

# What's new in Zabbix 3.4

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The Enterprise-class  
Monitoring Solution for Everyone

ZABBIX

# What do we have today?

2.0	Out of support since May 2017
2.2 LTS	Supported till August 2019
2.4	Out of support since March 2016
3.0 LTS	Supported till February 2021
3.2	Supported till November 2017
NEW 3.4	Supported till March 2018
4.0 LTS	Development in progress

**1.**

# **Visualization**

# Multiple and customizable Dashboards

ZABBIX Monitoring Inventory Reports Configuration Administration

Dashboard Problems Overview Web Latest data Triggers Graphs Screens Maps Discovery Services MONITOR-01

Private cloud #24

All dashboards / Private cloud #24

Filter ▾

Problems

Time ▾	Recovery time	Status	Info	Host	Problem • Severity	Duration	Ack	Actions
2017-08-15 13:12:29		PROBLEM		ctrl-01	nova.api.openstack.extensions [req-48052bfe-d299-40d8-bf00-f77ba56c4f7b] admin] Unexpected exception in API method	1h 1m 52s	No	Done_2
2017-08-15 12:59:28	13:13:39	RESOLVED		ctrl-01	oslo.messaging.rpc.server [req-37636e632-a532-4934-8393-702b8de759b4] admin admin] Exception during message handling	14m 11s	Yes	Done_2
2017-08-15 12:49:25		PROBLEM		compute-04	Failed to spawn container "instance-0000004"	24m 56s	Yes	Done_2
2017-08-15 12:49:25		PROBLEM	instance-0000004		Instance failed to spawn	24m 56s	Yes	Done_2
2017-08-15 10:38:11	12:27:53	RESOLVED		ctrl-01	nova.api.openstack.extensions [req-aae9f648-55ac-467d-a07a-0e013aca41d7] admin admin] Unexpected exception in API method	1h 49m 42s	Yes	Done_2
2017-08-15 10:13:00	12:25:12	RESOLVED		ctrl-01	Migration of instance 4440d80fa-2238-40d9-ad2-242d181739b2 to host compute-07 unexpectedly failed	2h 12m 12s	Yes	Done_2
2017-08-15 09:55:54	10:46:37	RESOLVED		ctrl-01	neutron agent ovsdb.impl.vscfg [req-05d3a340-d78e-49fb-a815-6b709099f736] None None] Unable to execute: constraint violation	50m 43s	Yes	Done_2
2017-08-15 09:55:05	10:43:41	RESOLVED		ctrl-01	nova.api.openstack.extensions [req-40cbda84-960e-425c-896e-c3155269b02] admin admin] Unexpected exception in API method	48m 36s	Yes	Done_2

6 of 162 problems are shown Updated: 13:14:21

Server memory usage

ostack: Memory usage (2h 16m)

Available memory [avg] last 31.061 GB min 299.85 GB avg 329.03 GB max 341.75 GB

Updated: 13:14:21

Open Stack Private Cloud #24

OpenStack Control Plane

OpenStack Data Plane

Middleware

Updated: 13:14:21

Transactions per second

ostack: Transactions (2h 16m)

Transactions [all] last 220 min 10 avg 397.65 max 1.4 K

Updated: 13:14:21

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# Dashboard sharing options

The screenshot shows the Zabbix web interface with the 'Dashboard' tab selected. A modal dialog box titled 'Dashboard sharing' is open in the center. The dialog has two tabs: 'Private' (selected) and 'Public'. It displays two sections: 'List of user group shares' and 'List of user shares'. In the 'List of user group shares' section, there are two entries: 'NOC Users' (Permissions: Read-only, Read-write, Action: Remove) and 'NOC Administrators' (Permissions: Read-only, Read-write, Action: Remove). In the 'List of user shares' section, there is one entry: 'Gerald.H' (Permissions: Read-only, Read-write, Action: Remove). At the bottom of the dialog are 'Update' and 'Cancel' buttons. The background shows a list of problems and a status summary.

ZABBIX Monitoring Inventory Reports Configuration Administration

Dashboard Problems Overview Web Latest data Triggers Graphs Screens Maps Discovery Services Central NOC

Dashboard

All dashboards / Dashboard

Problems

Time ▾ Recovery time

14:08:33 14:03:39 12:24:36 12:24:32 12:07:51 11:48:32 11:03:16 10:37:33

14:13:39 14:04:02 14:03:37

Dashboard sharing

Type

Private Public

List of user group shares

User groups	Permissions	Action
NOC Users	Read-only Read-write	Remove
NOC Administrators	Read-only Read-write	Remove

