



What's new in

ZABBIX 6.4

all our microphones are muted

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

use Chat for discussion, networking or applause

Zabbix 6.4

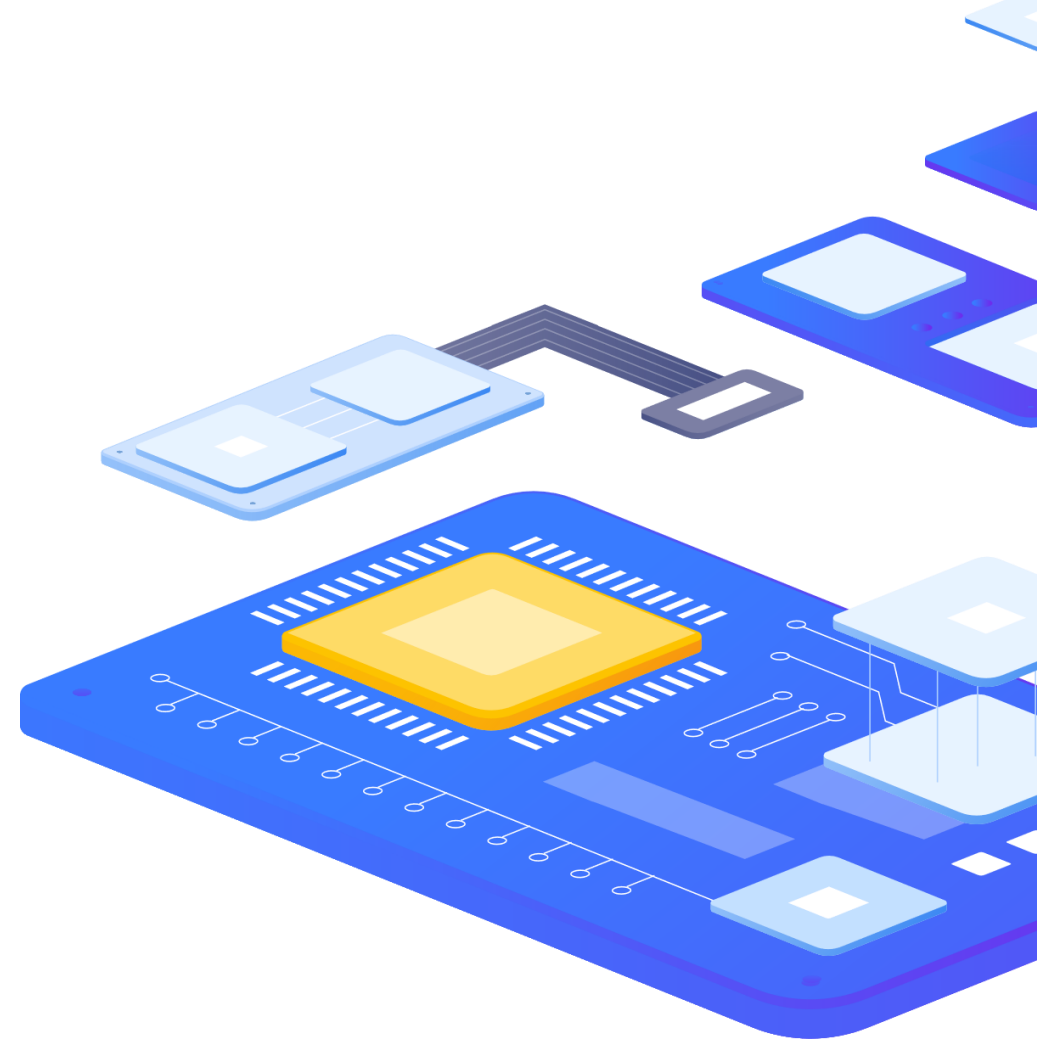
Zabbix 6.4

Zabbix 6.4 improves the flexibility of multiple existing features, thus supporting many new use cases

Zabbix 6.4 focuses on:

- › User management and provisioning (JIT)
- › Instant propagation of configuration changes across the whole Zabbix infrastructure
- › Performance improvements, especially for large environments
- › Integrating Zabbix with 3rd party systems
- › Improved problem and alert management
- › More streamlined upgrade procedure and more...

Zabbix 6.4 also adds a variety of templates for the most popular vendors and cloud providers.



1

Just-in-time user provisioning

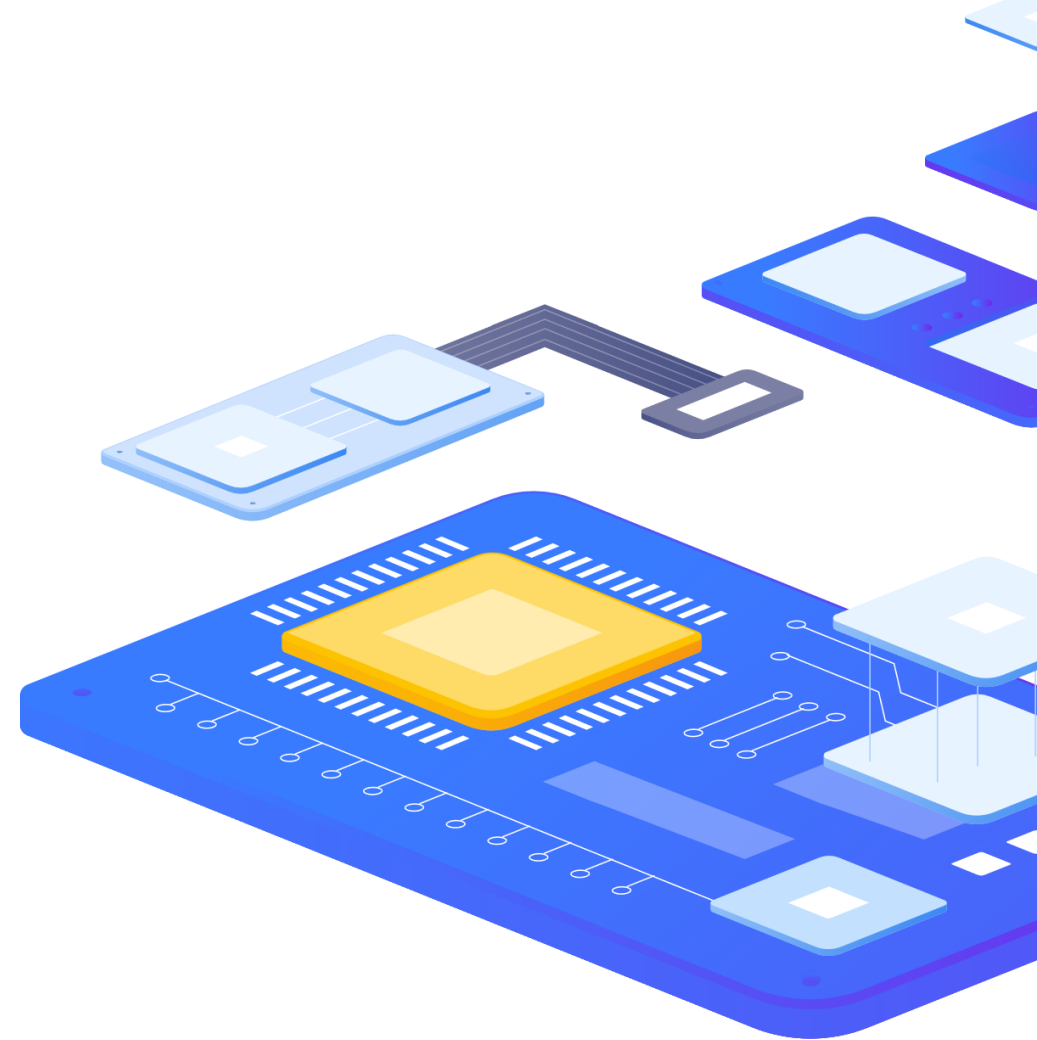


Zabbix 6.4

Just-in-time user provisioning

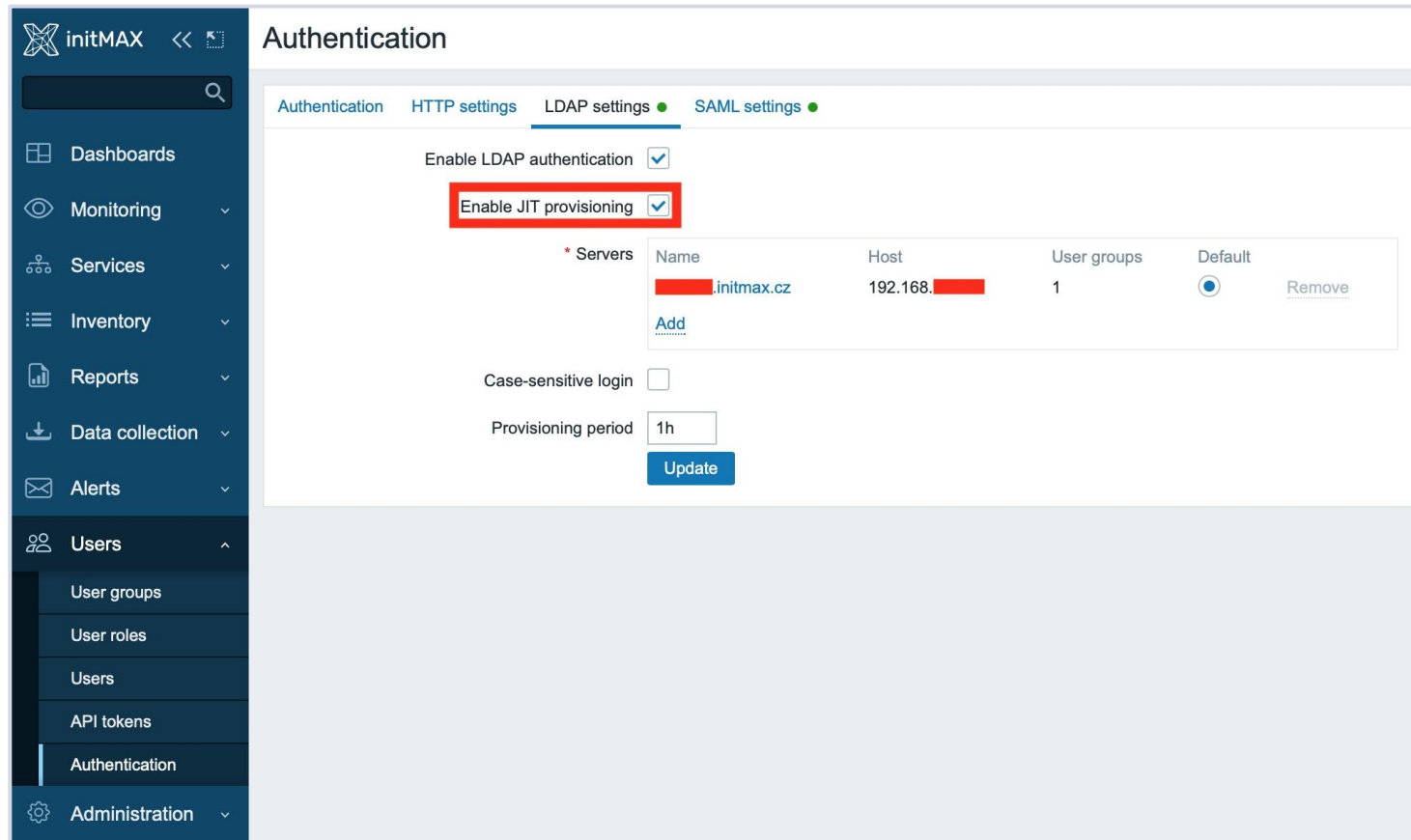
A core aspect of fully integrating Zabbix into enterprise-level IT infrastructure is centralized user provisioning and management

- › Automatic user provisioning and management across multiple applications from a single location
- › Authentication mechanism which utilize LDAP/SAML
- › Enabling enterprise-grade security by integrating existing solutions with LDAP/SAML user groups and permissions
- › Using existing user attributes to propagate user attributes in Zabbix



Just-in-time user provisioning

Zabbix 6.4 adds support of JIT user provisioning for LDAP



The screenshot displays the Zabbix 6.4 initMAX web interface. On the left is a dark blue sidebar with a search bar and a menu containing: Dashboards, Monitoring, Services, Inventory, Reports, Data collection, Alerts, Users (expanded), and Administration. The 'Users' menu is open, showing sub-items: User groups, User roles, Users, API tokens, Authentication, and Administration. The main content area is titled 'Authentication' and has tabs for Authentication, HTTP settings, LDAP settings (active), and SAML settings. Under the 'LDAP settings' tab, there are two checked checkboxes: 'Enable LDAP authentication' and 'Enable JIT provisioning' (the latter is highlighted with a red rectangle). Below these is a table for LDAP servers:

| * Servers | | | |
|-------------|----------|-------------|----------------------------------|
| Name | Host | User groups | Default |
| .initmax.cz | 192.168. | 1 | <input checked="" type="radio"/> |

Below the table, there is an 'Add' link, a 'Case-sensitive login' checkbox (unchecked), and a 'Provisioning period' input field set to '1h'. An 'Update' button is at the bottom right of the settings area.

Zabbix 6.4

Just-in-time user provisioning

Zabbix 6.4 adds support of JIT user provisioning for LDAP

LDAP Server

* Name

.initmax.cz

* Host

192.168.

* Port

389

* Base DN

* Search attribute

sAMAccountName

Bind DN

,DC=initmax,DC=cz

Bind password

Change password

Description

Configure JIT provisioning

☒

Group configuration ?

memberOf

groupOfNames

Group name attribute

CN

User group membership attribute

memberof

User name attribute

givenName

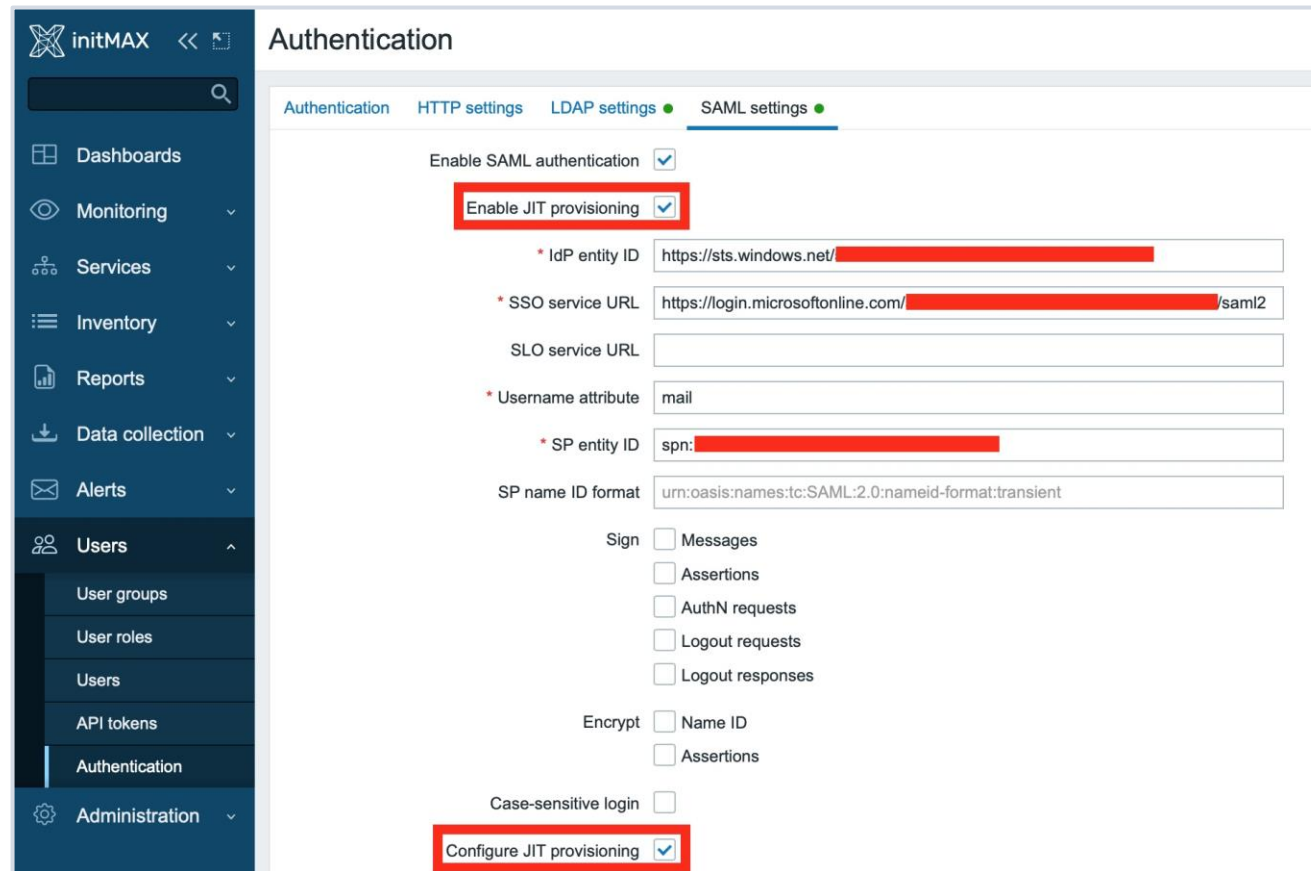
User last name attribute

sn

Zabbix 6.4

Just-in-time user provisioning

Zabbix 6.4 adds support of JIT user provisioning for SAML



The screenshot displays the Zabbix 6.4 initMAX web interface. On the left is a dark blue sidebar with a search bar and a menu containing: Dashboards, Monitoring, Services, Inventory, Reports, Data collection, Alerts, Users (expanded), User groups, User roles, Users, API tokens, Authentication, and Administration. The main content area is titled 'Authentication' and has tabs for Authentication, HTTP settings, LDAP settings, and SAML settings (which is active). Under the 'SAML settings' tab, the following options are visible: 'Enable SAML authentication' (checked), 'Enable JIT provisioning' (checked and highlighted with a red box), 'IdP entity ID' (https://sts.windows.net/...), '* SSO service URL' (https://login.microsoftonline.com/.../saml2), 'SLO service URL' (empty), '* Username attribute' (mail), '* SP entity ID' (spn: ...), 'SP name ID format' (urn:oasis:names:tc:SAML:2.0:nameid-format:transient), 'Sign' (unchecked for Messages, Assertions, AuthN requests, Logout requests, Logout responses), 'Encrypt' (unchecked for Name ID, Assertions), 'Case-sensitive login' (unchecked), and 'Configure JIT provisioning' (checked and highlighted with a red box).

