ZABBIX

WHAT'S NEW IN ZABBIX 6.4

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ZABBIX 6.4

Zabbix 6.4 establishes the groundwork for many potential future improvements and new use cases by evolving multiple core aspects of Zabbix:

- User management and provisioning
- More streamlined upgrade procedure
- Simpler configuration and template management
- Performance improvements, especially for large environments
- Integrating Zabbix with 3rd party systems
- Improved problem and alert management

Zabbix 6.4 is currently in the beta testing stage. Multiple features discussed in this presentation will become available in the upcoming beta and release-candidate releases.

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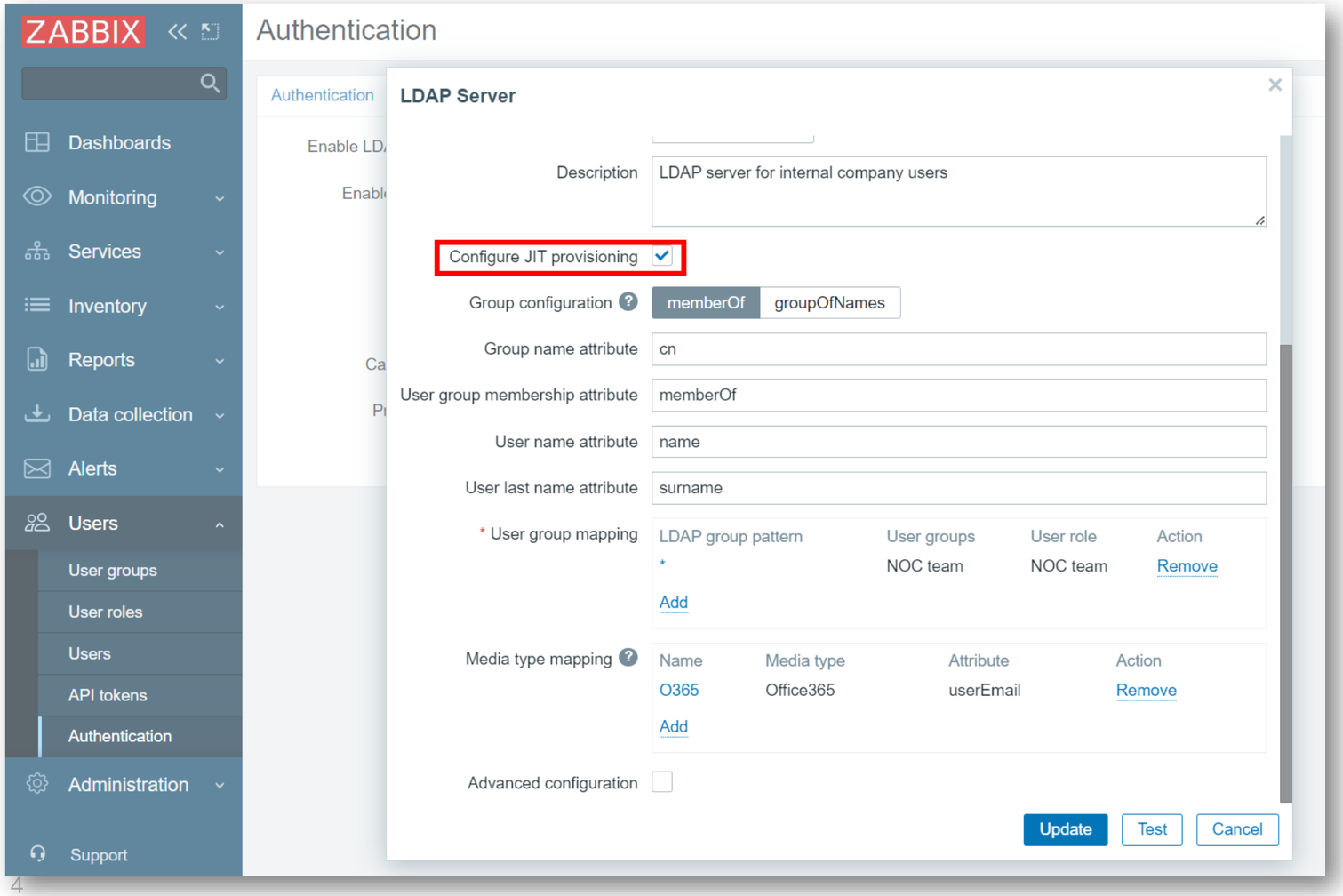
What's new in zabbix 6.4

JUST-IN-TIME USER PROVISIONING

JIT USER PROVISIONING

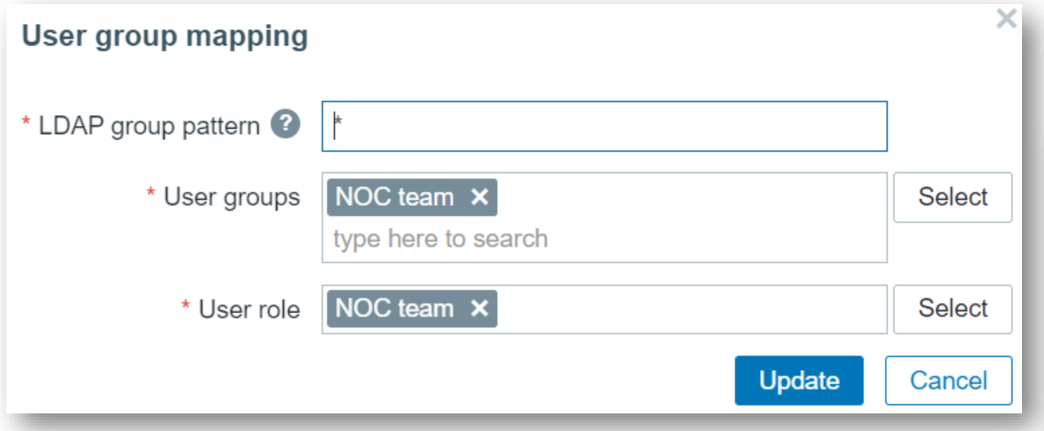
Zabbix 6.4 adds support of JIT user provisioning for LDAP and SAML authentication:

