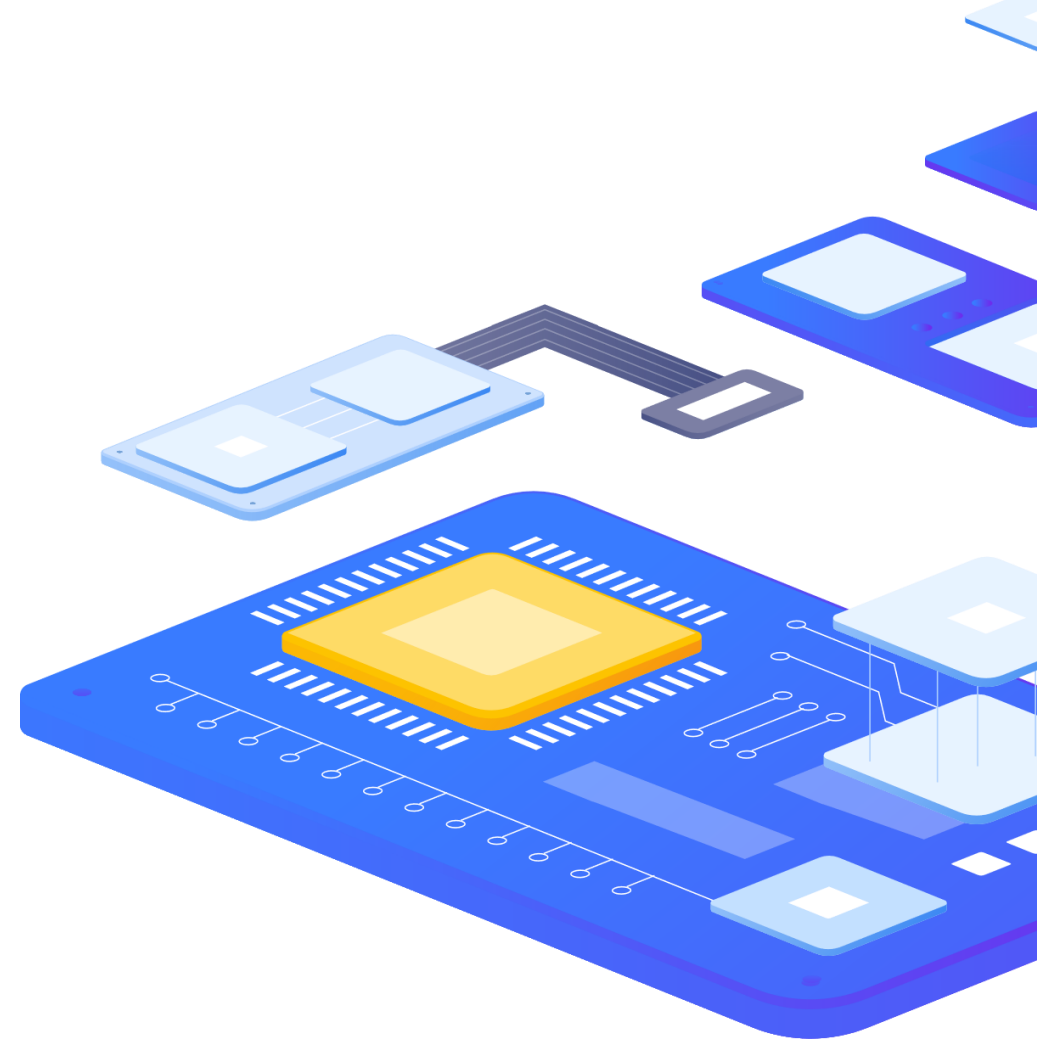
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EVENT CORRELATION

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



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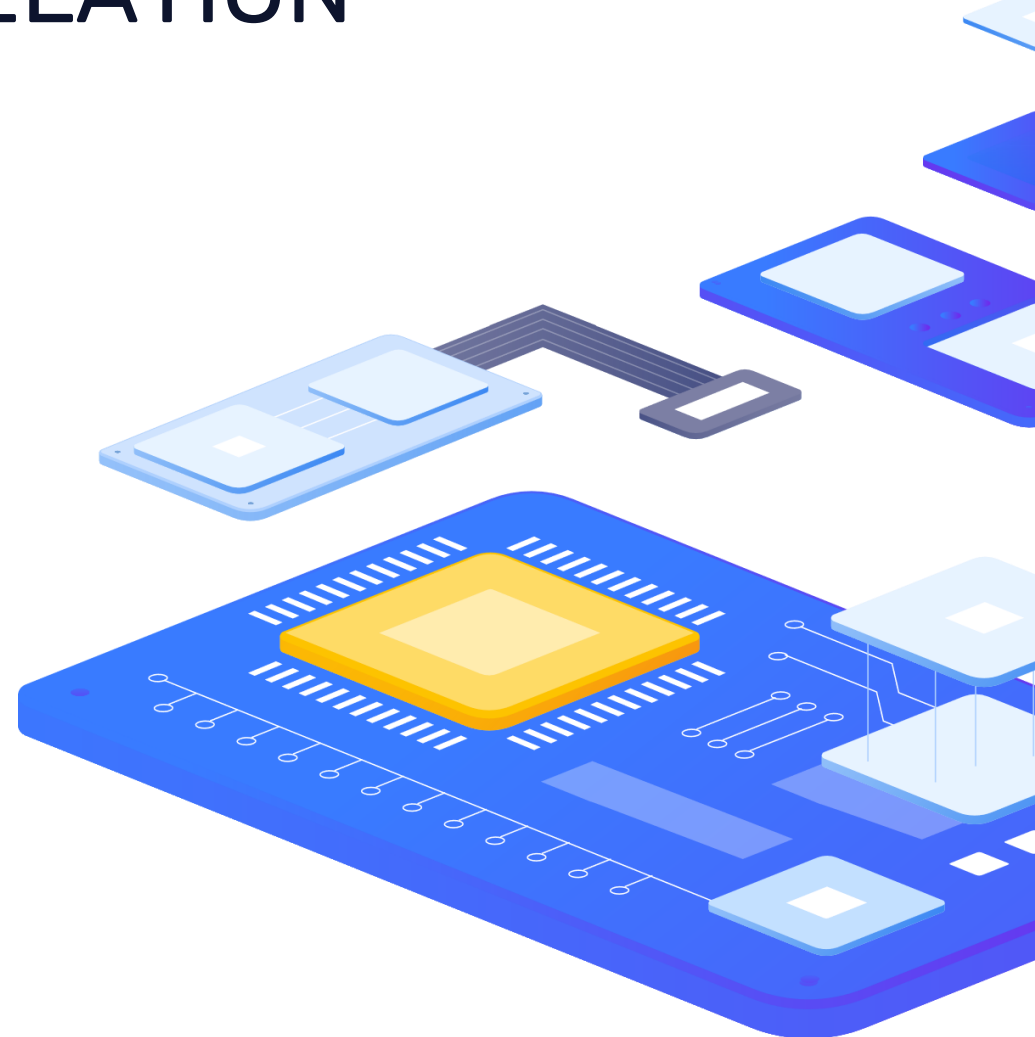
TRIGGER-BASED EVENT CORRELATION