Just-in-time user provisioning

SCIM - System for Cross-domain Identity Management, is an open standard used to automate user provisioning/deprovisioning across multiple applications

- ▶ It is possible to enable SCIM provisioning in Zabbix 6.4
- ▶ User provisioning without enabled and configured SCIM is made only for the login action.
- ▶ Users provisioned by SCIM will also be created in Zabbix

Configure JIT provisioning ☒

* Group name attribute

http://schemas.microsoft.com/ws/2008/06/identity/claims/groups

User name attribute

givenname

User last name attribute

surname

* User group mapping

| SAML group pattern | User groups | User role | Action |
|---------------------|---------------------|------------------|------------------------|
| Zabbix_Super_Admins | Zabbix_Super_Admins | Super admin role | Remove |
| Add | | | |

Media type mapping ?

| Name | Media type | Attribute | |
|--------------------------|------------|-----------|------------------------|
| mail | Email | mail | Remove |
| mobile | SMS | mobile | Remove |
| pushover | Pushover | pushover | Remove |
| Add | | | |

Enable SCIM provisioning ☒

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Just-in-time user provisioning

Zabbix 6.4 adds support of JIT user provisioning for LDAP and SAML authentication

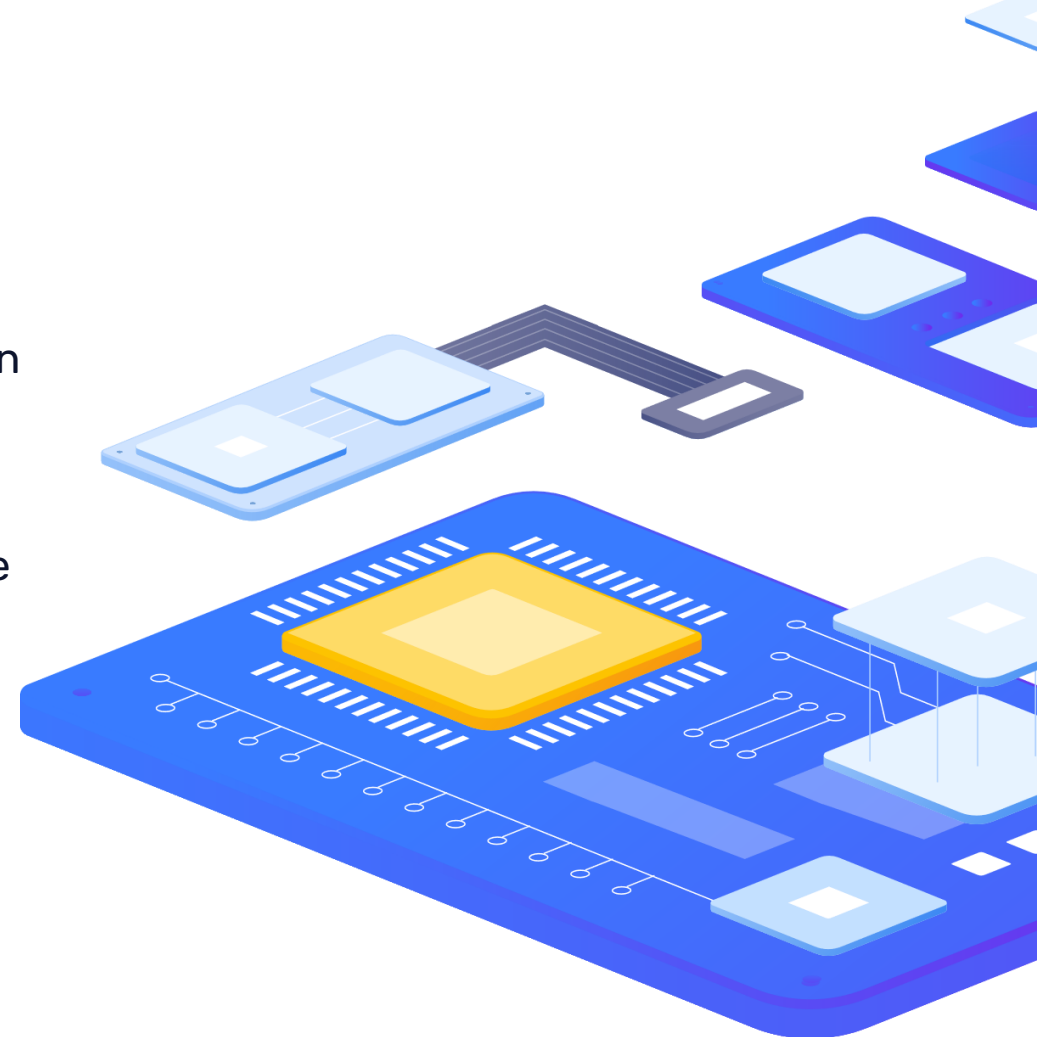
- › It is not required for the user to already exist in Zabbix
- › JIT provisioning allows updating provisioned user accounts based on changes in LDAP/SAML
- › Users are mapped to user groups and user roles
- › LDAP/SAML media attributes can be mapped to a Zabbix media type

* User group mapping

| LDAP group pattern | User groups | User role | Action |
|-------------------------------------|---------------------|------------------|------------------------|
| Zabbix_Super_Admins | Zabbix_Super_Admins | Super admin role | Remove |
| Add | | | |

Media type mapping ?

| Name | Media type | Attribute | Action |
|--------------------------|------------|-------------------------------|------------------------|
| Email | Email | mail | Remove |
| Mobile | SMS | mobile | Remove |
| Pushover | Pushover | msDS-cloudExtensionAttribute1 | Remove |
| Add | | | |



Just-in-time user provisioning - notes

- › The user account is created in Zabbix once the user logs in for the first time
- › Provisioned users will be marked in the user list by a date entry
- › The Provision now button can be used to update the user information from LDAP
- › If JIT provisioning is enabled, a user group for deprovisioned users must be specified in the Authentication tab
- › SCIM provisioning requires a Zabbix API token (with Super admin permissions) for authentication into Zabbix

Issues (Work in progress – 6.4.1-2)

- › You are unable to change any media setting for user
- › SCIM provisioning not completely working right now
- › Lack of documentation (Not so easy to find working configuration)
- › You need change some setting after user creation (Auto-login, Auto-logout, Rows per page, URL,...)
 - › This setting not be overwritten
- › Our webinars on this topic it be ready soon

2

New menu structure

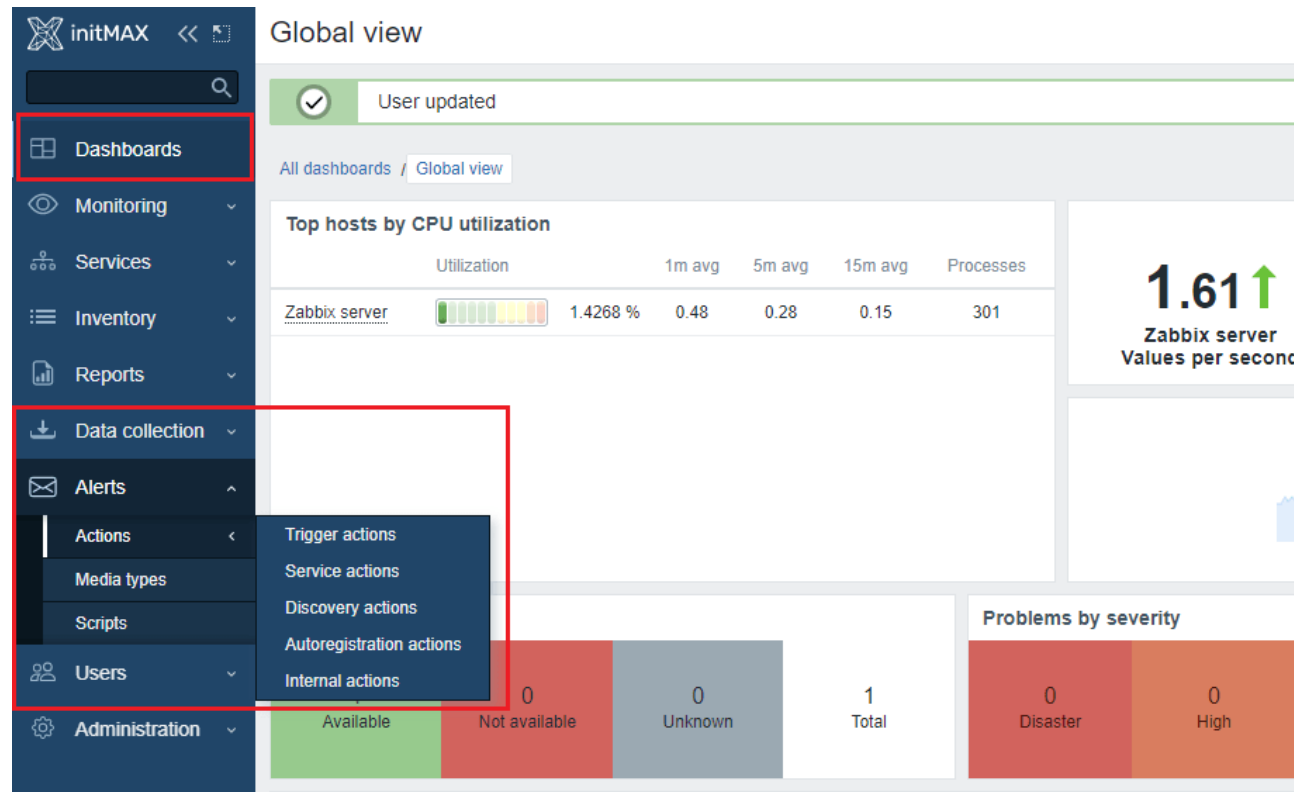


Zabbix 6.4

New menu structure

The goal of the new menu layout is to provide logical and consistent access to main Zabbix features

- › The 1st level sections now focus on use cases
- › 2nd level section remain as they were in previous versions
- › Configuration section has been split into Data collection and Alerts sections
- › Media types and Scripts have been moved under the Alerts section
- › User and authentication configuration is now done in the Users section
- › Other minor changes




Global view

User updated

All dashboards / Global view

Top hosts by CPU utilization

| | Utilization | 1m avg | 5m avg | 15m avg | Processes |
|---------------|--|--------|--------|---------|-----------|
| Zabbix server |  1.4268 % | 0.48 | 0.28 | 0.15 | 301 |

1.61↑
Zabbix server
Values per second

Problems by severity

| | | |
|-----------|---------------|-------|
| 0 | 0 | 1 |
| Available | Not available | Total |
| 0 | 0 | |
| Disaster | High | |

3

Instant propagation of
configuration changes



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Instant propagation of configuration changes

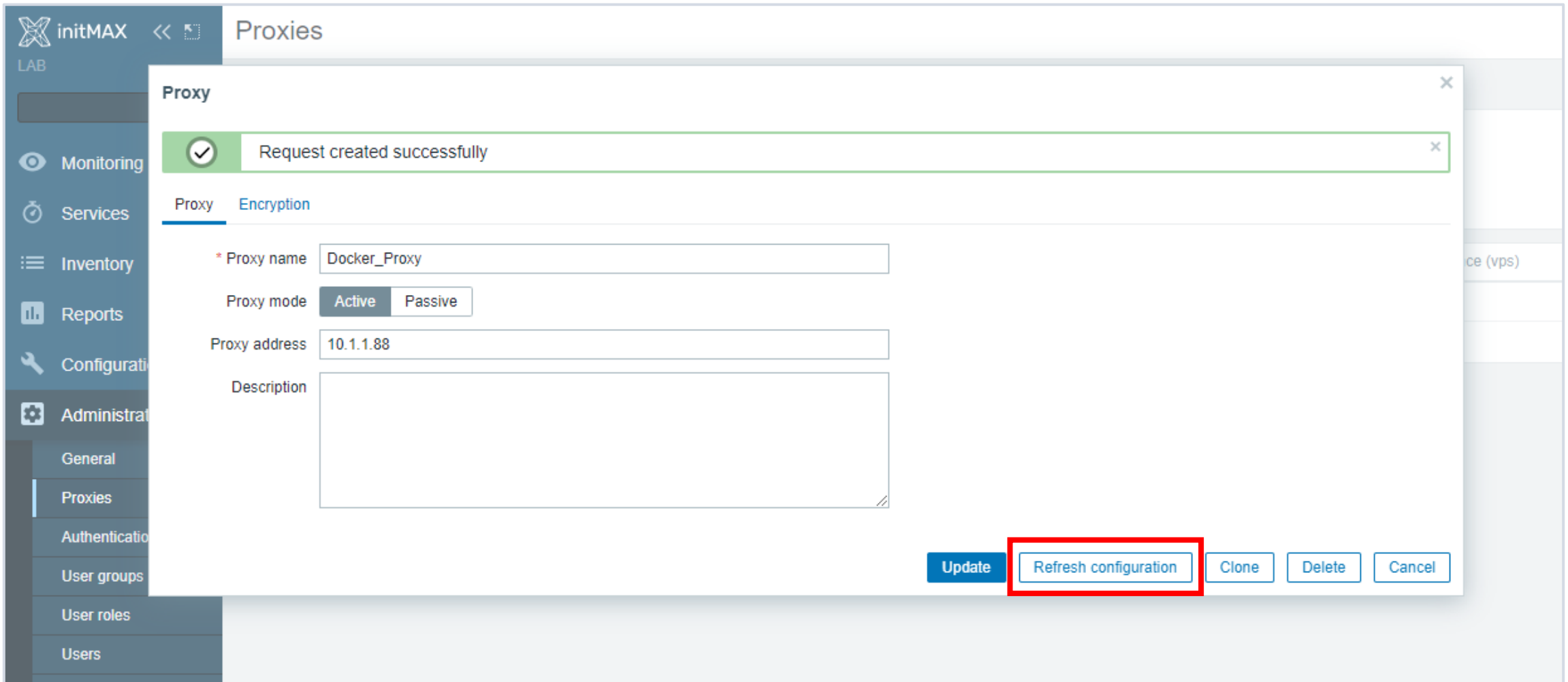
Having to wait until full configuration sync happens across different Zabbix components can greatly slow down configuration workflows, especially in large Zabbix environments

- › Zabbix configuration cache reload
- › Sync across Zabbix server and Zabbix proxies
- › Sync across Zabbix server and Zabbix agents (active agent in particular)

Zabbix had to find a way to enable Zabbix being able to Instantly synchronize your configuration changes across your Zabbix proxies and agents running in active or passive modes at no extra performance cost



Synchronize proxy Configuration



The screenshot displays the Zabbix 6.4 initMAX interface. On the left is a sidebar with navigation links: Monitoring, Services, Inventory, Reports, Configuration, Administration, General, Proxies, Authentication, User groups, User roles, and Users. The main area is titled 'Proxies'. A 'Proxy' configuration dialog is open, showing a success message: 'Request created successfully'. The dialog has two tabs: 'Proxy' (selected) and 'Encryption'. The 'Proxy' tab contains the following fields:

- * Proxy name: Docker_Proxy
- Proxy mode: Active (selected), Passive
- Proxy address: 10.1.1.88
- Description: (empty text area)

At the bottom of the dialog, there are five buttons: Update, Refresh configuration (highlighted with a red box), Clone, Delete, and Cancel.