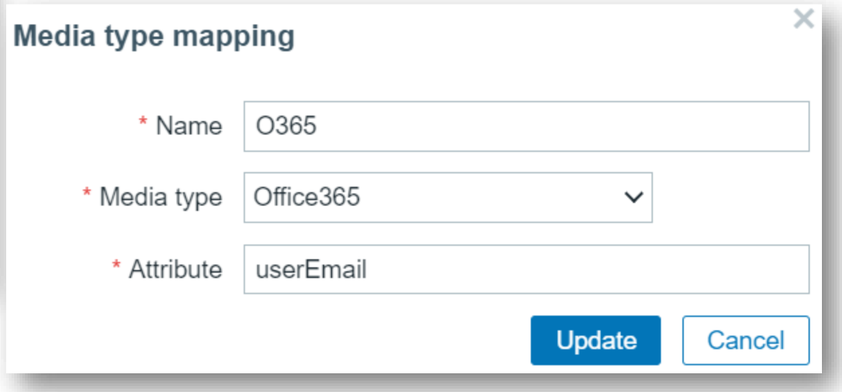


JIT USER PROVISIONING

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 also allows updating provisioned user accounts based on changes in LDAP
- Users are mapped to user groups and user roles
- LDAP media attributes can be mapped to a Zabbix media type





JIT 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

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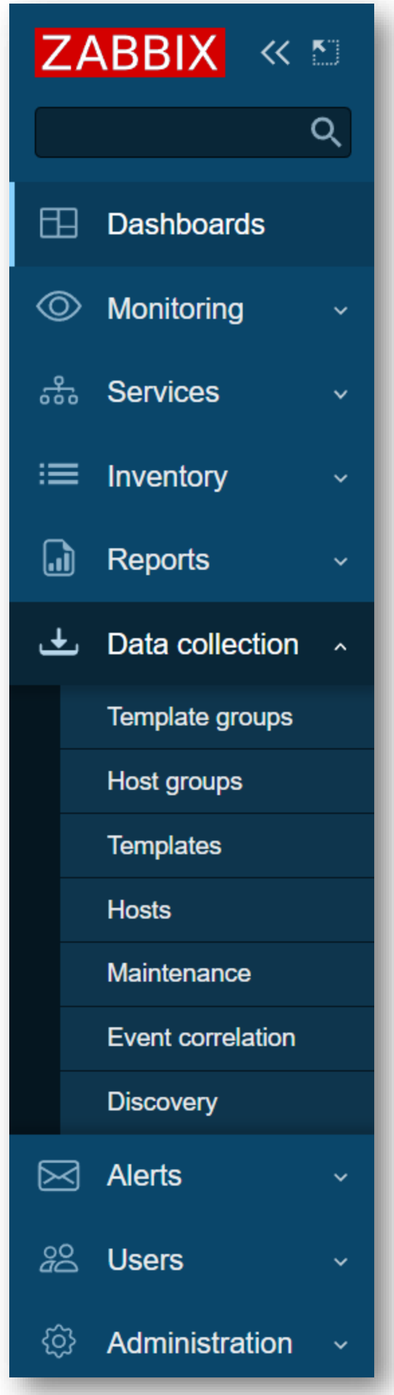
What’s new in zabbix 6.4

NEW MENU STRUCTURE

NEW MENU STRUCTURE

The navigation menu first level sections have been redesigned:

- 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



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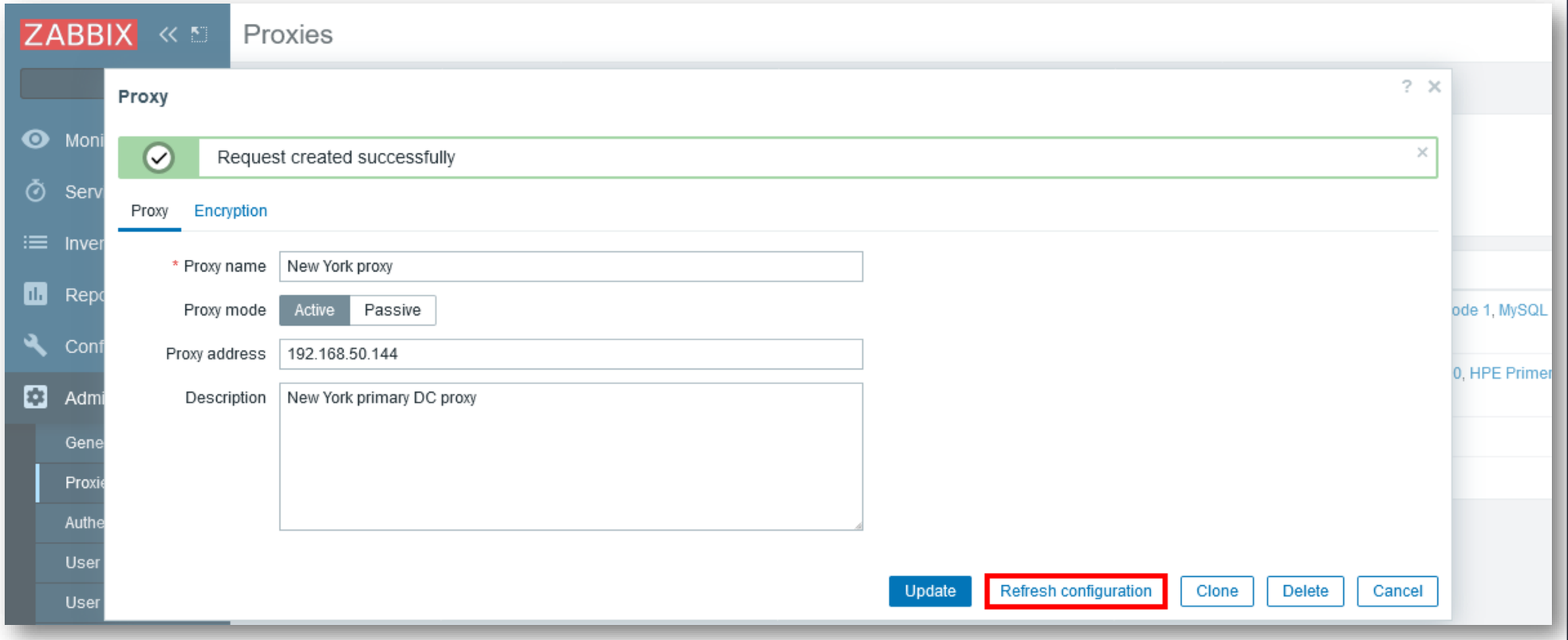
What's new in zabbix 6.4

INSTANT PROXY CONFIGURATION SYNC

PROXY CONFIGURATION SYNC CHANGES

In Zabbix 6.2 we introduced the ability to synchronize the latest configuration changes with Zabbix proxies from the Zabbix frontend, but there was still some room for improvement:



PROXY CONFIGURATION SYNC IN ZABBIX 6.4

In Zabbix 6.4 we 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)

PROXY CONFIGURATION SYNC PERFORMANCE

«But my proxies are quite large and such rapid configuration sync will affect my performance…or will it?»

INCREMENTAL CONFIGURATION SYNC

In Zabbix 6.2 we 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
- If the current proxy session token is changed

INCREMENTAL CONFIGURATION SYNC

Full configuration sync is performed in the following scenarios:

- On Zabbix proxy start/restart
- On Zabbix server HA failover
- If the current proxy session token is changed (shouldn't happen during regular workflow)

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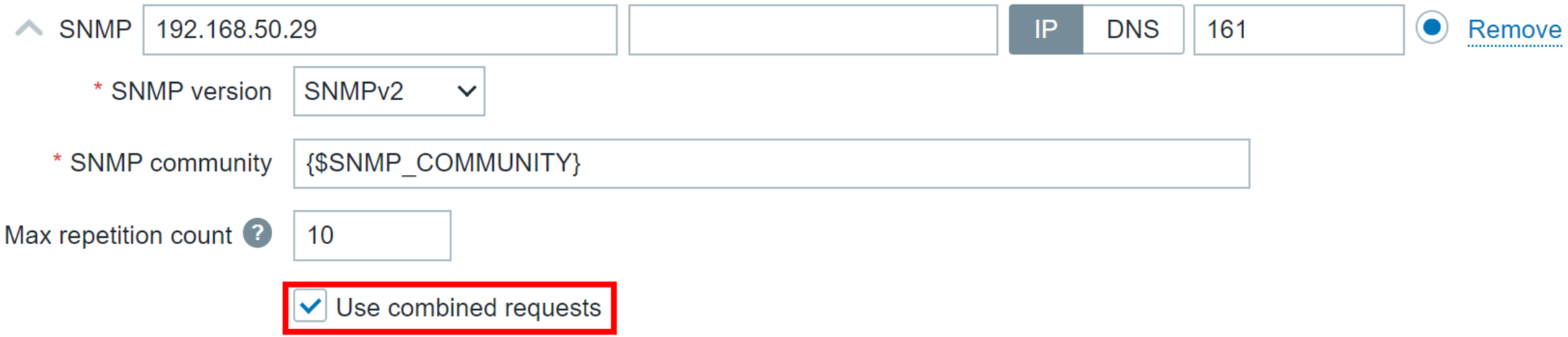
What's new in zabbix 6.4

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 un 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



NEW SNMP.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

Example:

walk[1.3.6.1.2.1]

Result:

```
1.3.6.1.2.1.1 = STRING: "<value1>"
1.3.6.1.2.1.2 = STRING: "<value2>"
1.3.6.1.2.1.3 = STRING: "<value3"
```

NEW SNMP.WALK ITEM

Data from multiple OIDs can also be collected:

Example:

walk[1.3.6.1.1,1.3.6.2]