Add

List of user shares

Users	Permissions	Action
Gerald.H	Read-only Read-write	Remove

Add

Update Cancel

25 of 34567 problems are shown Updated: 14:15:51

Status of Zabbix

Parameter Value Details

Zabbix server is running Yes localhost:10061

Host status

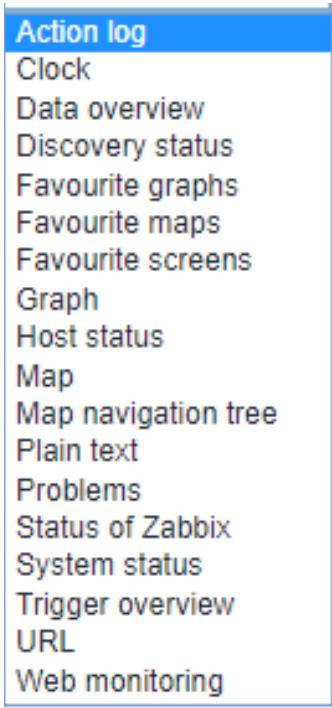
Host group Without problems With problems Total

Discovered hosts 67

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# Other new dashboard features

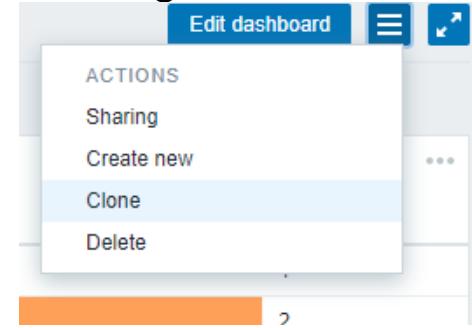
## New widgets



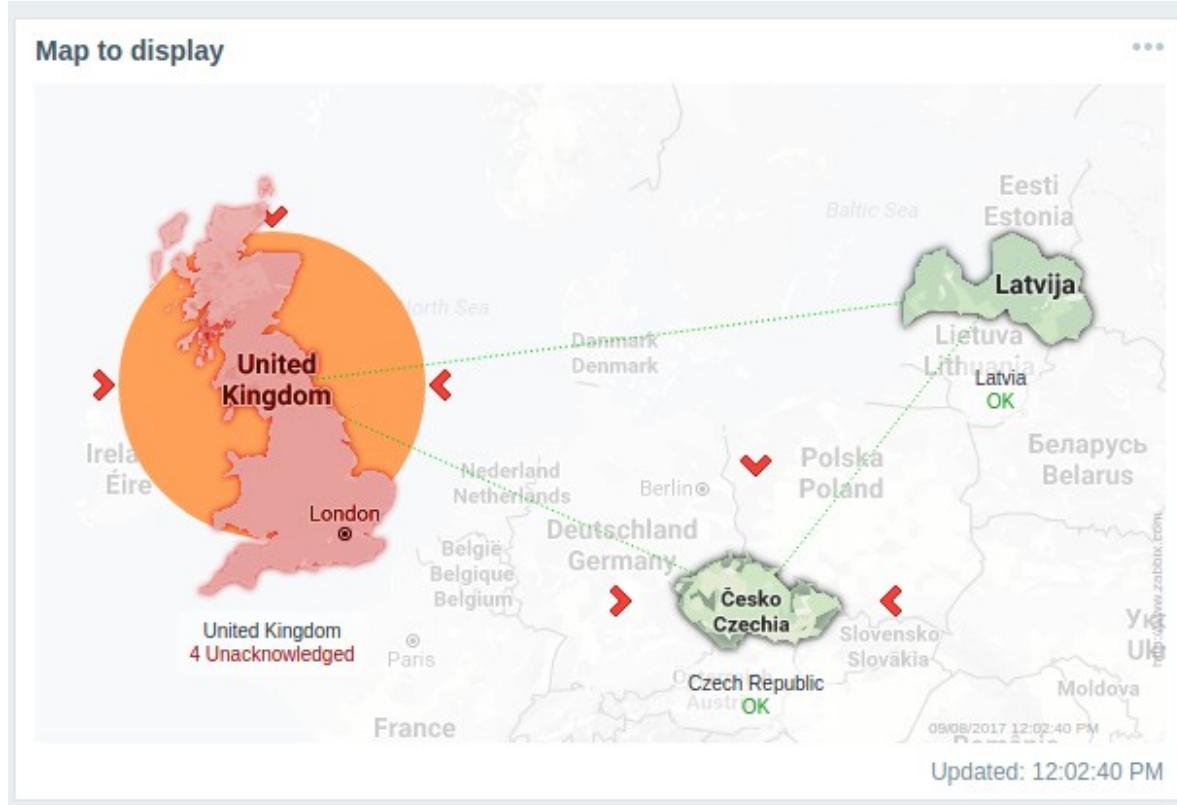
## Granular filtering

The 'Edit widget' dialog for a 'Problems' type widget. It includes fields for Name, Show (Recent problems, Problems, History), Host groups (Zabbix servers), Exclude host groups, Hosts, Problem, Severity (checkboxes for Not classified, Information, Warning, Average, High, Disaster), Tags (tag and value input fields with Add, Remove, and Add buttons), Show hosts in maintenance (checked), Show unacknowledged only (unchecked), Sort entries by (Time (descending)), Show lines (25), and Show tags (unchecked). Buttons at the bottom include Apply and Cancel.