Zabbix 6.4

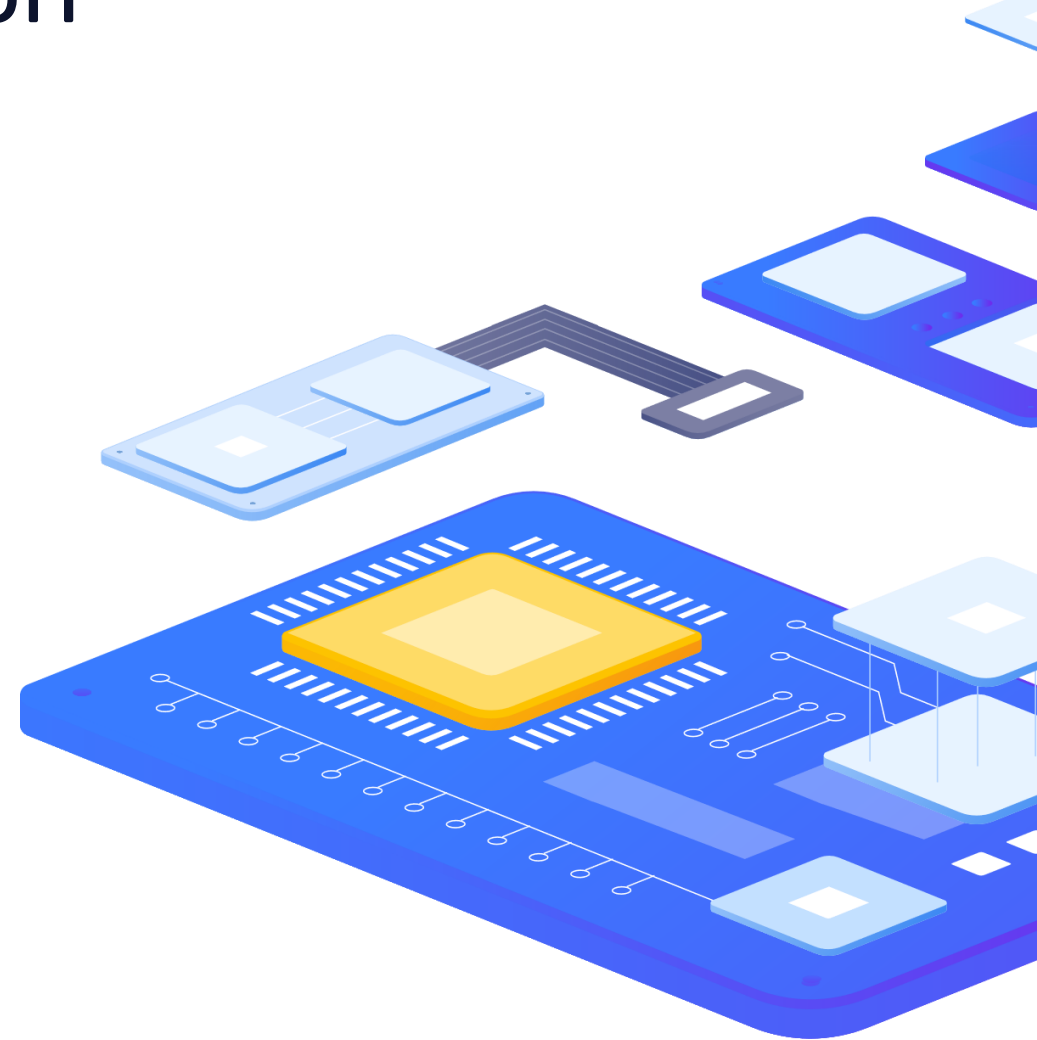
Synchronize proxy Configuration

In Zabbix 6.2 is introduced incremental configuration updates

- › Instead of reloading the whole configuration data set, only changes will be picked up by the Zabbix server
- › This greatly improves performance during configuration updates
- › The same logic has now been applied for proxies in Zabbix 6.4
- › This allows us to use very rapid ProxyConfigFrequency values
- › This also applies to manual proxy configuration updates by using `config_cache_reload` runtime command

Full configuration sync is performed in the following scenarios

- › On Zabbix proxy start/restart
- › On Zabbix server HA failover

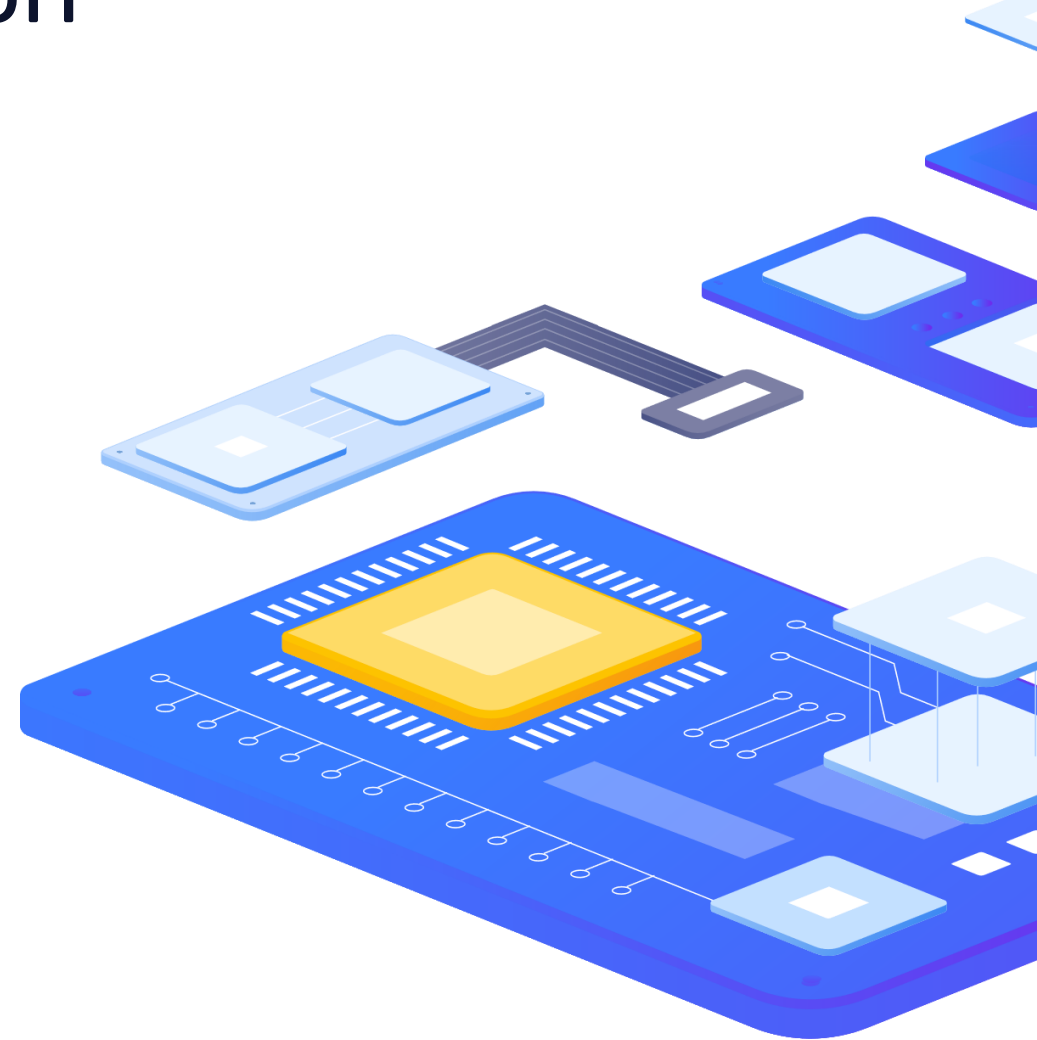


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Synchronize proxy Configuration

In Zabbix 6.4 is further improved the Zabbix proxy configuration sync workflow

- › The ProxyConfigFrequency parameter is now used in both Zabbix server (for passive mode) and Zabbix proxy (for active mode) configuration files
- › ConfigFrequency parameter in Zabbix proxy configuration is now deprecated
- › Default ProxyConfigFrequency parameter is 10 seconds (down from 1 hour)



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Instant refresh of active checks

Instead of receiving the full configuration copy every 2 minutes (old behavior), in Zabbix 6.4 active agent receives configuration copy only when changes have been performed

- ▶ RefreshActiveChecks parameter now supports a range 1-86400 (old range: 60-3600)
- ▶ Default refresh interval is 5s from 6.4 version
- ▶ This behavior is supported both by Zabbix agent and Zabbix agent2
- ▶ Also has been introduced an underlying config_revision comparison logic, which is used to check for configuration changes

```
{
  "request": "active checks",
  "host": "Zabbix server",
  "version": "6.4",
  "host_metadata": "mysql,nginx",
  "hostinterface": "zabbix.server.lan",
  "ip": "159.168.1.1",
  "port": 10050,
  "config_revision": 1,
  "session": "e3dcbd9ace2c9694e1d7bbd030eeef6e"
}
```

4

Improved snmp bulk data collection



Combined requests

The legacy style bulk requests present before Zabbix 6.4 have been renamed to Combined requests

- ▶ Combined requests can cause issues on large or old SNMP devices, since they don't utilize **getnext requests**
- ▶ Therefore, a proper bulk request collection method has been implemented to resolve this issue

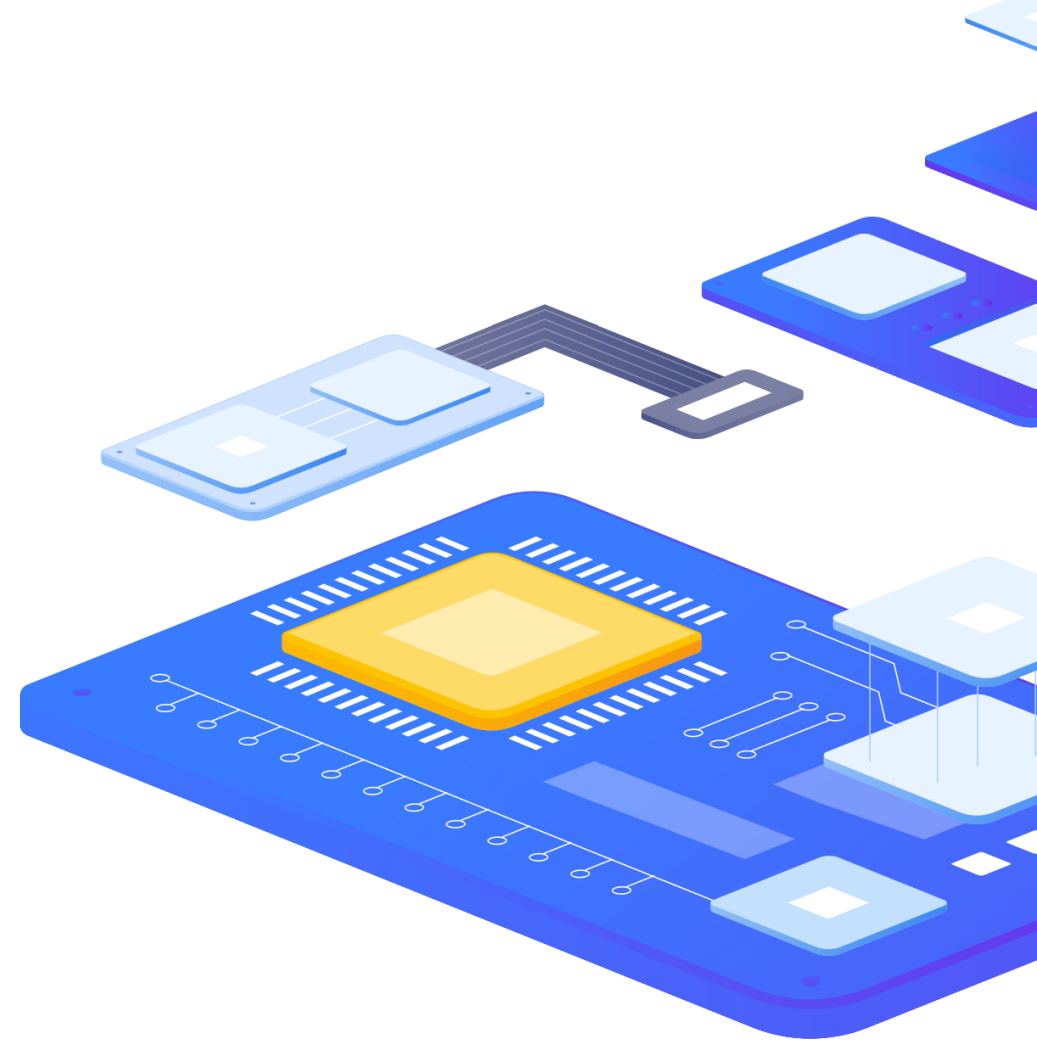
| Interfaces | Type | IP address | DNS name | Connect to | Port | Default |
|------------|---|---|----------------------|---|----------------------------------|---|
| ^ | SNMP | <input type="text" value="10.0.10.21"/> | <input type="text"/> | <input checked="" type="radio"/> IP <input type="radio"/> DNS | <input type="text" value="161"/> | <input checked="" type="radio"/> Remove |
| | * SNMP version | <input type="text" value="SNMPv2"/> | | | | |
| | * SNMP community | <input type="text" value="{ \$SNMP_COMMUNITY }"/> | | | | |
| | Max repetition count ? | <input type="text" value="10"/> | | | | |
| | <input checked="" type="checkbox"/> Use combined requests | | | | | |

Zabbix 6.4

SNMP Getbulk Requests

An SNMP GetBulk request can provide better performance and more rapid metric collection and discovery from enterprise-tier SNMP devices

- › Discover tens of thousands of metrics in one go
- › No risk of impacting the SNMP performance of the device
- › The discovered metrics can be collected with very rapid collection intervals with negligible performance impact



Zabbix 6.4

New walk item

A new walk[OID1,OID2,...] item has been introduced

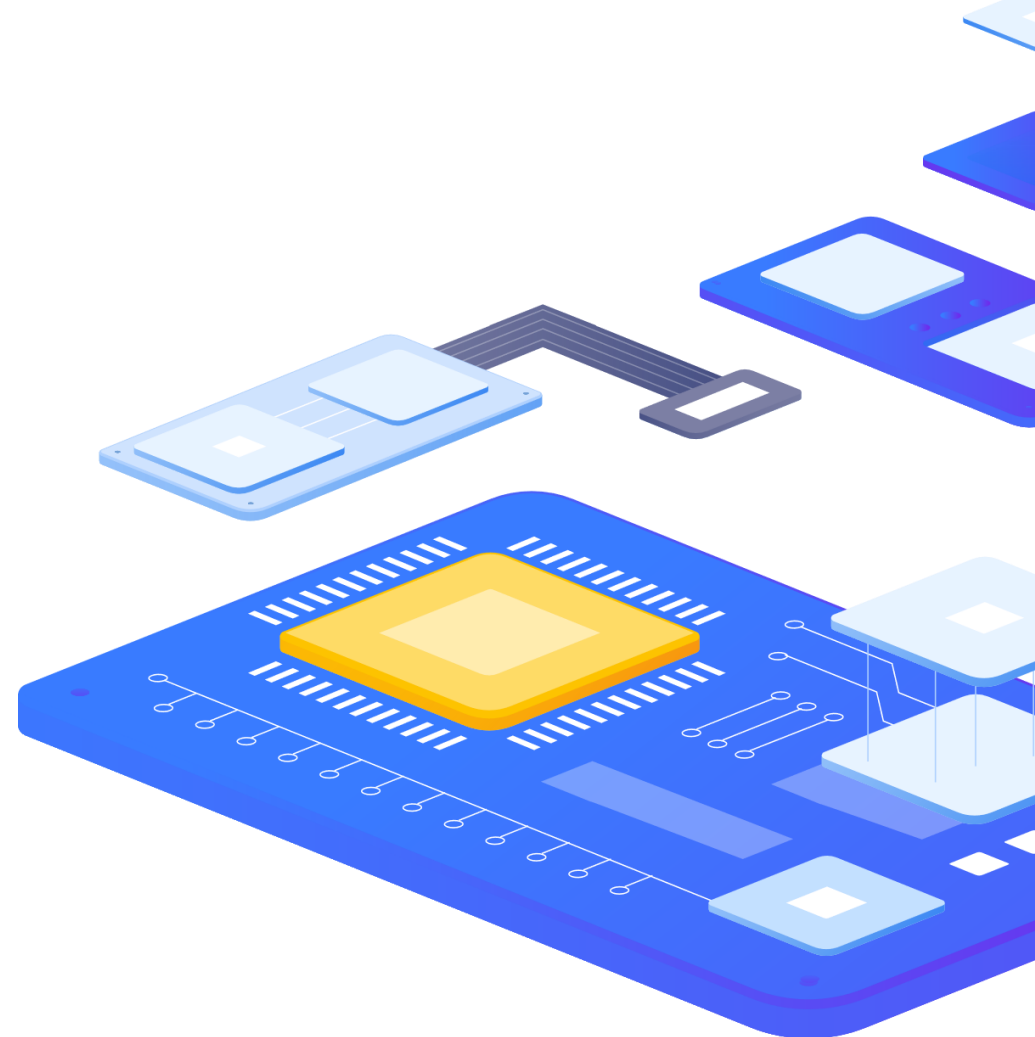
- › Polls the SNMP indexes in bulk by using GetBulk request, which executes getnext requests and returns the data in plain text
- › Performs many times better on large devices
- › This item will serve as the master item

› Example

```
walk[.1.3.6.1.2.1.2.2.1.2]
```

› Result

```
1.3.6.1.2.1.2.2.1.2.1 = STRING: eth1  
1.3.6.1.2.1.2.2.1.2.2 = STRING: eth2  
1.3.6.1.2.1.2.2.1.2.3 = STRING: eth3
```



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New walk item

Data from multiple OIDs can also be collected.