Result:

```
1.3.6.1.2.1.1 = STRING: "<value1>"
1.3.6.1.2.1.2 = STRING: "<value2>"
1.3.6.1.2.1.3 = STRING: "<value3«
1.3.6.2.1 = INTEGER: 10
1.3.6.2.2 = INTEGER: 20
```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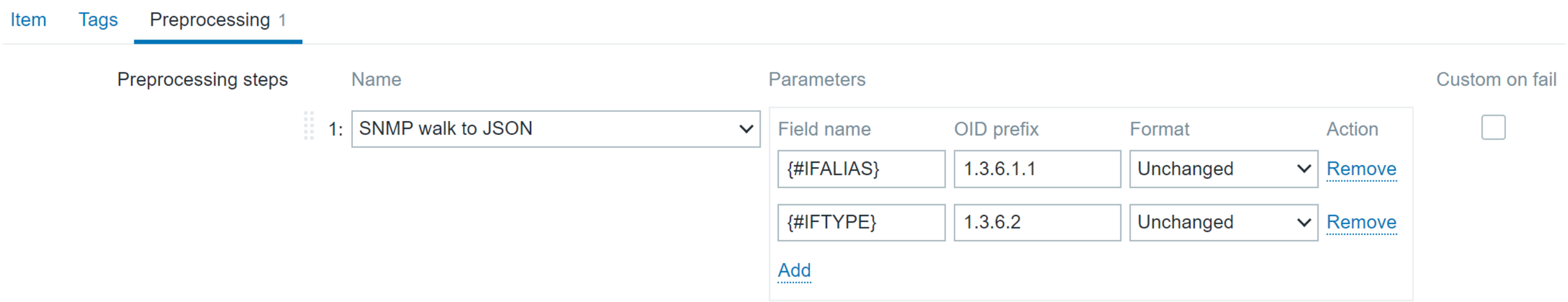
SNMP PREPROCESSING

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

- New SNMP preprocessing steps have been introduced
- The goal is to transform this data into JSON usable with low-level discovery



SNMP PREPROCESSING

Resulting values:

```
[
    {
        "{#SNMPINDEX}": "1.1",
        "{#IFALIAS}": «Uplink PT"
    },
    {
        "{#SNMPINDEX}": "1.2",
        "{#IFALIAS}": «Uplink FB"
    },
    {
        "{#SNMPINDEX}": "1.3",
        "{#IFALIAS}": «FE2"
    },
    {
        "{#SNMPINDEX}": "1",
        "{#IFTYPE}": «6"
    },
    {
        "{#SNMPINDEX}": "2",
        "{#IFTYPE}": «6"
    }
]
```

IMPROVED BULK DATA COLLECTION - 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 approachs
- Max repetition count can be defined for *walk* requests – defines, how many values ar gathered in a single bulk request
- Presentations and articles covering this feature in more detail will be available after the release of Zabbix 6.4

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What's new in zabbix 6.4

STREAMING METRICS AND EVENTS OVER HTTP

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

STREAMING METRICS AND EVENTS TO EXTERNAL SYSTEMS

A new *Connectors* section has been introduced under *Administration – General.* Here users can define an external system where item values ad 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 resposnible for connector workers: *StartConnectors* (0-100)

Example POST request:

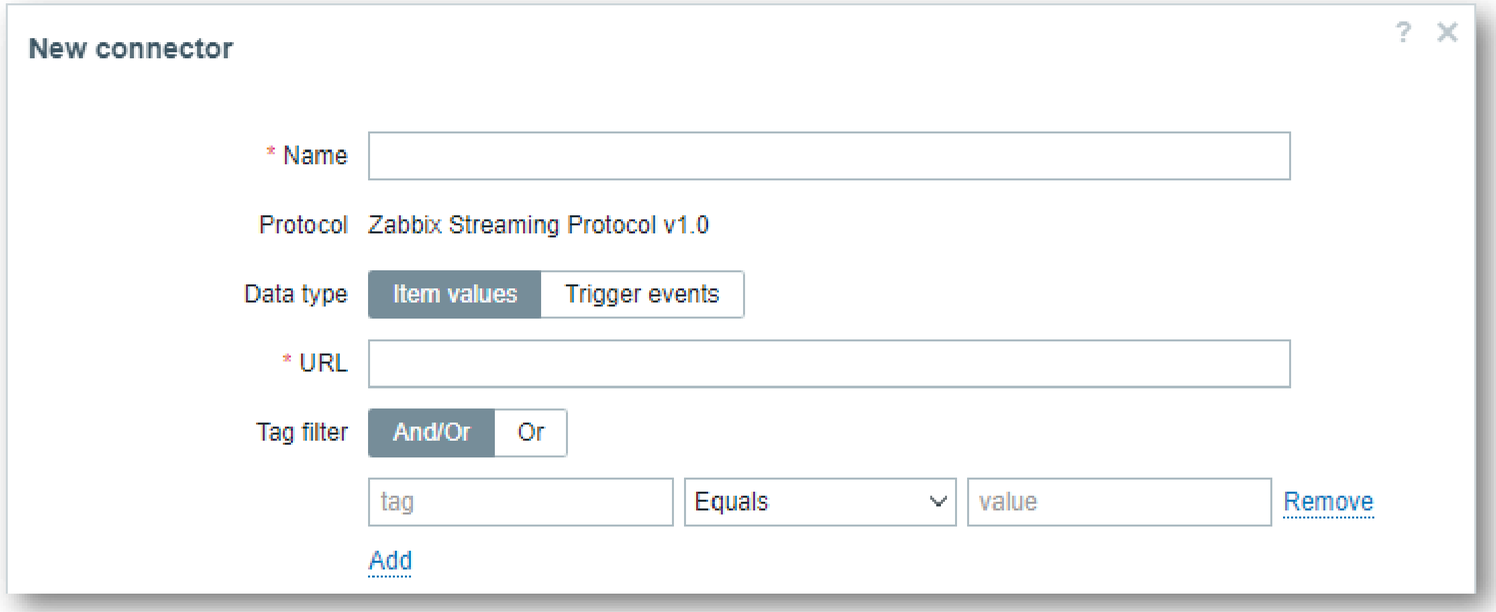
```
POST /v1/history HTTP/1.1
Host: localhost:8080
Accept: */*
Accept-Encoding: deflate, gzip, br, zstd
Content-Length: 628
Content-Type: application/x-ndjson

{"host":{"host":"Zabbix server","name":"Zabbix server"},"groups":["Zabbix
servers"],"item_tags":[{"tag":"foo","value":"test"}],"itemid":44457,"name":"foo","clock":1673454303,"ns":800155804,"value":0,"type":3}
{"host":{"host":"Zabbix server","name":"Zabbix server"},"groups":["Zabbix
servers"],"item_tags":[{"tag":"foo","value":"test"}],"itemid":44457,"name":"foo","clock":1673454303,"ns":832290669,"value":1,"type":3}
{"host":{"host":"Zabbix server","name":"Zabbix server"},"groups":["Zabbix
servers"],"item_tags":[{"tag":"bar","value":"test"}],"itemid":44458,"name":"bar","clock":1673454303,"ns":867770366,"value":123,"type":3}
```