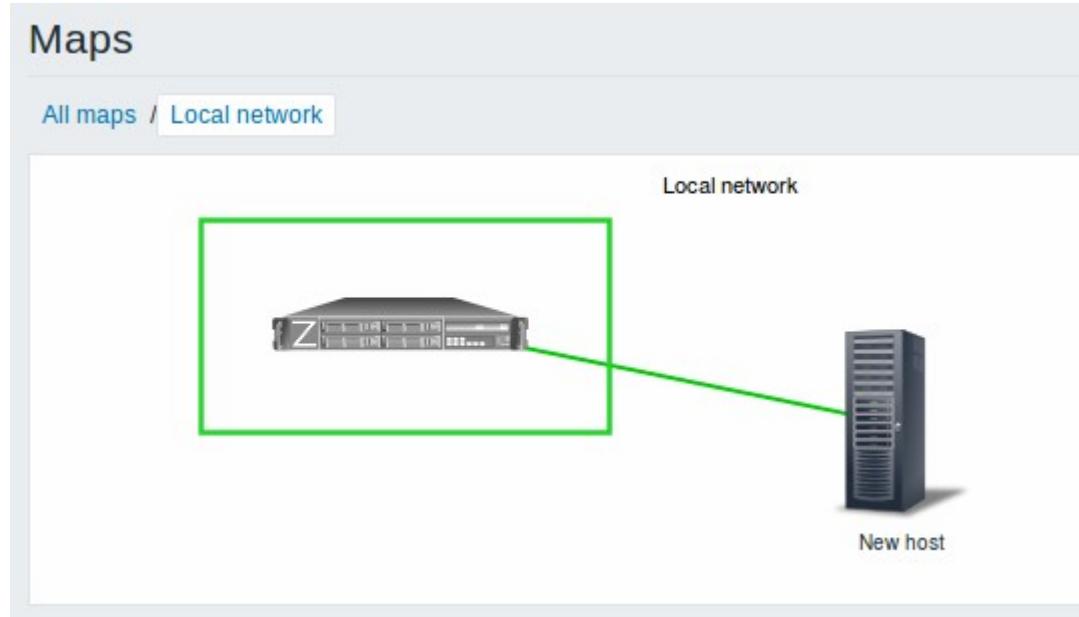
## Cloning of dashboards



# Improved Maps



# Map elements visible to limited users



# Full clone for Screens and Maps

Screens

Screen Sharing

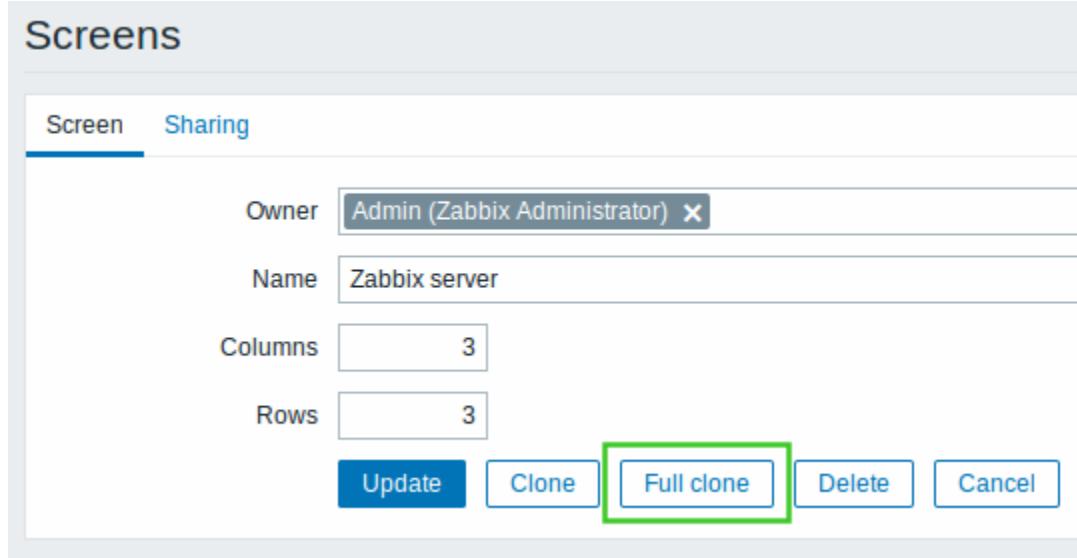
Owner Admin (Zabbix Administrator) [X](#)

Name Zabbix server

Columns 3

Rows 3

[Update](#) [Clone](#) [Full clone](#) [Delete](#) [Cancel](#)