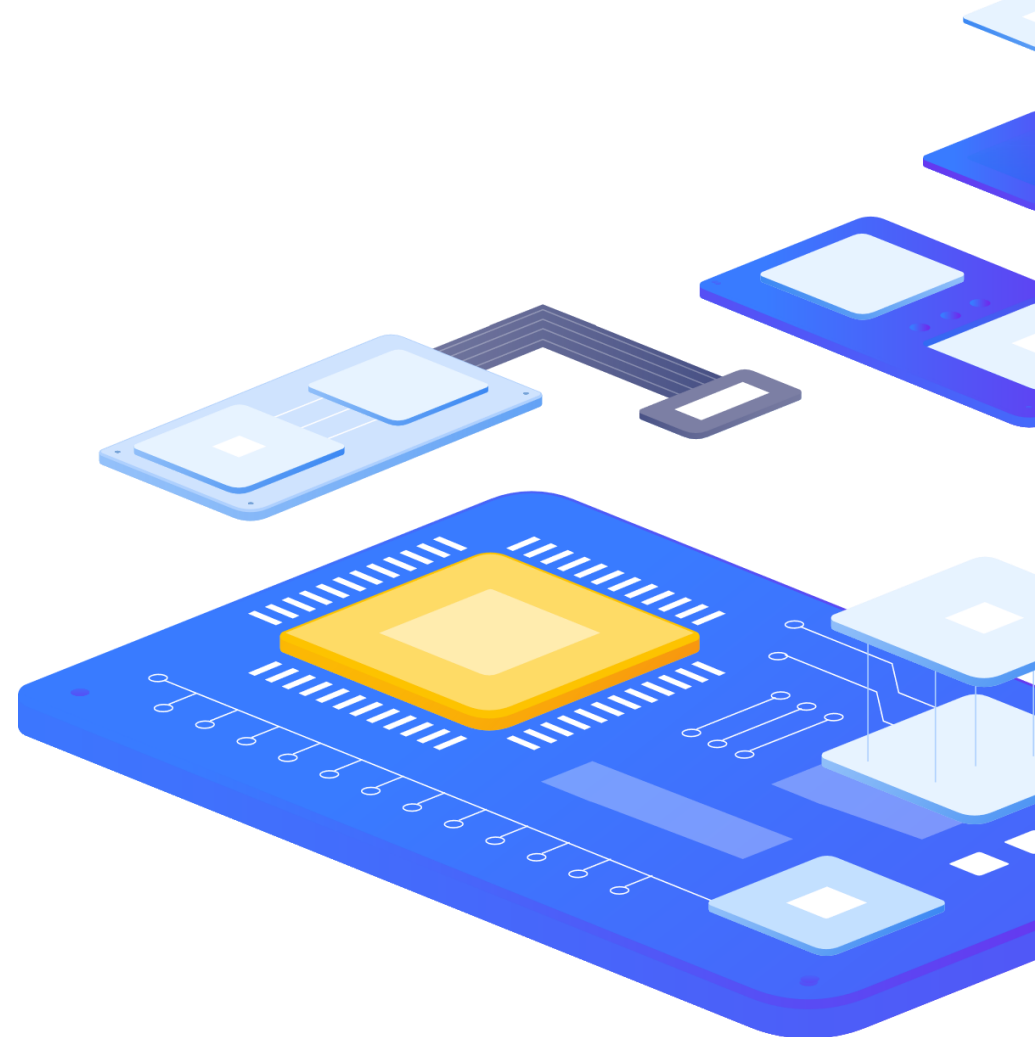
› Example

```
walk[.1.3.6.1.2.1.2.2.1.2,.1.3.6.1.2.1.2.2.1.3]
```

› Result

```
1.3.6.1.2.1.2.2.1.2.1 = STRING: eth1  
1.3.6.1.2.1.2.2.1.2.2 = STRING: eth2  
1.3.6.1.2.1.2.2.1.2.3 = STRING: eth3  
1.3.6.1.2.1.2.2.1.3.1 = INTEGER: 6  
1.3.6.1.2.1.2.2.1.3.2 = INTEGER: 6  
1.3.6.1.2.1.2.2.1.3.3 = INTEGER: 6
```

- › **Collecting SNMP metrics and discovering SNMP entities with the new bulk data collection item is 20x faster than regular SNMP polling**



Zabbix 6.4

Snmp preprocessing (SNMP walk to JSON)

Text values won't suffice in most situations. What can we do next?

- ▶ New SNMP preprocessing steps have been introduced
- ▶ The preprocessing step is defined on the LLD rule
- ▶ The goal is to transform this data into JSON usable with low-level discovery

[All hosts](#) / [snmp-initMAX-DEMO](#) Enabled SNMP Items 141 Triggers 102 Graphs 32 Discovery rules 9 Web scenarios

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

| Preprocessing steps | Name | Parameters | Custom on fail | Actions | | | | | | | | | | | | | | | | |
|---------------------|----------------------|--|------------------------|------------|--------|--------|------------|----------------------|-----------|------------------------|-----------|----------------------|-----------|------------------------|---------------------|--|--|--|--------------------------|----------------------|
| 1: | SNMP walk to JSON | <table><thead><tr><th>Field name</th><th>OID prefix</th><th>Format</th><th>Action</th></tr></thead><tbody><tr><td>{#IFALIAS}</td><td>.1.3.6.1.2.1.2.2.1.2</td><td>Unchanged</td><td>Remove</td></tr><tr><td>{#IFTYPE}</td><td>.1.3.6.1.2.1.2.2.1.3</td><td>Unchanged</td><td>Remove</td></tr><tr><td colspan="4">Add</td></tr></tbody></table> | Field name | OID prefix | Format | Action | {#IFALIAS} | .1.3.6.1.2.1.2.2.1.2 | Unchanged | Remove | {#IFTYPE} | .1.3.6.1.2.1.2.2.1.3 | Unchanged | Remove | Add | | | | <input type="checkbox"/> | Test |
| Field name | OID prefix | Format | Action | | | | | | | | | | | | | | | | | |
| {#IFALIAS} | .1.3.6.1.2.1.2.2.1.2 | Unchanged | Remove | | | | | | | | | | | | | | | | | |
| {#IFTYPE} | .1.3.6.1.2.1.2.2.1.3 | Unchanged | Remove | | | | | | | | | | | | | | | | | |
| Add | | | | | | | | | | | | | | | | | | | | |

[Add](#)
Type of information Text
[Add](#) [Test](#) [Cancel](#)

[Test all steps](#)

Snmp preprocessing (SNMP walk to JSON)

► Result

```
[  
  {  
    "{#SNMPINDEX}": "1",  
    "{#IFALIAS}": "eth1",  
    "{#IFTYPE}": "6"  
  },  
  {  
    "{#SNMPINDEX}": "2",  
    "{#IFALIAS}": "eth2",  
    "{#IFTYPE}": "6"  
  },  
  {  
    "{#SNMPINDEX}": "3",  
    "{#IFALIAS}": "eth3",  
    "{#IFTYPE}": "6"  
  }  
]
```

► You can see this type of the data via test button on your item



Snmp preprocessing (SNMP walk value)

Once the data is converted to JSON, we can use SNMP walk value preprocessing step together with LLD macros, to create dependent item prototypes which extract metrics from the master item

► Example of item: Incoming Packets on Interface {#IFALIAS}

[All hosts](#) / [snmp-initMAX-DEMO](#) Enabled SNMP [Discovery list](#) / [Network](#) [Item prototypes 2](#) [Trigger prototypes](#) [Graph prototypes 1](#) [Host prototypes](#)

Item prototype

Tags

Preprocessing 1

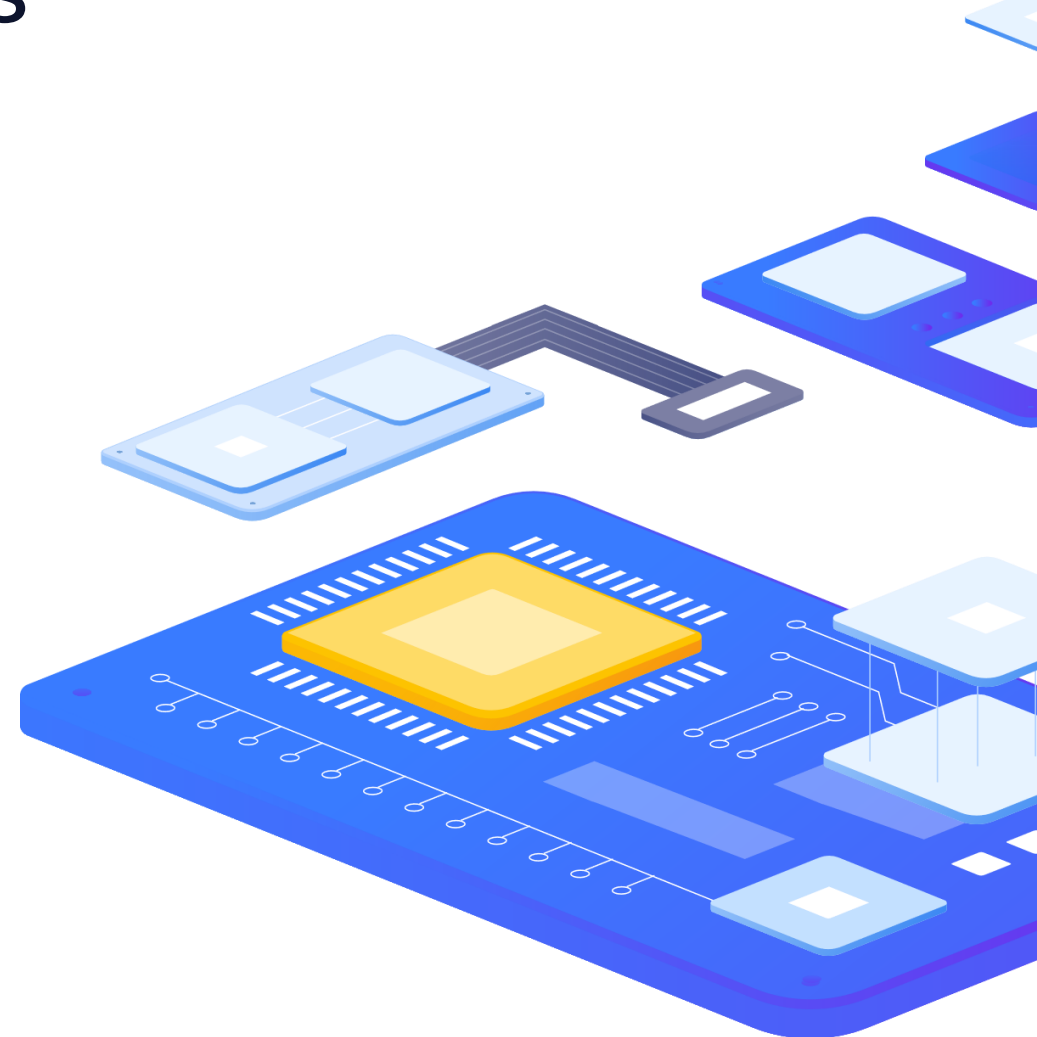
| Preprocessing steps | Name | Parameters | Custom on fail | Actions |
|--------------------------|--------------------|--------------------------------------|----------------|---|
| 1: | SNMP walk value | .1.3.6.1.2.1.31.1.1.1.6.{#SNMPINDEX} | Unchanged | Test Remove |
| Add | | | | |
| Type of information | Numeric (unsigned) | | | Test all steps |
| <div>AddTestCancel</div> | | | | |

Unchanged
Unchanged
UTF-8 from Hex-STRING
MAC from Hex-STRING
Integer from BITS

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SNMP Getbulk Requests - notes

- › SNMP walk value preprocessing step can be used to transform values to UTF-8 or MAC from Hex-STRING
- › Custom on fail can be used to react on data collection failure
- › Zabbix official templates will be reworked to use the new SNMP bulk collection approach
- › Max repetition count can be defined for discovery and walk requests – defines, how many values are gathered in a single bulk request
- › <https://www.zabbix.com/documentation/6.4/en/manual/config/items/itemtypes/snmp?hl=max%2Crepe#native-snmp-bulk-requests>



5

Streaming metrics and events
over http



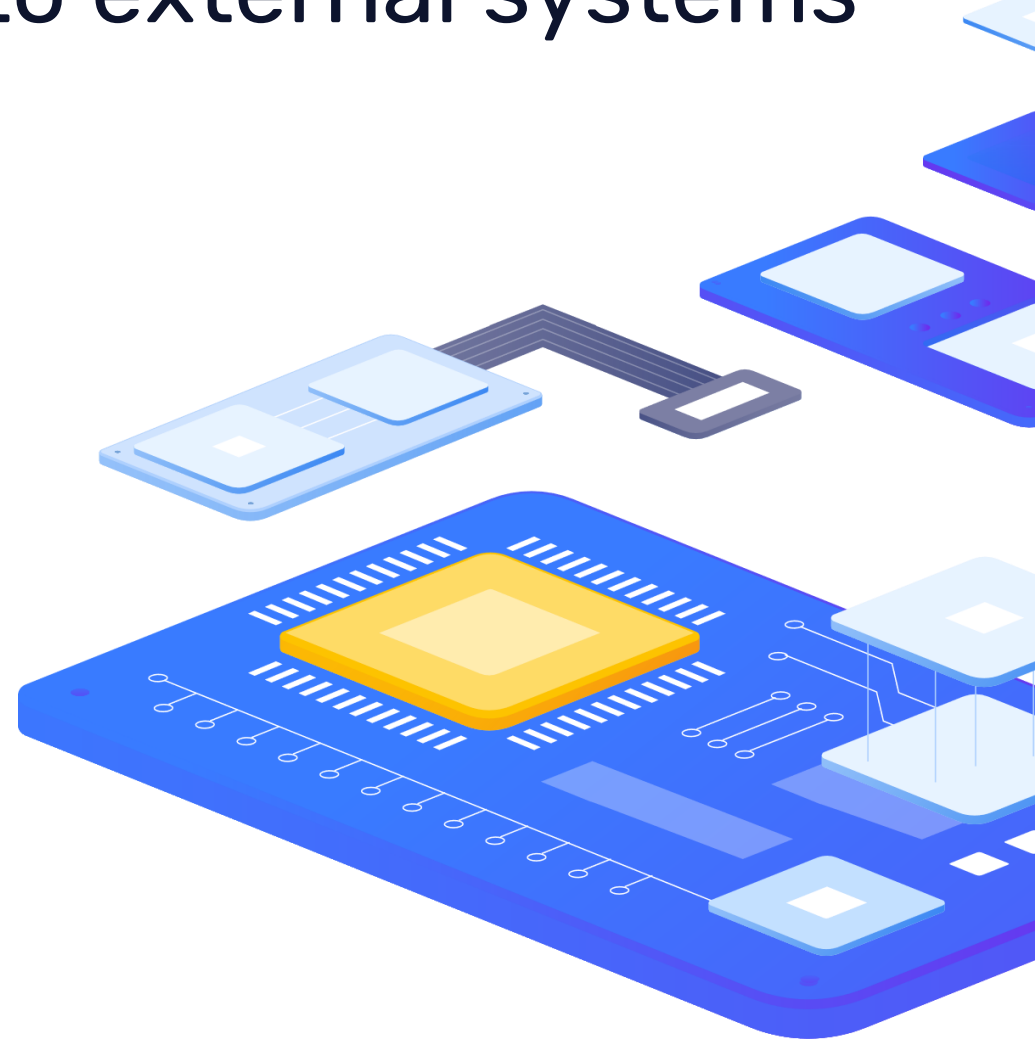
Zabbix 6.4

Streaming metrics and events to external systems

Zabbix currently supports real-time exporting of item values, trigger events and trends to files