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



CUSTOMIZING THE CONNECTOR

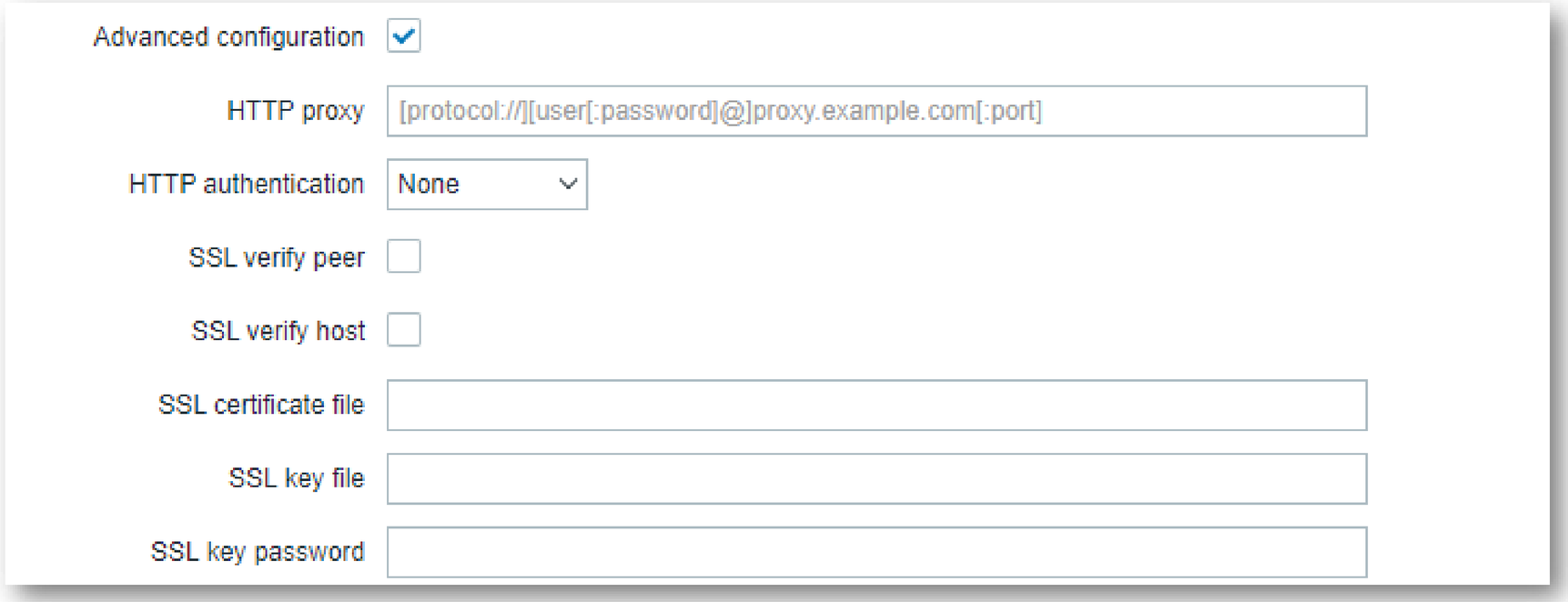
Each connector can be further customized:

- 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 bearer token

ADVANCED CONFIGURATION

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

- Provide HTTP proxy settings
- Select from None, Basic, NTLM, Kerberos and Digest HTTP authentication
- Customize SSL certificate settings