# **2.**

## **Data collection and pre-processing**

# New agent item keys

`vfs.dir.size[dir,<regex_incl>,<regex_excl>,<mode>,<max_depth>]`

Displays the size of directory (in bytes)

mode:	apparent	disk
	<code>du -sb dir</code>	<code>du -s -B1 dir</code>

# New agent item keys

`vfs.dir.size[dir,<regex_incl>,<regex_excl>,<mode>,<max_depth>]`

Displays the size of directory (in bytes)

**mode:** apparent disk

du -sb dir du -s -B1 dir

`proc.num[<name>,<user>,<state>,<cmdline>]`

Displays the number of processes

New options for **state**: disk - uninterruptible sleep

trace – stopped

all (default)

run - running

sleep - interruptible sleep

zomb - zombie

# New internal item keys

`zabbix[host, discovery, interfaces]`

Returns a JSON with all host interfaces. Useful for LLD

```
{      "data": [          {              "#IF.CONN": "192.168.3.1",              "#IF.IP": "192.168.3.1",              "#IF.DNS": "",              "#IF.PORT": "10050",              "#IF.TYPE": "AGENT",              "#IF.DEFAULT": 1          }      ]    }
```

# New internal item keys

**zabbix[host, discovery, interfaces]**

Returns a JSON with all host interfaces. Useful for LLD

```
{    "data": [        {            "#IF.CONN": "192.168.3.1",            "#IF.IP": "192.168.3.1",            "#IF.DNS": "",            "#IF.PORT": "10050",            "#IF.TYPE": "AGENT",            "#IF.DEFAULT": 1        }    ]}
```

**zabbix[preprocessing\_queue]**

Used to monitor the preprocessing queue length

# Item value preprocessing

ZABBIX Monitoring Inventory Reports Configuration Administration

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services

## Items

All hosts / VM manager Enabled ZBX SNMP JMX IPMI Applications 11 Items 74 Triggers 47 Graphs 13 Discovery rules

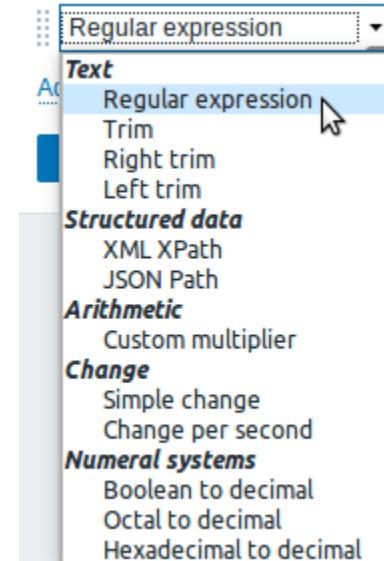
Item Preprocessing

Preprocessing steps	Name	Parameters	Action
JSON Path	\$.host.vms[1].network.read		Remove
Regular expression	0x(.*)	\1	Remove
Hexadecimal to decimal			Remove
Custom multiplier	1024		Remove
Change per second			Remove

Add

Update Clone Clear history and trends Delete Cancel

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# New preprocessing options

**Regular expression** - find match by a regular expression  
(Combination of match / replace / magic)

**XML XPath** - extract value or fragment from XML data using Xpath

**JSON Path** - extract value or fragment from JSON data using JSONPath  
(only a limited set of JSONPath features is supported)

Additionally Delta (simple change) and Delta (speed per second) options have been renamed to **Simple change** and **Change per second**