This is not sufficient – Zabbix users require the ability to stream item values and events directly to an external endpoint via HTTP

(This feature currently has experimental status)

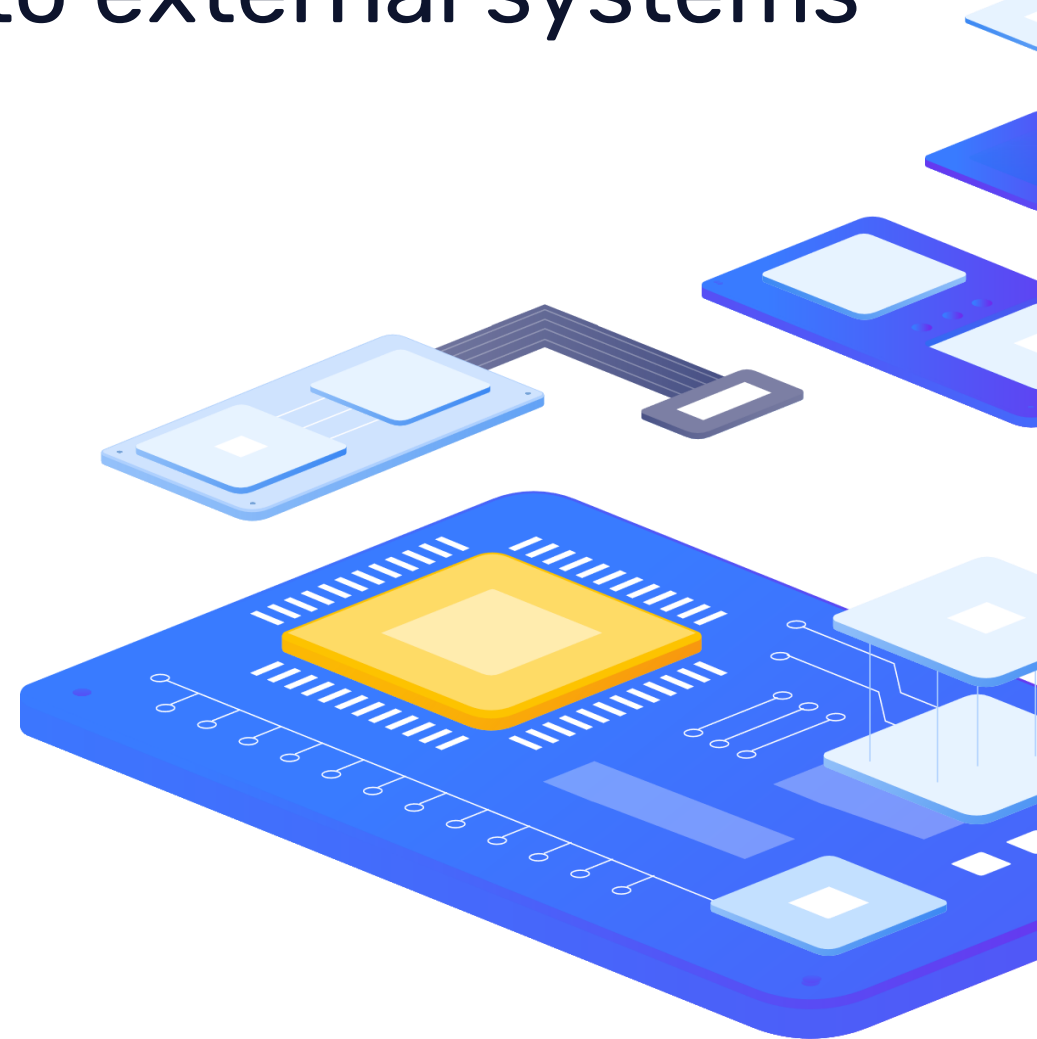


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Streaming metrics and events to external systems

There are multiple enterprise level use cases where streaming data collected by Zabbix can be used to adapt your existing systems and react to events generated by Zabbix

- ▶ Make Zabbix a part of your data pipeline by streaming metrics and events to message brokers like Kafka, RabbitMQ, or Amazon Kinesis and adapt your system behavior to the collected data in real-time
- ▶ Stream key metrics and events from your applications and microservices to a data lake or a data warehouse for long-term storage
- ▶ Gain additional insights from your metrics and events by streaming them to an external AI engine



Streaming metrics and events to external systems

A new Connectors section has been introduced under Administration – General. Here Zabbix administrators can define an external system where item values and events should be pushed to

- ▶ Zabbix server acts as a client and pushes data to the remote endpoint
- ▶ Streaming is done over HTTP via REST API
- ▶ New configuration parameter responsible for connector workers - StartConnectors (0-100)

▶ Example POST request

```
POST / HTTP/1.1
Host: log-management.initmax.cz
Accept: */*
Accept-Encoding: deflate, gzip, br
Content-Type: application/x-ndjson
Content-Length:
4869{"host":{"host":"demo.initmax.cz","name":"demo.initmax.cz"},"groups":["Zabbix","Connector","DEMO"],"item_tags":[{"tag":"Target","value":"OpenSearch"}, {"tag":"Target","value":"WAZUH"}],"itemid":147414,"name":"Demo item value, % free","clock":1675972194,"ns":97908485,"value":99.745535424749832,"type":0}
```

Defining a connector

Multiple connectors can be specified in the Connectors section

- ▶ Select between streaming item values or trigger events
- ▶ Stream only the data matching the tag filter

Connector ×

*

 Name

Connector - item values

Protocol

Zabbix Streaming Protocol v1.0

Data type

Item values

Events

*

 URL

http://log-management.initmax.cz/

Tag filter

And/Or

Or

Target

Equals

Wazuh

Remove

Target

Contains

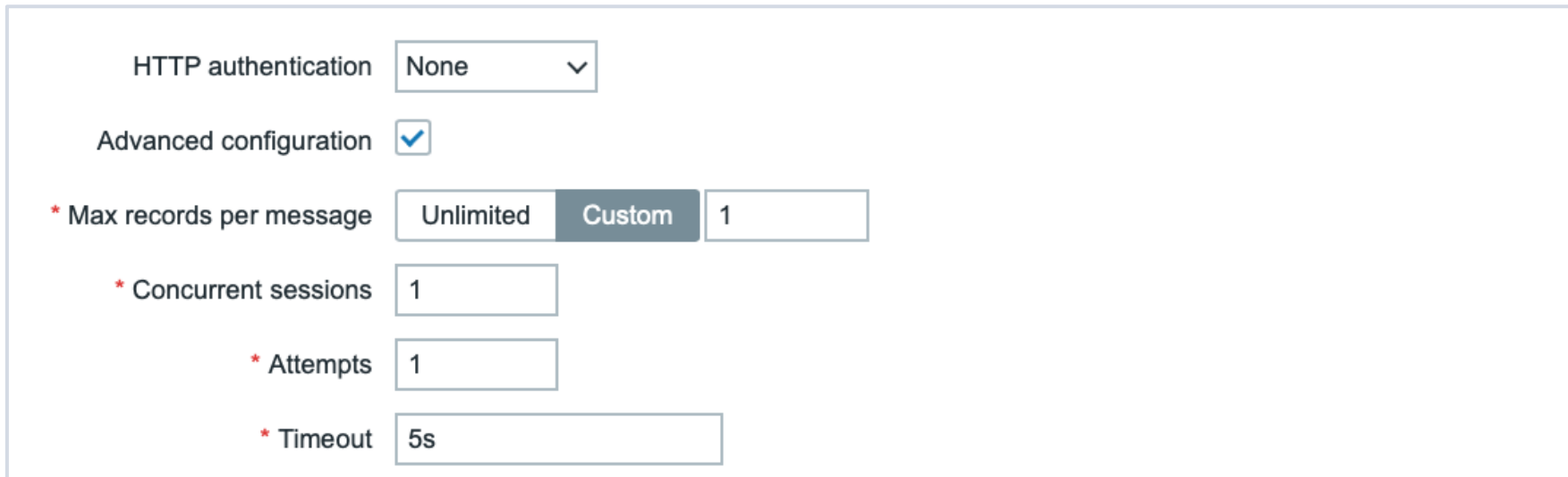
Audit

Remove

Customizing the connector

Each connector can be further customized

- › Maximum number of events or item values that can be sent over one HTTP connection
- › Number of processes to run for this connector (1-100)
- › Number of attempts (1-5)
- › Timeout (1-60 seconds)
- › Optional authentication (None, Basic, NTLM, Kerberos, Digest, Bearer)



The screenshot shows the configuration interface for a Zabbix connector. It includes a dropdown for HTTP authentication set to 'None', a checked checkbox for Advanced configuration, and several input fields for advanced settings: Max records per message (set to Custom with a value of 1), Concurrent sessions (1), Attempts (1), and Timeout (5s).

| | | |
|---------------------------|-------------------------------------|----------|
| HTTP authentication | None | ▼ |
| Advanced configuration | <input checked="" type="checkbox"/> | |
| * Max records per message | Unlimited | Custom 1 |
| * Concurrent sessions | 1 | |
| * Attempts | 1 | |
| * Timeout | 5s | |

Advanced configuration

HTTP proxy and authentication settings can also be provided for each connector

- ▶ Provide HTTP proxy settings
- ▶ Customize SSL certificate settings




| | |
|----------------------|--|
| HTTP proxy | <input type="text" value="[protocol://][user[:password]@]proxy.example.com[:port]"/> |
| SSL verify peer | <input type="checkbox"/> |
| SSL verify host | <input type="checkbox"/> |
| SSL certificate file | <input "{\$ssl.cert}"="" data-bbox="828 913 1928 968" type="text" value=""/> |
| SSL key file | <input "{\$ssl.key}"="" data-bbox="828 996 1928 1051" type="text" value=""/> |
| SSL key password | <input "{\$ssl.password}"="" data-bbox="828 1079 1928 1133" type="text" value=""/> |

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Advanced configuration – vault secret

HashiCorp or CyberArk vaults can be used to store all the sensitive connector information

- ▶ Connection URL
- ▶ Username, password, bearer token
- ▶ SSL certificate, key file, password


| Macro | Value | | Description |
|---|---|---|----------------------------|
| <input type="text" value="{\${SSL.CERT}}"/> | <input type="text" value="secret/zabbix:ssl_cert"/> |  ▼ | HTTP Connector certificate |
| <input type="text" value="{\${SSL.KEY}}"/> | <input type="text" value="secret/zabbix:ssl_key"/> |  ▼ | HTTP Connector key |
| <input type="text" value="{\${SSL.PASSWORD}}"/> | <input type="text" value="secret/zabbix:ssl_password"/> |  ^ | HTTP Connector password |

Add

Update

T Text

👁 Secret text

 Vault secret

6

Cause and symptom events



Zabbix 6.4

Cause and symptom events

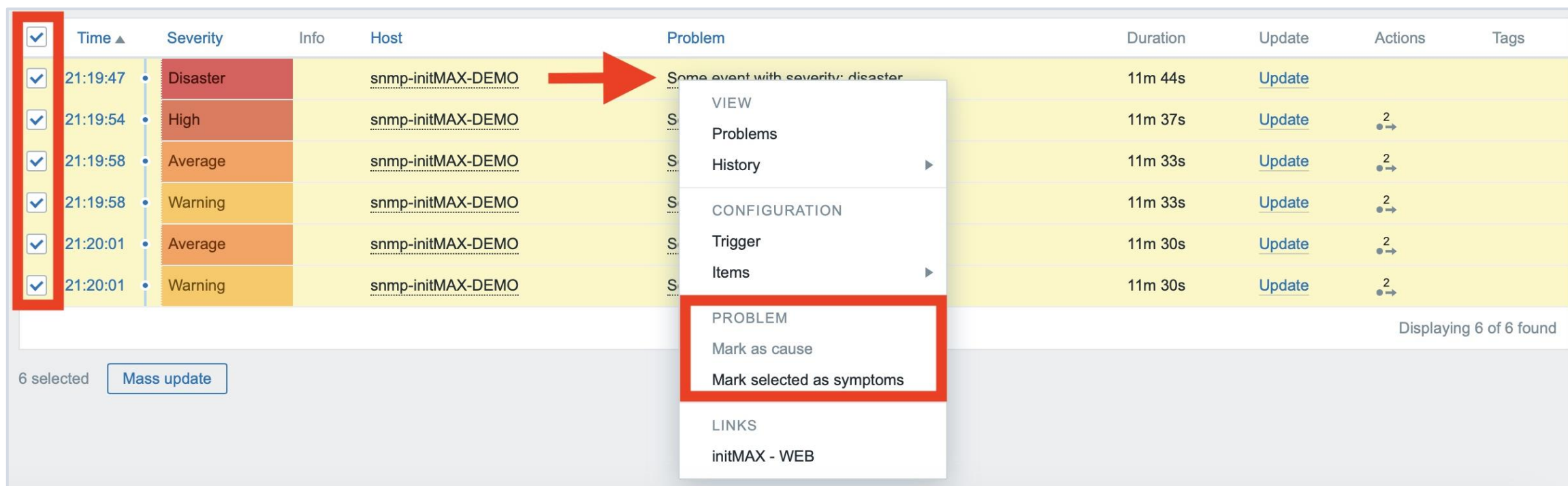
Zabbix 6.4 adds the ability to mark events as Cause or Symptom events. This allows Zabbix users to filter events in a way, where they can see only root cause problems, instead of being overwhelmed by symptom events

| <input type="checkbox"/> | Time ▲ | Severity | Info | Host | Problem | Duration | Update | Actions |
|------------------------------|----------|----------|------|-------------------|------------------------------------|----------|------------------------|---------|
| <input type="checkbox"/> 5 ^ | 21:19:47 | Disaster | | snmp-initMAX-DEMO | Some event with severity: disaster | 7m 46s | Update | |
| <input type="checkbox"/> ↵ | 21:19:54 | High | | snmp-initMAX-DEMO | Some event with severity: high | 7m 39s | Update | 1 → |
| <input type="checkbox"/> ↵ | 21:19:58 | Average | | snmp-initMAX-DEMO | Some event with severity: average | 7m 35s | Update | 1 → |
| <input type="checkbox"/> ↵ | 21:19:58 | Warning | | snmp-initMAX-DEMO | Some event with severity: warning | 7m 35s | Update | 1 → |
| <input type="checkbox"/> ↵ | 21:20:01 | Average | | snmp-initMAX-DEMO | Some event with severity: average | 7m 32s | Update | 1 → |
| <input type="checkbox"/> ↵ | 21:20:01 | Warning | | snmp-initMAX-DEMO | Some event with severity: warning | 7m 32s | Update | 1 → |

Zabbix 6.4

Cause and symptom events

- › Events can now be marked as cause or symptom events
- › By default, all new problems are considered as cause events



The screenshot displays the Zabbix 6.4 interface with a table of events. The table has columns: Time, Severity, Info, Host, Problem, Duration, Update, Actions, and Tags. Six events are listed, all from host 'snmp-initMAX-DEMO'. The first event is a 'Disaster' at 21:19:47. A red box highlights the first column (checkboxes) and a red arrow points to the first row. A context menu is open over the table, showing options: VIEW, Problems, History, CONFIGURATION, Trigger, Items, PROBLEM, Mark as cause, Mark selected as symptoms, LINKS, and initMAX - WEB. The 'Mark as cause' and 'Mark selected as symptoms' options are highlighted with a red box. At the bottom left, it says '6 selected' and 'Mass update'. At the bottom right, it says 'Displaying 6 of 6 found'.

| Time | Severity | Info | Host | Problem | Duration | Update | Actions | Tags |
|----------|----------|------|-------------------|------------------------------------|----------|------------------------|---------|------|
| 21:19:47 | Disaster | | snmp-initMAX-DEMO | Some event with severity: disaster | 11m 44s | Update | | |
| 21:19:54 | High | | snmp-initMAX-DEMO | S... | 11m 37s | Update | 2 → | |
| 21:19:58 | Average | | snmp-initMAX-DEMO | S... | 11m 33s | Update | 2 → | |
| 21:19:58 | Warning | | snmp-initMAX-DEMO | S... | 11m 33s | Update | 2 → | |
| 21:20:01 | Average | | snmp-initMAX-DEMO | S... | 11m 30s | Update | 2 → | |
| 21:20:01 | Warning | | snmp-initMAX-DEMO | S... | 11m 30s | Update | 2 → | |

6 selected [Mass update](#)

Displaying 6 of 6 found

Cause and symptom events

- ▶ Symptom events can be converted to cause events by pressing the update button in the problem list (previously – Ack button)

Update problem

Problem

Some event with severity: high

Message

History

| Time | User | User action | Message |
|---------------------|--|-------------|---------|
| 2023-03-15 21:41:24 | tomas.hermanek@initmax.cz (Tomáš Heřmánek) | ↪ | |

Scope

☒ Only selected problem

☐ Selected and all other problems of related triggers 1 event

Change severity

☐ Not classified

Information

Warning

Average

High

Disaster

Suppress ?