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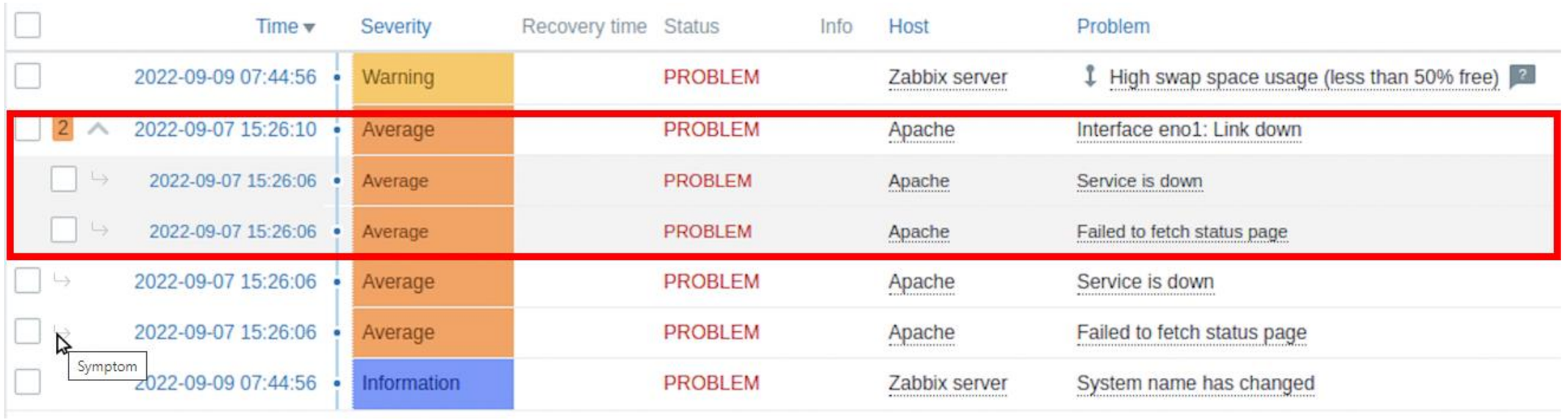
What's new in zabbix 6.4

CAUSE AND SYMPTOM EVENTS

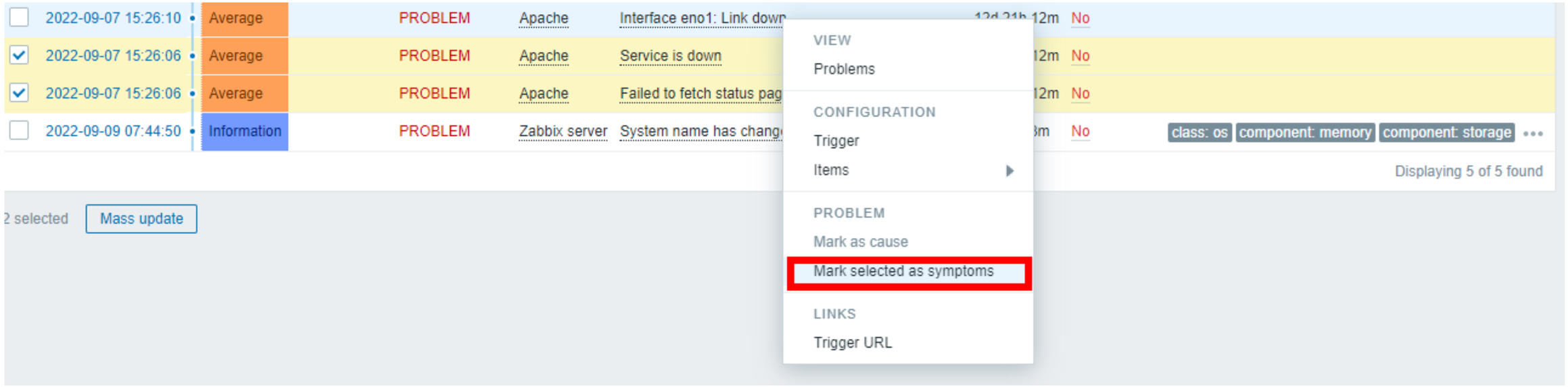
CAUSE AND SYMPTOM EVENTS

Zabbix 6.4 adds the ability to mark events as *Cause* or *Symptom* events. This allows us to filter events in way, where we can see only root cause problems, insetad of being overwhelmed by symptom events.



CAUSE AND SYMPTOM EVENTS

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



CAUSE AND SYMPTOM EVENTS

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}*
- ...And many others

These macros can be used in:

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

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",
            "opdata": "",
            "acknowledges": [
                {
```

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What's new in zabbix 6.4

BACKWARD COMPATIBLE ZABBIX PROXIES

BACKWARD COMPATIBLE ZABBIX PROXIES

To improve the Zabbix component upgrade workflows (especially for large environments) proxies are now backward compatible within the same LTS release cycle:

- Proxy is fully supported if it has the same major version as the Zabbix server
- For non-LTS versions (e.g.: Zabbix server 6.4), proxy is marked as ***outdated*** if its major version is older than the Zabbix server, but within the same LTS release (e.g.: Zabbix proxy 6.0/6.2)
- For LTS versions (e.g.: Zabbix server 7.0), proxy is marked as *outdated* if its major version is older than the Zabbix server, but not older than the previous LTS release (e.g.: Zabbix proxy 6.0)
- Outdated proxies still support data collection and remote command exectuion
- In other scenarios, the proxy becomes ***not supported***

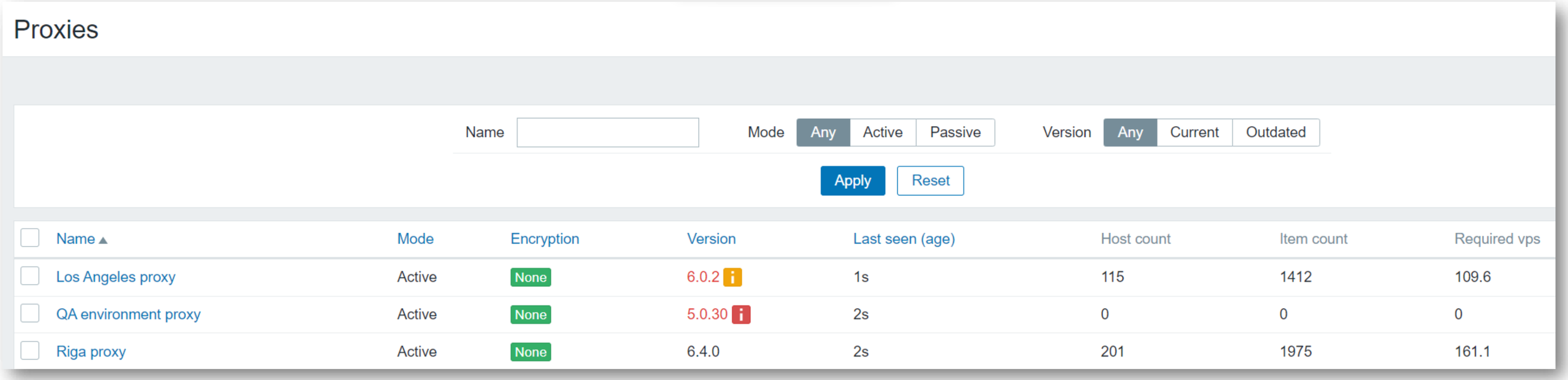
EXAMPLES

Server version	Current proxy versioon	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

BACKWARD COMPATIBLE ZABBIX 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



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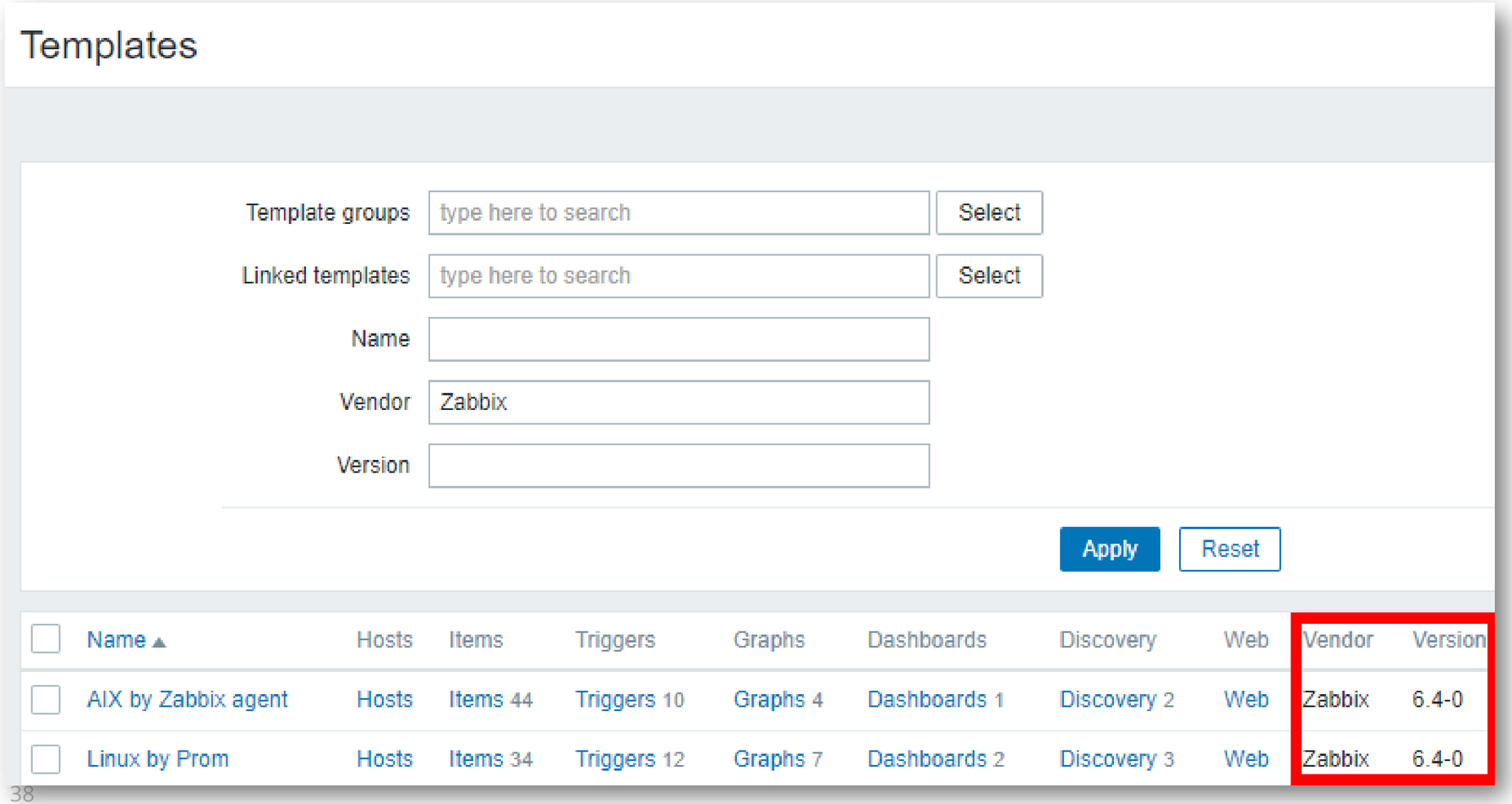
What's new in zabbix 6.4