# Examples of item preprocessing

12 C



Right trim



Temperature: 12

# Examples of item preprocessing

12 C

Right trim

Temperature: 12

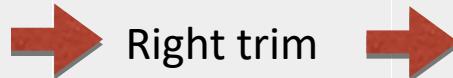
{ "users": 10004 }

JSON

User count: 10004

# Examples of item preprocessing

12 C



Right trim



Temperature: **12**

{ "users": **10004** }



JSON



User count: **10004**

"GET /index.html  
HTTP/1.0" **200 28083**

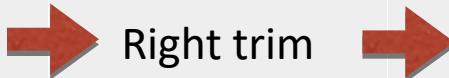


Regexp

Response code: **200**  
Size: **28083**

# Examples of item preprocessing

12 C



Right trim



Temperature: 12

{ "users": 10004 }



JSON



User count: 10004

"GET /index.html  
HTTP/1.0" 200 28083



Regexp

Response code: 200  
Size: 28083

Unstructured text



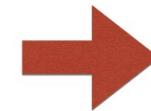
Regexp

Version: Apache 2.2.15 (Unix)  
DNS lookup threads: 10

# Mass processing of metrics



Handler_update	0
Handler_write	414
Innodb_buffer_pool_dump_status	Dumping of buffer pool not started
Innodb_buffer_pool_load_status	Buffer pool(s) load completed at 170531 10:45:37
Innodb_buffer_pool_resize_status	
Innodb_buffer_pool_pages_data	513
Innodb_buffer_pool_bytes_data	8404992
Innodb_buffer_pool_pages_dirty	0
Innodb_buffer_pool_bytes_dirty	0
Innodb_buffer_pool_pages_flushed	37
Innodb_buffer_pool_pages_free	7676
Innodb_buffer_pool_pages_misc	2
Innodb_buffer_pool_pages_total	8191
Innodb_buffer_pool_read_ahead_rnd	0
Innodb_buffer_pool_read_ahead	0
Innodb_buffer_pool_read_ahead_evicted	0
Innodb_buffer_pool_read_requests	2535
Innodb_buffer_pool_reads	479
Innodb_buffer_pool_wait_free	0
Innodb_buffer_pool_write_requests	515
Innodb_data_fsyncs	7
Innodb_data_pending_fsyncs	0
Innodb_data_pending_reads	0
Innodb_data_pending_writes	0
Innodb_data_read	7918080
Innodb_data_reads	505
Innodb_data_writes	54
Innodb_data_written	641024



Zabbix server

# Mass processing of metrics



mysql[status]

MySQL with Dependent items Applications 1 Items 4 Triggers Graphs Screens Discovery rules Web scer

Name: MySQL \$1

Type: Dependent item

Key: mysql[Uptime]

Master item: MySQL Status: mysql.status.master

Type of information: Numeric (unsigned)

Units: uptime

History storage period: 90d

Item Preprocessing

Preprocessing steps	Name	Parameters	Action
Regular expression	Uptime\lt([0-9]+)	\1	Remove

Add Update Clone Delete Cancel



Zabbix server

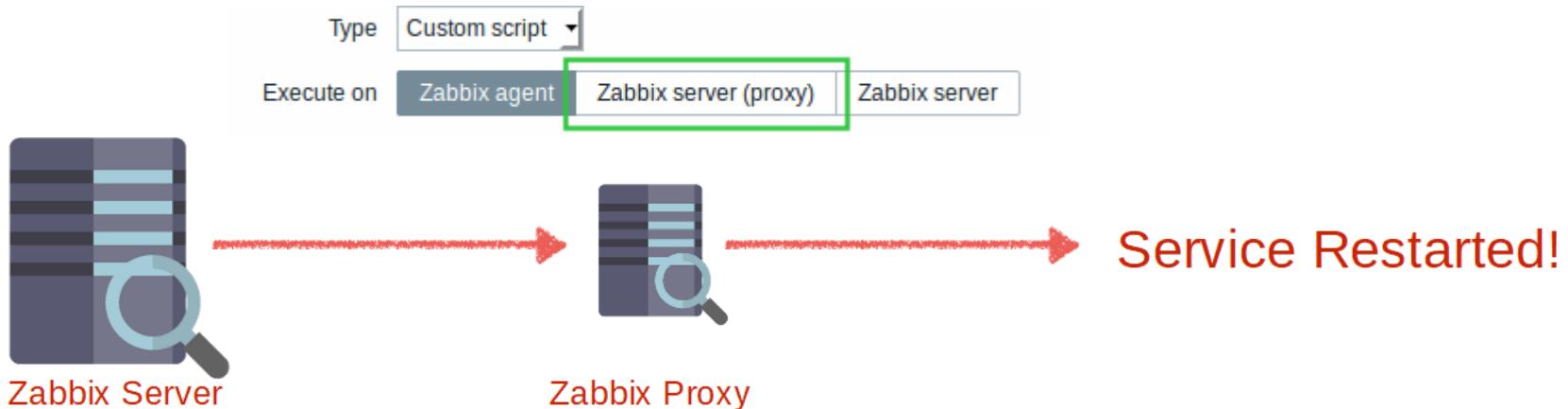
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# 3.

## Top user requests

# TOP 4 Remote command execution by proxies

ZBXNEXT-936 Zabbix Proxy does not proxy remote commands Unassigned Jordi Clariana 121 [↑](#) [DONE](#)



# TOP 10 Configurable end-point for JMX requests

NMR ZBXNEXT-1274 Configurable JMX Endpoint Viktors michael 81 READY TO DEVELOP

ZABBIX Monitoring Inventory Reports Configuration Administration ?

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services Central NOC

## Items

All templates / Template JMX Generic Applications 8 Items 55 Triggers 26 Graphs 11 Screens Discovery rules Web scenarios

Item Preprocessing

Name: cl Loaded Class Count

Type: JMX agent

Key: jmx["java.lang:type=ClassLoading",LoadedClassCount]

JMX endpoint: service:jmx:rmi:///jndi/rmi://[HOST.CONN]:{HOST.PORT}/jmxrmi

User name:

Password:

Type of information: Numeric (unsigned)

Units:

Update interval: 1m



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# JMX LLD

```
jmx.discovery # Retrieve all JMX MBean attributes
```

```
jmx.discovery[beans] # Retrieve all JMX Mbeans
```

```
jmx.discovery[attributes,"*:type=GarbageCollector,name=*"]  
# Retrieve all attributes of all garbage collectors
```

```
jmx.discovery[beans,"*:type=GarbageCollector,name=*"]  
# Retrieve all garbage collectors
```