☐ Indefinitely

Until

now+1d

Unsuppress ?

☐

Acknowledge ?

☐

Convert to cause ?

☒

Close problem

☐

* At least one update operation or message must exist.

Update

Cancel

Symptom problems – actions

- ▶ It is possible to pause operations for symptom problems

[Action](#) [Operations 6](#)

* Default operation step duration

| Operations | Steps | Details | Start in | Duration | Action |
|------------|---------------------|--|----------|----------|---|
| | 2 | Send message to user groups: NOC Team via Office365 | 00:15:00 | Default | Edit Remove |
| | 3 | Send message to user groups: Engineers via MS Teams | 00:30:00 | Default | Edit Remove |
| | 3 | Send message to user groups: Engineers via Office365 | 00:30:00 | Default | Edit Remove |
| | 6 | Send message to user groups: Management via SMS | 01:15:00 | Default | Edit Remove |
| | Add | | | | |

Recovery operations

Details

Notify all involved

[Add](#)

Action

[Edit](#) [Remove](#)

Update operations

Details

Notify all involved

[Add](#)

Action

[Edit](#) [Remove](#)

Pause operations for symptom problems ☒

Pause operations for suppressed problems ☒

Notify about canceled escalations ☒

* At least one operation must exist.

Zabbix 6.4

Symptom problems – actions

Multiple new macros have been introduced to present cause events

- › Cause event name - {EVENT.CAUSE.NAME}
- › Cause event tags - {EVENT.CAUSE.TAGS}
- › Cause event severity - {EVENT.CAUSE.SEVERITY}
- › Cause event status - {EVENT.CAUSE.STATUS}
- › Cause event value - {EVENT.CAUSE.VALUE}
- › More about new cause macros can be found in documentation
https://www.zabbix.com/documentation/6.4/en/manual/appendix/macros/supported_by_location#cause-and-symptom-events

These macros can be used in

- › Trigger-based notifications and commands
- › Problem update notifications and commands
- › Manual event action scripts

Zabbix 6.4

Cause and symptom events – API changes

Multiple event related API calls now support filtering by cause and symptom events

- ▶ `event.get` and `problem.get` – new symptom parameter (true – symptom, false – cause)
- ▶ Cause event ID can also be returned in the request response:

```
{
  "jsonrpc": "2.0",
  "result": [
    {
      "eventid": "9695",
      "source": "0",
      "object": "0",
      "objectid": "13926",
      "clock": "1347970410",
      "value": "1",
      "acknowledged": "1",
      "ns": "413316245",
      "name": "MySQL is down",
      "severity": "5",
      "r_eventid": "0",
      "c_eventid": "0",
      "correlationid": "0",
      "userid": "0",
      "cause_eventid": "0",
      ...
    }
  ]
}
```

7

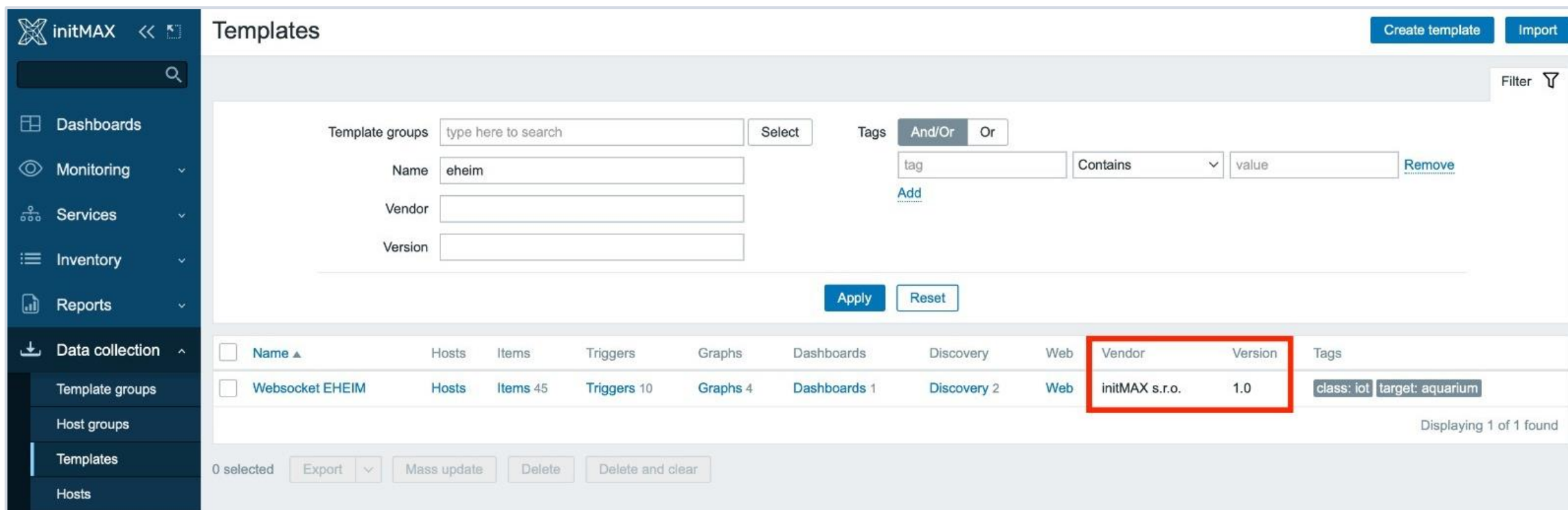
Template versioning



Template versioning

Template versioning has been introduced to improve the template management and ease of use

- ▶ New fields in the template list – **Vendor and Version**



The screenshot shows the Zabbix 6.4 interface for managing templates. The left sidebar contains navigation links: Dashboards, Monitoring, Services, Inventory, Reports, Data collection, Template groups, Host groups, Templates, and Hosts. The main content area is titled "Templates" and includes a search bar, a filter icon, and buttons for "Create template" and "Import".

Below the search bar, there are input fields for "Template groups" (with a "Select" button), "Name" (containing "eheim"), "Vendor", and "Version". To the right, there are "Tags" with "And/Or" and "Or" buttons, and a "tag" input field with a "Contains" dropdown and a "value" input field. There are "Add" and "Remove" buttons for tags. Below these fields are "Apply" and "Reset" buttons.

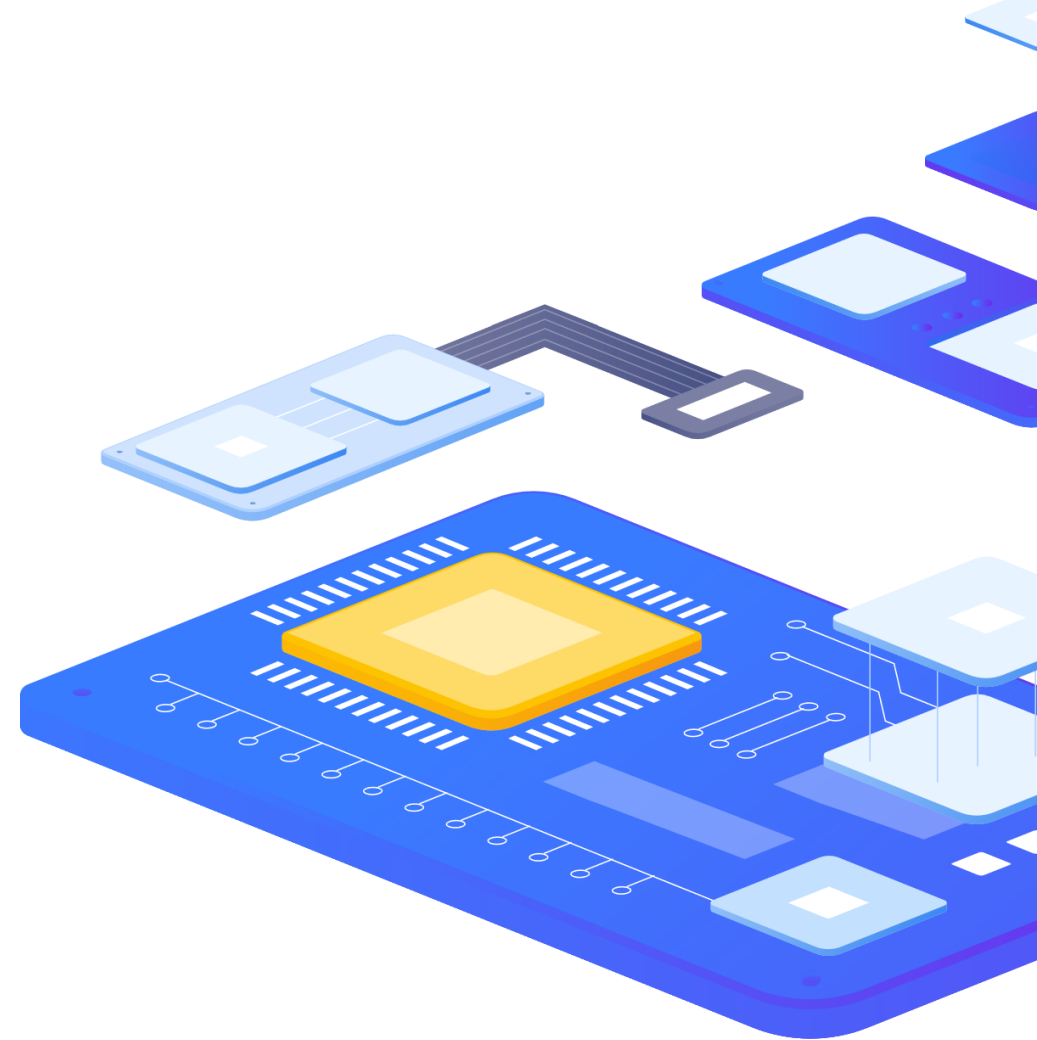
The template list table has columns: Name, Hosts, Items, Triggers, Graphs, Dashboards, Discovery, Web, Vendor, Version, and Tags. The first row is "Websocket EHEIM" with 45 items, 10 triggers, 4 graphs, 1 dashboard, and 2 discovery rules. The "Vendor" and "Version" columns for this row are highlighted with a red box, showing "initMAX s.r.o." and "1.0" respectively. The "Tags" column shows "class: iot" and "target: aquarium".

At the bottom, there is a status bar showing "0 selected" and buttons for "Export", "Mass update", "Delete", and "Delete and clear". The text "Displaying 1 of 1 found" is also present.

Zabbix 6.4

Template versioning - notes

- › Existing templates will have empty vendor and version fields
- › Import the latest Zabbix 6.4 templates to populate the vendor and version fields
- › Vendor and version fields cannot be edited manually in the frontend
- › For custom templates, the vendor and version fields will have to be populated by providing them in the template file



8

Support of data collection for
outdated proxies



Zabbix 6.4

Support of data collection for outdated proxies

To improve the Zabbix component upgrade workflows (especially for large environments), outdated proxies can still perform data collection with a newer Zabbix server version

- › Proxy is **fully supported** if it has the same major version as the Zabbix server
- › Proxy is marked as outdated if its major version is older than the Zabbix server, but not older than the previous LTS release
- › **Outdated** proxies still support data collection and remote command execution
- › In other scenarios, the proxy **becomes not supported**

The new behavior enables Zabbix administrators to perform **Zabbix upgrades with zero downtime**



Support of data collection for outdated proxies

- | ▶ Server version | ▶ Current proxy version | ▶ Outdated proxy version | ▶ Unsupported proxy version |
|------------------|-------------------------|--------------------------|-----------------------------|
|------------------|-------------------------|--------------------------|-----------------------------|

6.4

6.4

6.0, 6.2

Older than 6.0
Newer than 6.4

7.0

7.0

6.0, 6.2, 6.4

Older than 6.0
Newer than 7.0

7.2

7.2



7.0

Older than 7.0
Newer than 7.2

Support of data collection for outdated proxies

Information about the proxy versions and their status is now displayed under Administration – Proxies

- ▶ Clicking on the warning symbol will display information about the proxy compatibility

| <div><div>Name <input type="text"/></div><div>Mode <div>AnyActivePassive</div></div><div>Version <div>AnyCurrentOutdated</div></div><div>ApplyReset</div></div> | | | | | | |
|---|--------|------------|--|-----------------|------------|------------|
| <input type="checkbox"/> Name ▲ | Mode | Encryption | Version | Last seen (age) | Host count | Item count |
| <input type="checkbox"/> Los Angeles proxy | Active | None | 6.0.2  | 1s | 115 | 1412 |
| <input type="checkbox"/> QA environment proxy | Active | None | 5.0.30  | 2s | 0 | 0 |
| <input type="checkbox"/> Riga proxy | Active | None | 6.4.0 | 2s | 201 | 1975 |

9

Simplify creation of
dashboard widgets



Simplify custom widget creation

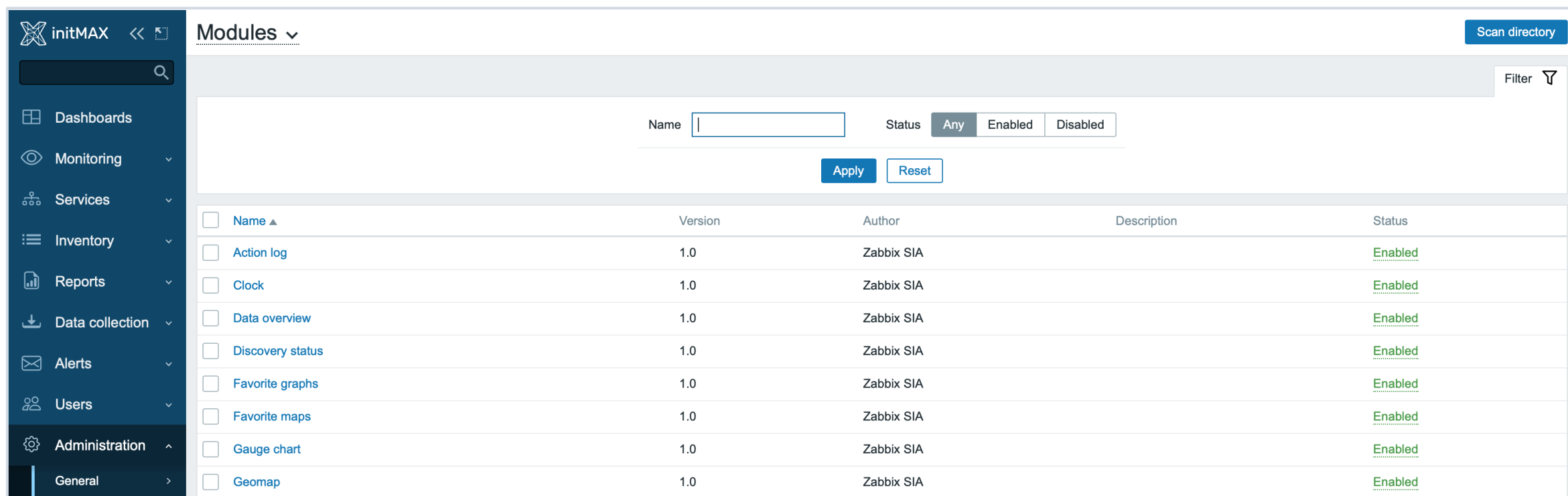
Many community members have created their own custom frontend modules and widgets. Zabbix goal was to endorse this further by streamlining the widget creation process