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.



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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

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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)}	Remove

[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 servers: MySQL Environment: Production ErrorID: 32

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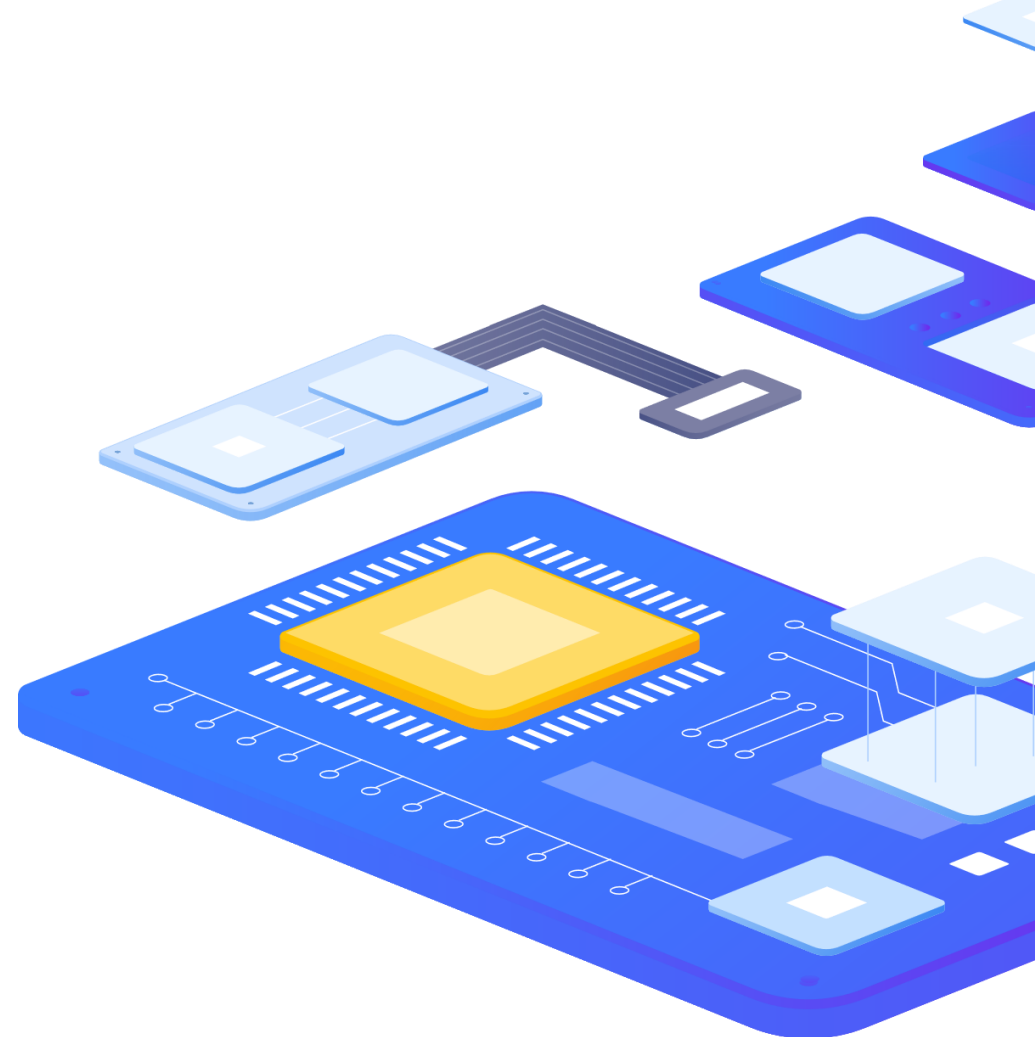
GLOBAL EVENT CORRELATION

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



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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

Type of calculation A and B and C

* Conditions

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

[Add](#)

Description

Enabled

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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

Correlation **Operations**

Close old events

Close new event

* At least one operation must be selected.

Add Cancel

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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?



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