# TOP 8 Notifications on problem acknowledgement

ZBXNEXT-18

Send an alert after trigger being acknowledged

Sergejs  
Paskevics

Sol Arioto

90



IN SPECIFICATION

**ZABBIX** Monitoring Inventory Reports Configuration Administration

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services Central NOC

## Actions

Action Operations Recovery operations Acknowledgement operations

Default subject Acknowledged: {TRIGGER.NAME}

Default message {USER.FULLNAME} acknowledged problem at {ACK.DATE} {ACK.TIME} with the following message:  
{ACK.MESSAGE}  
  
Current problem status is {EVENT.STATUS}

Operations Details Action  
New

Update Clone Delete Cancel

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# 4.

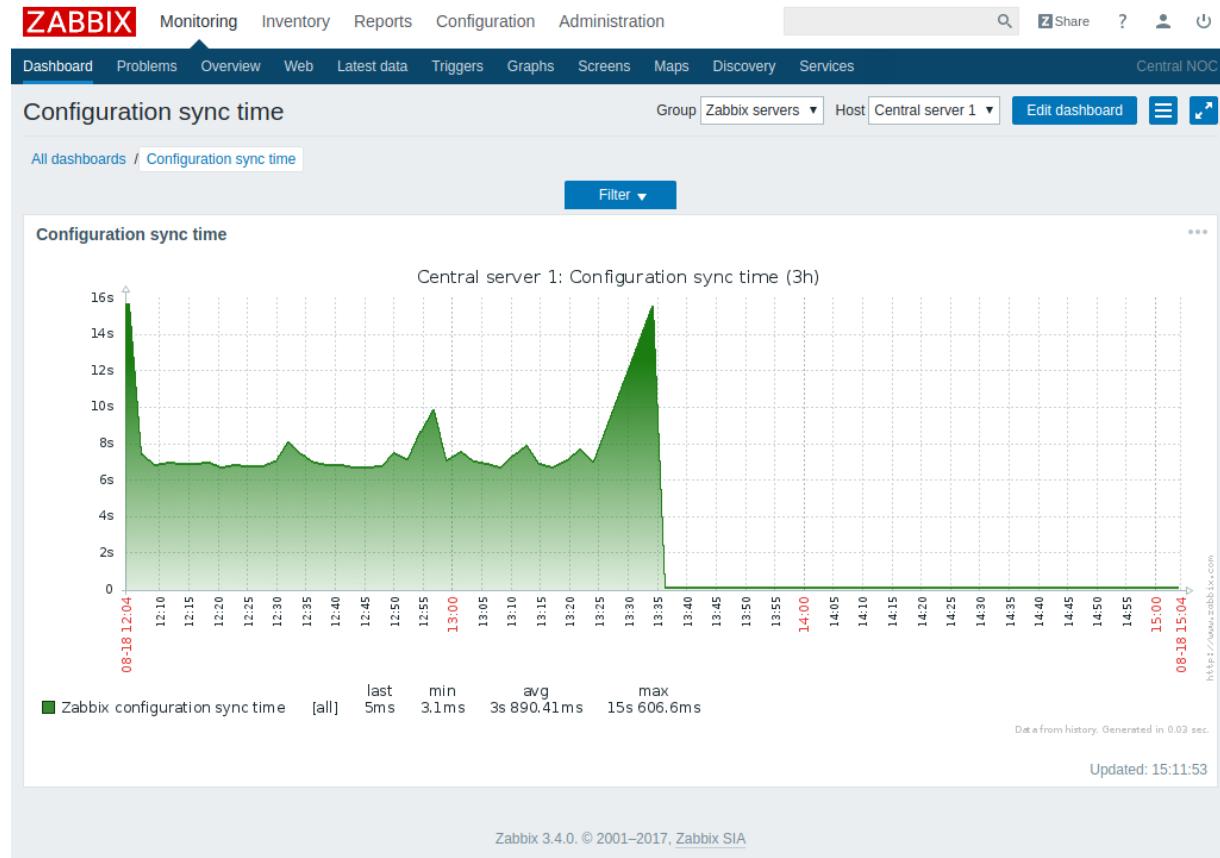
## Performance and scalability

# Server side performance

Less time spent on locking

More efficient  
configuration Sync

Optimized server-proxy  
protocol



# Parallel processing of alerts

Concurrency

Alert manager process

Number of attempts

Time between attempts

StartAlerters = 1-100

The screenshot shows the Zabbix interface with the title 'Media types' under the 'Administration' tab. The 'Media type' tab is selected. Configuration options include:

- Concurrent sessions: Custom (value 2)
- Attempts: 3
- Attempt interval: 10s

Action buttons at the bottom are: Update, Clone, Delete, Cancel.