To achieve this, Zabbix had to implement the following in Zabbix 6.4

- › Make existing official widgets simpler to understand and use as examples
- › Widget metadata should be available as a single "data pack"
- › Adding new widgets should be as simple as adding new files, without changing the existing files
- › Ideally, widgets should also be modular
- › Widgets should be easy to list and understand in the Zabbix frontend
- › Provide information to community on how to create a custom widget

Widgets converted to frontend modules

All the official Zabbix widgets have been converted to modules and are available in the Modules section



The screenshot shows the Zabbix 6.4 interface with the 'Modules' section selected. The left sidebar contains navigation links: Dashboards, Monitoring, Services, Inventory, Reports, Data collection, Alerts, Users, and Administration (General). The main content area displays a list of modules with columns for Name, Version, Author, Description, and Status. A search bar and filter options are at the top right.

| <input type="checkbox"/> Name ▲ | Version | Author | Description | Status |
|---|---------|------------|-------------|---------|
| <input type="checkbox"/> Action log | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Clock | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Data overview | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Discovery status | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Favorite graphs | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Favorite maps | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Gauge chart | 1.0 | Zabbix SIA | | Enabled |
| <input type="checkbox"/> Geomap | 1.0 | Zabbix SIA | | Enabled |

Simplify creation of dashboard widgets

- › Built in widgets are moved to ui/widgets directory
- › Custom widgets should reside in ui/modules/<widget>
- › To support widgets, modules can load custom JavaScript/CSS/Images
- › As soon as the widget is placed, clicking the Scan directory button in the Modules section will detect the new widget
- › Additional information about the widget can be seen in the widget properties in the frontend

| | |
|---|-------------------------------------|
| Name | Action log |
| Version | 1.0 |
| Author | Zabbix SIA |
| Description | - |
| Directory | widgets/actionlog |
| Namespace | Widgets\ActionLog |
| Homepage | - |
| Enabled | <input checked="" type="checkbox"/> |
| <div><button>Update</button><button>Cancel</button></div> | |

Zabbix 6.4

Developer Center

A new Developer Center documentation section has been published. Here you can learn by examples how to create custom

- › Frontend modules
- › Go Plugins
- › Dashboard widgets

The documentation includes not only examples, but also guidelines, code snippets, and step-by-step tutorials

<https://www.zabbix.com/documentation/current/en/devel>

ZABBIX Documentation

6.4 (current)EnglishDownload

Search

Zabbix Manual

Developer Center

Modules

- Module file structure
- Widgets
- Tutorials
 - Create a module (tutorial)
 - Create a widget (tutorial)
- Examples

Plugins

Zabbix manpages

Create a widget (tutorial)

Table of Contents

This is a step-by-step tutorial that shows how to create a simple dashboard widget. You can download all files of this widget as a ZIP archive: [lesson_gauge_chart.zip](#).

What you'll build

During this tutorial, you will first built a [basic](#) "Hello, world!" widget and then convert it into a [more advanced](#) widget that displays an item value as a gauge chart. Here's how the finished widget will look like:

DashboardsMonitoringServicesInventoryReportsData collectionAlertsUsersAdministration

All dashboards / Widget examples

Gauge chart

0.235

00.3

Processor load

Part I - "Hello, world!"

In this section you will learn how to create the minimum required widget elements and add a new widget to Zabbix frontend.

Create a widget (tutorial)

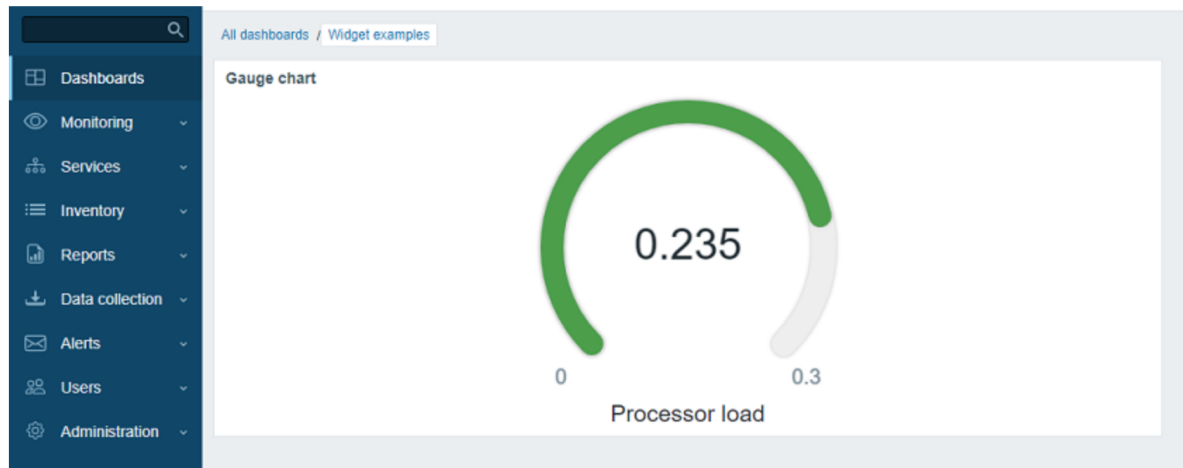
What you'll build

Part I - "Hello, world!"

- Add a blank widget to Zabbix frontend
- Add a widget view

Part II - Gauge chart

- Add settings to a configuration view and use them in a widget view
- Retrieve an item value via API
- Add JavaScript to the widget.
- Add CSS styles to the widget.



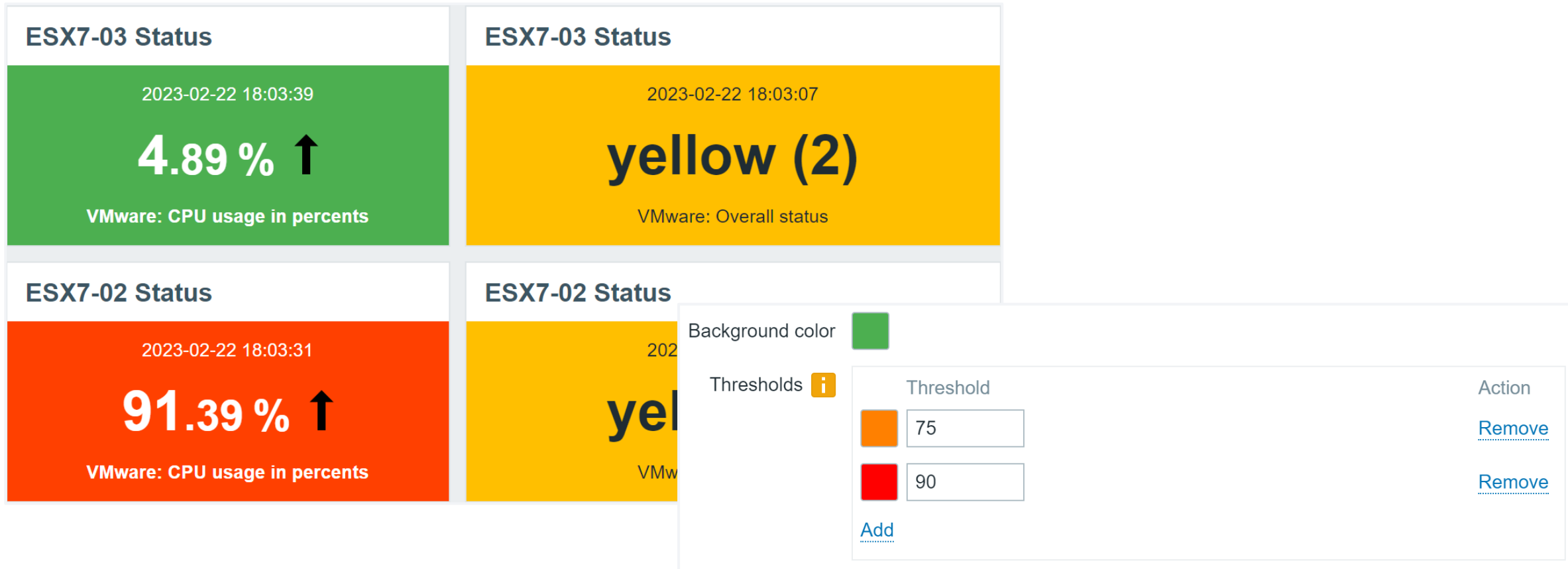
10

Other changes and
improvements



Dynamic item value thresholds

The item value widget now provides the option to define different thresholds and change the background color accordingly



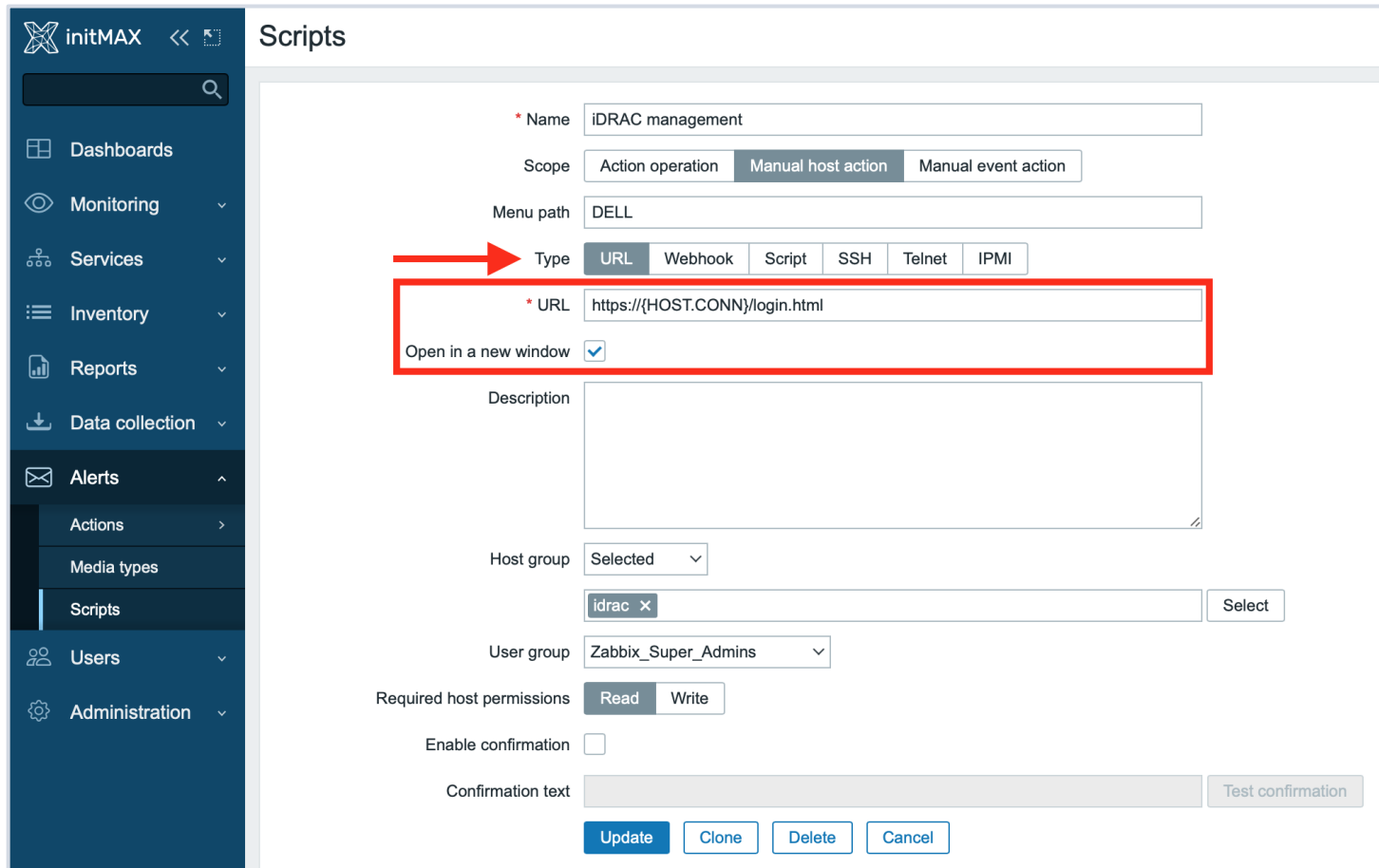
The screenshot displays four Zabbix item value widgets arranged in a 2x2 grid. The top-left widget, titled 'ESX7-03 Status', shows a green background with the value '4.89 % ↑' and the label 'VMware: CPU usage in percents'. The top-right widget, also titled 'ESX7-03 Status', shows a yellow background with the value 'yellow (2)' and the label 'VMware: Overall status'. The bottom-left widget, titled 'ESX7-02 Status', shows an orange background with the value '91.39 % ↑' and the label 'VMware: CPU usage in percents'. The bottom-right widget, also titled 'ESX7-02 Status', shows a yellow background with the value 'yellow (2)' and the label 'VMware: Overall status'. A modal window is open over the bottom-right widget, showing the configuration for dynamic thresholds. The modal has a 'Background color' section with a green color swatch. The 'Thresholds' section contains a table with two rows: one with an orange color swatch and a threshold of 75, and another with a red color swatch and a threshold of 90. Each row has a 'Remove' link. At the bottom of the thresholds section is an 'Add' link.

| Background color | Threshold | Action |
|------------------|-----------|------------------------|
| Orange | 75 | Remove |
| Red | 90 | Remove |

[Add](#)

Custom links

Ability to provide custom URLs for hosts/events, to quickly manage the problem in an external system



Scripts

* Name: iDRAC management

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

Menu path: DELL

Type: **URL** | Webhook | Script | SSH | Telnet | IPMI

* URL: https://{HOST.CONN}/login.html

Open in a new window: ☒

Description:

Host group: Selected

idrac x Select

User group: Zabbix_Super_Admins

Required host permissions: Read | Write

Enable confirmation: ☐

Confirmation text: Test confirmation

Update Clone Delete Cancel

Custom links

- ▶ Trigger URLs can also be assigned in trigger configuration
- ▶ Ability to define more user-friendly navigation to URLs from events

Problems

< 🔍 DEMO 6.4 ⚙️

| <input type="checkbox"/> | Time ▾ | Severity | Info | Host | Problem |
|--|----------|----------|------|-------------------|-----------------|
| <input type="checkbox"/> 2 ⬆️ | 21:40:58 | Disaster | | snmp-initMAX-DEMO | Some event wi |
| <input type="checkbox"/> ⬇️ | 21:40:41 | Average | | snmp-initMAX-DEMO | Some event with |
| <input type="checkbox"/> ⬇️ | 21:40:41 | Warning | | snmp-initMAX-DEMO | Some event with |
| <input type="checkbox"/> | 21:40:51 | High | | snmp-initMAX-DEMO | Some event wi |

0 selected Mass update

VIEW

Problems

History ▶

CONFIGURATION

Trigger

Items ▶

PROBLEM

Mark as cause

Mark selected as symptoms

LINKS

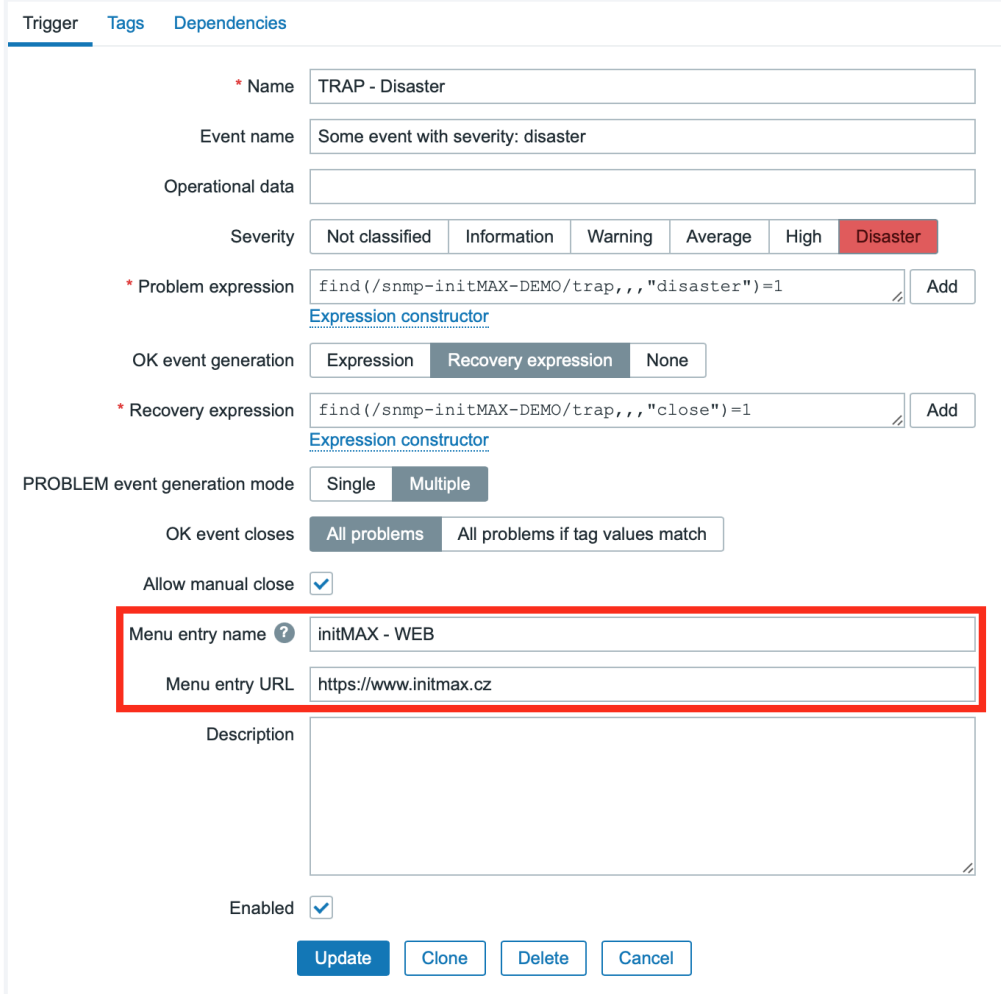
initMAX - WEB

Zabbix 6.4

Trigger URL labels

A menu entry label can now be defined for trigger URLs

- ▶ Visible when clicking on the problem event generated by the trigger



The screenshot displays the Zabbix Trigger configuration interface. The 'Trigger' tab is selected. The configuration includes fields for Name, Event name, Operational data, Severity, Problem expression, OK event generation, Recovery expression, PROBLEM event generation mode, OK event closes, Allow manual close, Menu entry name, Menu entry URL, and Description. The 'Menu entry name' field is set to 'initMAX - WEB' and the 'Menu entry URL' field is set to 'https://www.initmax.cz'. These two fields are highlighted with a red rectangular box. The 'Enabled' checkbox is checked, and the 'Update' button is visible at the bottom.