# **5.**

## **Out of the box templates**

# Standardized templates for network devices

Huawei  
QTech  
Netgear D-Link  
Foundry  
Intel Mikrotik  
Alcatel Brocade  
Cisco HP  
Dell Extreme  
Ubiquiti Juniper  
Mellanox  
TP-LINK

# 6.

## Major improvements

# PCRE regular expressions

No more inconsistency between Zabbix Frontend and Zabbix Server!

Get advantage of all capabilities of PCRE

# URL-encoding support in web monitoring

Name

URL  Parse

Query fields

Name	Value	Remove
act	admin	<a href="#">Remove</a>
token	\$00p3r_s33cЯ3T_%&/	<a href="#">Remove</a>

[Add](#)

Post type  Form data  Raw data

Post fields

Name	Value	Remove
submit	Login	<a href="#">Remove</a>

[Add](#)

Variables

Name	Value	Remove
name	value	<a href="#">Remove</a>

[Add](#)

Headers

Name	Value	Remove
Content-Type	application/x-www-form-urlencoded; ch	<a href="#">Remove</a>
Is-Admin	yes,please	<a href="#">Remove</a>

[Add](#)

# Management of time periods using macros

ZABBIX Monitoring Inventory Reports Configuration Administration

General Proxies Authentication User groups Users Media types Scripts Queue Central NOC

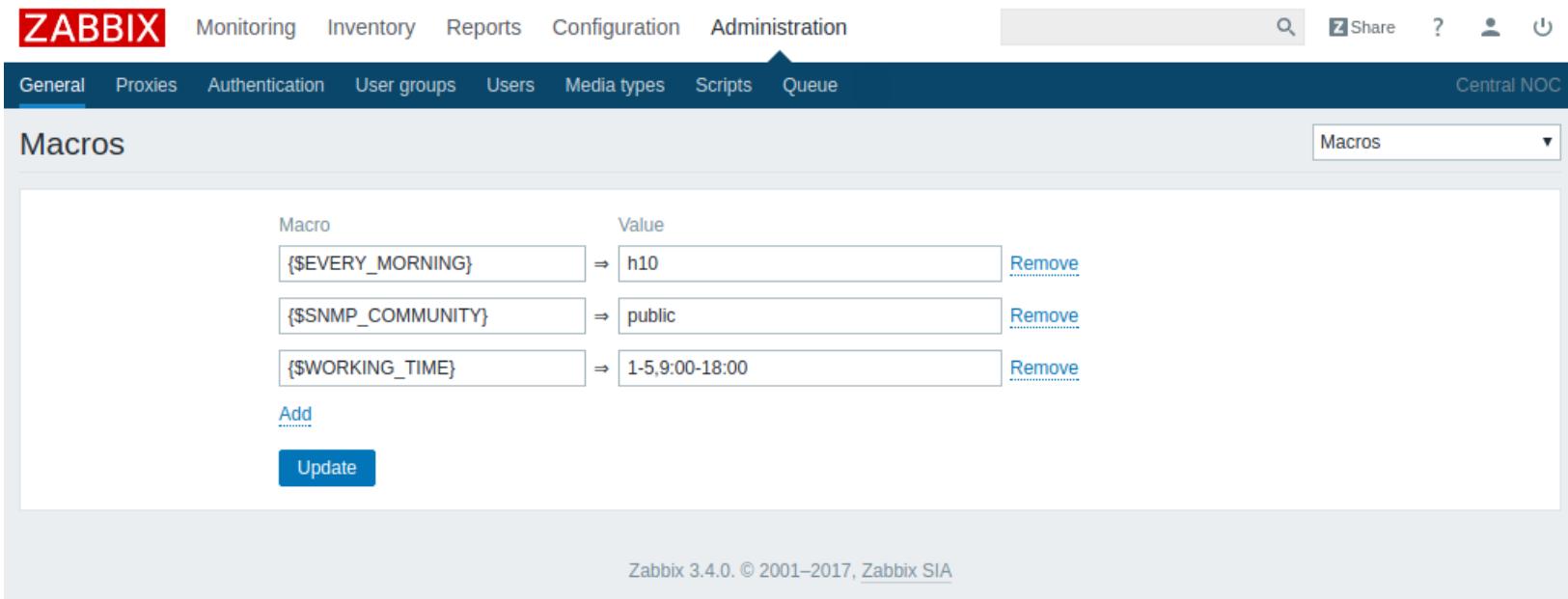
Macros

Macro	Value	Action
{\$EVERY_MORNING}	⇒ h10	<a href="#">Remove</a>
{\$SNMP_COMMUNITY}	⇒ public	<a href="#">Remove</a>
{\$WORKING_TIME}	⇒ 1-5,9:00-18:00	<a href="#">Remove</a>

[Add](#)

[Update](#)

Zabbix 3.4.0. © 2001–2017, Zabbix SIA



# Management of time periods using macros

ZABBIX Monitoring Inventory Reports Configuration Administration

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services

## Item prototypes

All templates / Template Workstation Health / Discovery list / Mounted filesystem discovery / Item prototypes 5 Trigger prototypes 2 Graph prototypes

**Item prototype** Preprocessing

Name: Free disk space on \$1

Type: Zabbix agent

Key: vfs.fs.size[{#FSNAME},free]

Type of information: Numeric (unsigned)

Units: B

Update interval: {\$DELAY:"#{FSNAME}"} 

Custom intervals

Type	Interval	Period	Action
Flexible	Scheduling	1m	{\$WORKING_TIME}
Flexible	Scheduling	1w	Remove
Add			

History storage period: 1w

Trend storage period: 365d

# Management of time periods using macros

ZABBIX Monitoring Inventory Reports Configuration Administration

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services

## Actions

Action Operations Recovery operations Acknowledgement operations

Name Report problems to Zabbix administrators

Conditions

Label	Name	Action
A	Time period in {\$WORKING_TIME}	<a href="#">Remove</a>

New condition

Trigger name like   
[Add](#)

Enabled

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

# 7.

## Minor improvements

# Minor improvements

## Host macro support in event tags

```
{HOST.HOST<1-9>} , {HOST.NAME<1-9>} ,  
{HOST.CONN<1-9>} , {HOST.DNS<1-9>} ,  
{HOST.IP<1-9>} , HOST.PORT<1-9>} ,  
{HOST.ID<1-9>}
```

# Minor improvements

## Host macro support in event tags

```
{HOST.HOST<1-9>} , {HOST.NAME<1-9>} ,  
{HOST.CONN<1-9>} , {HOST.DNS<1-9>} ,  
{HOST.IP<1-9>} , HOST.PORT<1-9>} ,  
{HOST.ID<1-9>}
```

No support for IE9 and IE10 anymore

# Minor improvements

## Host macro support in event tags

```
{HOST.HOST<1-9>} , {HOST.NAME<1-9>} ,  
{HOST.CONN<1-9>} , {HOST.DNS<1-9>} ,  
{HOST.IP<1-9>} , HOST.PORT<1-9>} ,  
{HOST.ID<1-9>}
```

No support for IE9 and IE10 anymore

Increased field size

SNMP OID: 255 -> 512

Flexible interval period: 255 -> 1024

Media type, when active: 100

# Minor improvements

Added support for  
**AtomicBoolean, AtomicInteger, and AtomicLong**  
types to Java gateway

# Minor improvements

Added support for  
**AtomicBoolean, AtomicInteger, and AtomicLong**  
types to Java gateway

IPMI polling: only **one** connection to BMC controllers  
**New IPMI manager process**

# Low level discovery

Added support of LLD macros in function parameters of

- ✓ Trigger prototype expression
- ✓ When using function with ITEM.VALUE, ITEM.LASTVALUE in trigger prototype name, description and tags
- ✓ Graph prototype name simple macros like {host:key[].func()}

# Return code check for scripts and commands

User params

Remote  
commands

system.run[]

The screenshot shows the Zabbix web interface with the 'Action log' tab selected. A single entry is listed:

Time	Action	Type	Recipient	Message	Status	Info
2017-08-16 13:28:12	Report problems to Zabbix administrators	AlertScript	john.doe (John Doe) john.doe@ny.datacenter.com	Subject: OK: Version of zabbix_agentd running (Zabbix server:agent.version): 3.4.0 Message: Trigger: Version of zabbix_agentd running (Zabbix server:agent.version): 3.4.0 Trigger status: OK Trigger severity: Informational Trigger URL: Item values: 1. Version of zabbix_agentd running (Zabbix server:agent.version): 3.4.0 2. *UNKNOWN* (*UNKNOWN*:UNKNOWN): *UNKNOWN* 3. *UNKNOWN* (*UNKNOWN*:UNKNOWN): *UNKNOWN* Original event ID: 256	Failed	<span>1</span>

A tooltip is displayed over the 'Message' field, showing the error details:

```
File "/usr/lib/zabbix/alertscripts/alertscript.py", line 3
def send_notification():
^
SyntaxError: invalid syntax
```

# Reduced default retention period for internal items

The screenshot shows the Zabbix Administration interface with the "Housekeeping" tab selected. The top navigation bar includes links for Monitoring, Inventory, Reports, Configuration, Administration, and a search bar. The main content area is titled "Housekeeping".

**Events and alerts**

- Enable internal housekeeping:
- Trigger data storage period: 365d
- Internal data storage period: 1d
- Network discovery data storage period: 1d
- Auto-registration data storage period: 1d

**Services**

- Enable internal housekeeping:
- Data storage period: 365d

# Upgrading

# **Just follow standard procedure**

Download from [www.zabbix.com/download](http://www.zabbix.com/download)

Upgrade Zabbix **Server** and **Proxies**

Update Zabbix **frontend** files

Database is upgraded **automatically**: should take a few minutes

# Thank you