| Field | Value |
|-------------------------------|---|
| Name | TRAP - Disaster |
| Event name | Some event with severity: disaster |
| Operational data | |
| Severity | Not classified Information Warning Average High Disaster |
| * Problem expression | find(/snmp-initMAX-DEMO/trap,,,"disaster")=1 |
| OK event generation | Expression Recovery expression None |
| * Recovery expression | find(/snmp-initMAX-DEMO/trap,,,"close")=1 |
| PROBLEM event generation mode | Single Multiple |
| OK event closes | All problems All problems if tag values match |
| Allow manual close | <input checked="" type="checkbox"/> |
| Menu entry name | initMAX - WEB |
| Menu entry URL | https://www.initmax.cz |
| Description | |
| Enabled | <input checked="" type="checkbox"/> |

Buttons: Update, Clone, Delete, Cancel

Zabbix 6.4

Optional interfaces for server checks

Having a dummy host interface isn't required anymore for item types related to checks originating directly from Zabbix server or Zabbix proxy

- › Simple check
- › External check
- › SSH agent
- › Telnet agent

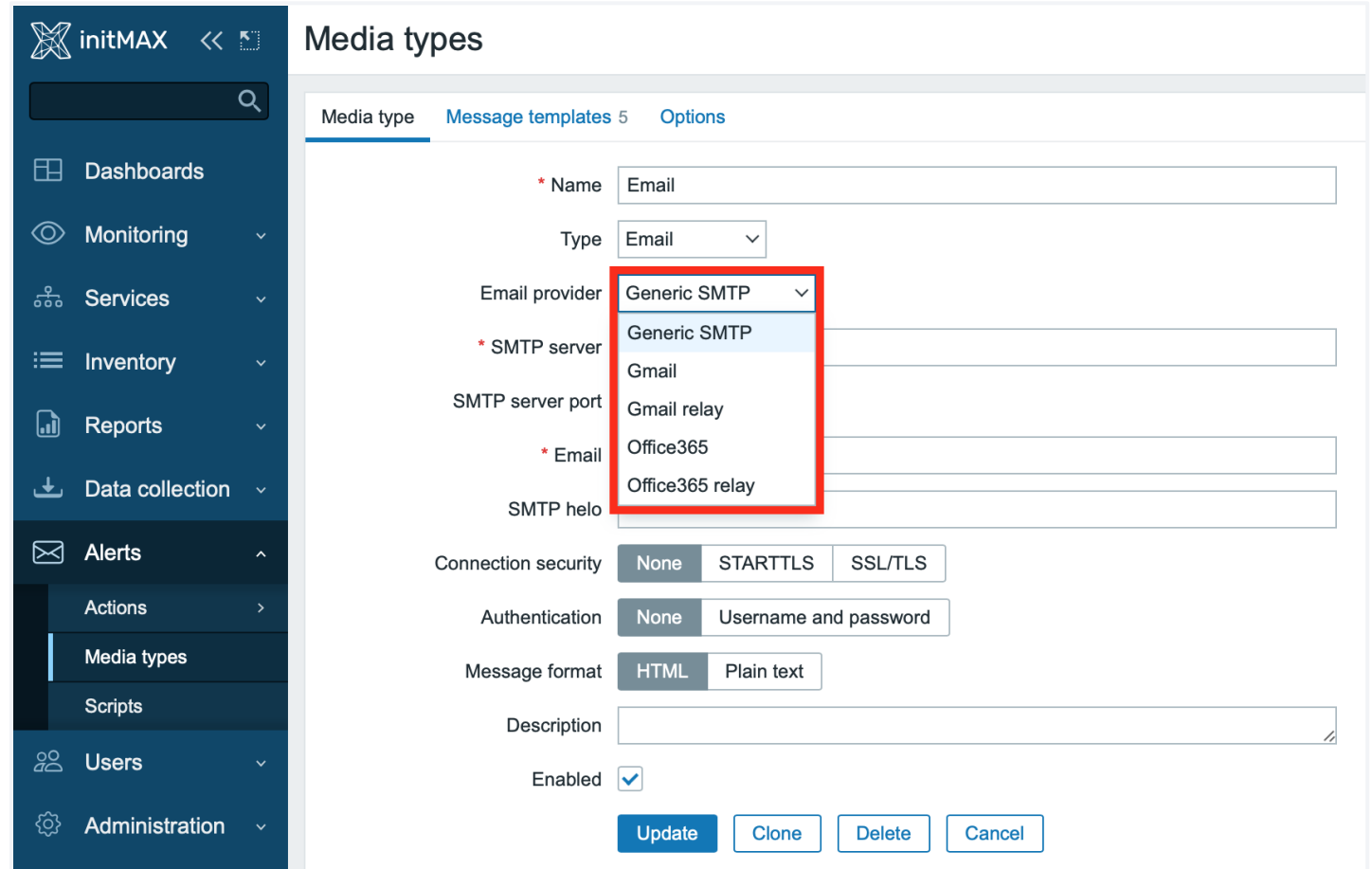
| Item | Tags | Preprocessing |
|--|------|---------------|
| <div>* Name <input type="text" value="Ping status"/></div> <div>Type <input data-bbox="810 1053 1223 1115" type="text" value="Simple check"/></div> <div>* Key <input type="text" value="icmpping[192.168.50.116]"/> <input type="button" value="Select"/></div> <div>Type of information <input type="text" value="Numeric (unsigned)"/></div> <div><div>Host interface</div><div><input type="text" value="None"/></div><div>▼</div></div> | | |

Zabbix 6.4

Improved media type configuration

Zabbix 6.4 introduces the ability to select an email provider

- ▶ Select from Gmail, Gmail relay, O365, O365 relay or Generic SMTP
- ▶ Generic SMTP configuration corresponds to the old default email media type configuration



Media types

Media type [Message templates](#) 5 [Options](#)

* Name

Type

Email provider

* SMTP server

SMTP server port

* Email

SMTP helo

Connection security

Authentication

Message format

Description

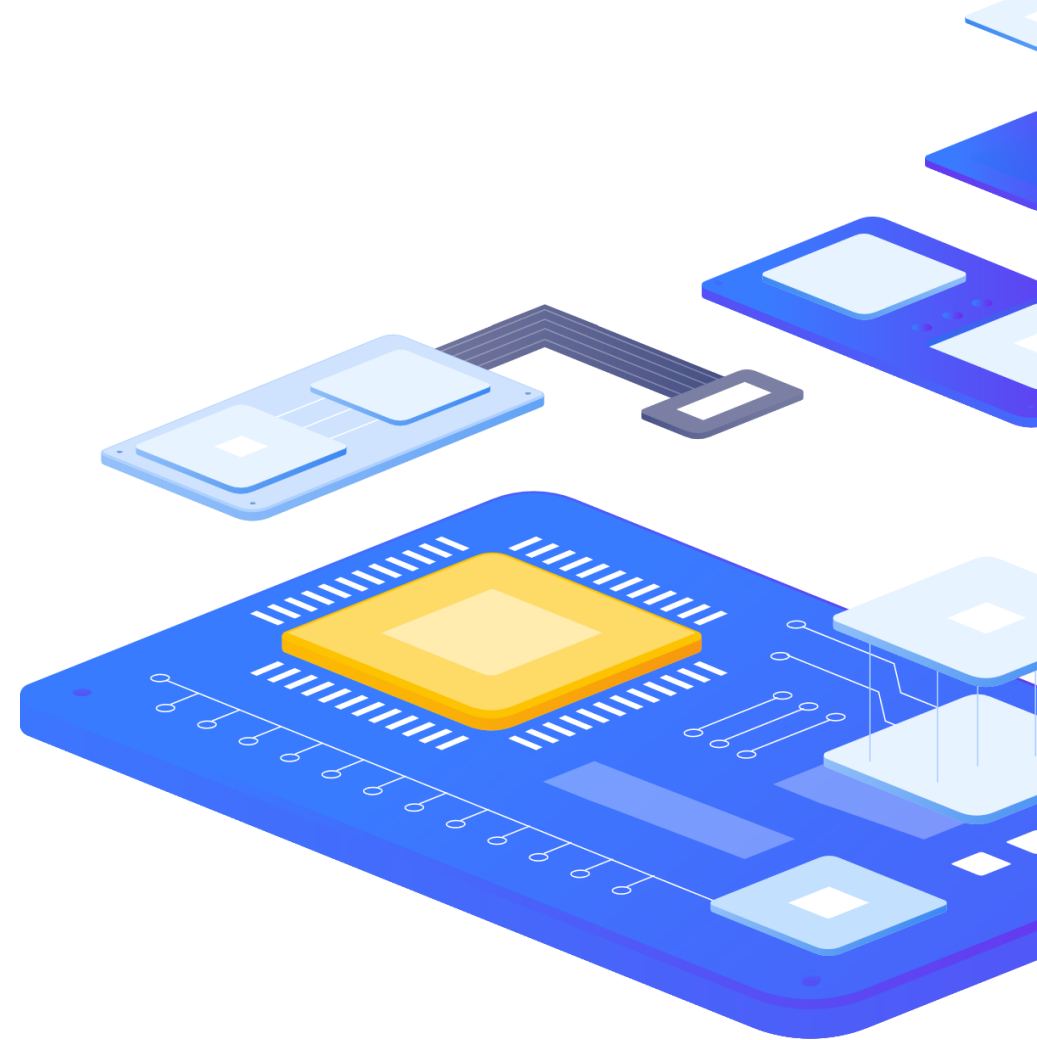
Enabled ☒

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

Zabbix 6.4

Preprocessing improvements

- › Vastly The new preprocessing design enables preprocessing parallelism by moving to thread-based preprocessing workers
- › This enables Zabbix to collect and preprocess hundreds of thousands of metrics without causing any queues and bottlenecks

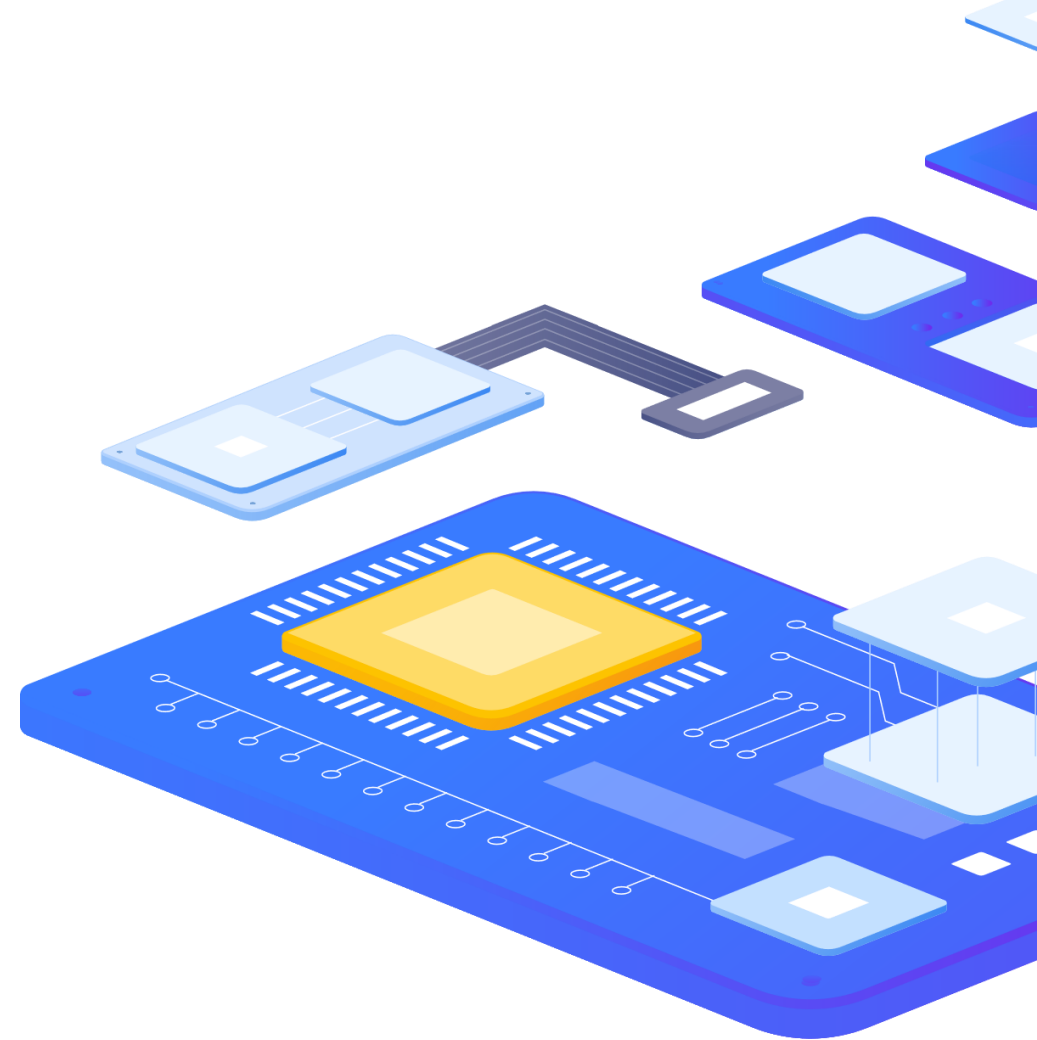


Zabbix 6.4

Preprocessing improvements

The new preprocessing design brings multiple improvements

- › Vastly improved preprocessing of JSON/XML data structures used to populate dependent items
- › This resolves situations with data collection delays due to preprocessing bottlenecks
- › Improved performance for official templates using many dependent items. For example: Elasticsearch and ClickHouse
- › Improved performance affects both Zabbix server and Zabbix proxy



Other changes

Multiple other changes have been introduced

- › SQLite3 Zabbix proxies now automatically recreate the SQLite3 database file during an upgrade
- › A host status filter (enabled/disabled) has been added under Data collection – Hosts
- › Additional filtering options have been added to the Action log
- › Action log now supports Export to CSV
- › Multiple context menu improvements to Host, Item and Event context menus
- › Old password verification is now required when changing your internal Zabbix user password
- › Value cache performance improvements when working with metrics that get updated less frequently than once per day
- › Added commands to enable profiling of rwlocks/mutexes (for debugging)

Zabbix 6.4

New templates

- › Microsoft Azure MySQL servers
- › Microsoft Azure PostgreSQL servers
- › Microsoft Azure virtual machines
- › Low-level discovery improvements in AWS by HTTP template
- › Veeam Backup Enterprise Manager
- › Veeam Backup and Replication
- › Cisco Nexus 9000 Series
- › BMC Control-M
- › Cisco Meraki dashboard
- › OS processes by Zabbix agent
- › Improvements to filesystem discovery in official Zabbix OS templates

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Demo





Questions?



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