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*



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

SIMPLIFY TEMPLATES BY REMOVING NESTING

Starting from Zabbix 6.4, template nesting has been removed to have the ability to properly implement template versioning:

- During the upgrade all the nested templates will be moved to the highest-level parent template
- Importing templates that contain nested templates will import every template conatined in the import file, but the template linkages will not be preserved

We are currently working on a solution that will enable users to modify similar elements on multiple templates in one go (Expected in Zabbix 7.0)

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What's new in zabbix 6.4

SIMPLIFY CREATION OF DASHBOARD WIDGETS

SIMPLIFY CUSTOM WIDGET CREATION

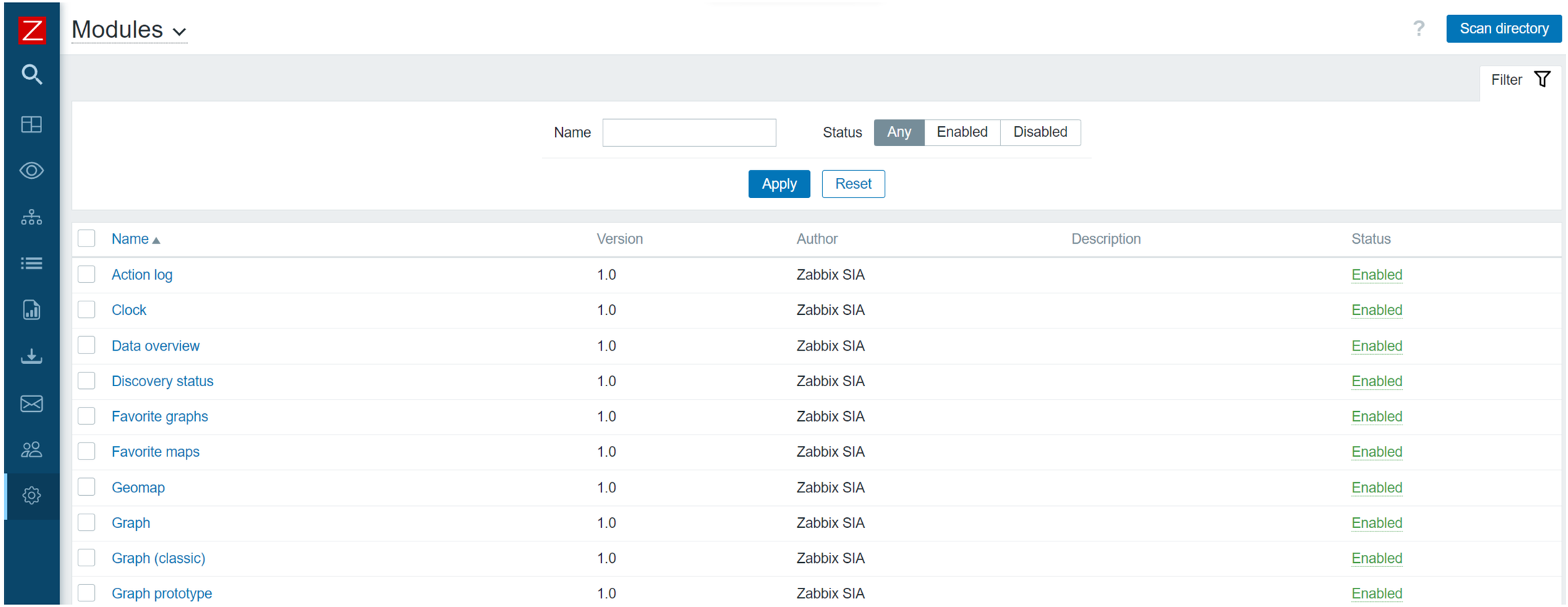
Many community members have created their own custom frontend modules and widgets. Our goal was to endorse this further by streamlining the widget creation process.

To achieve this, we 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
- Widget list should be easy to list and understand in the Zabbix frontend
- Provide information to our community on how to create a custom widget

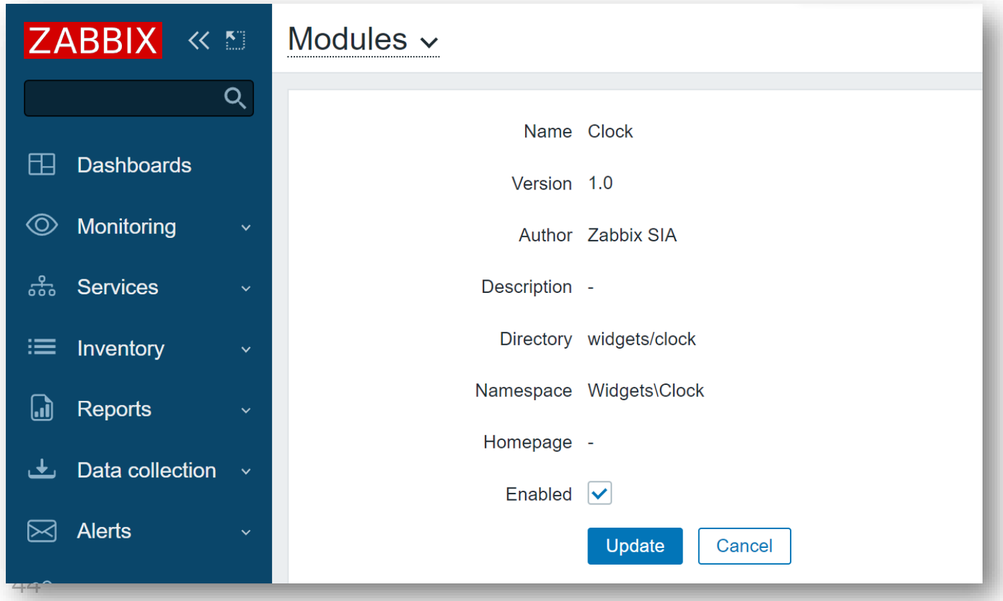
WIDGETS CONVERTED TO FRONTEND MODULES

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



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



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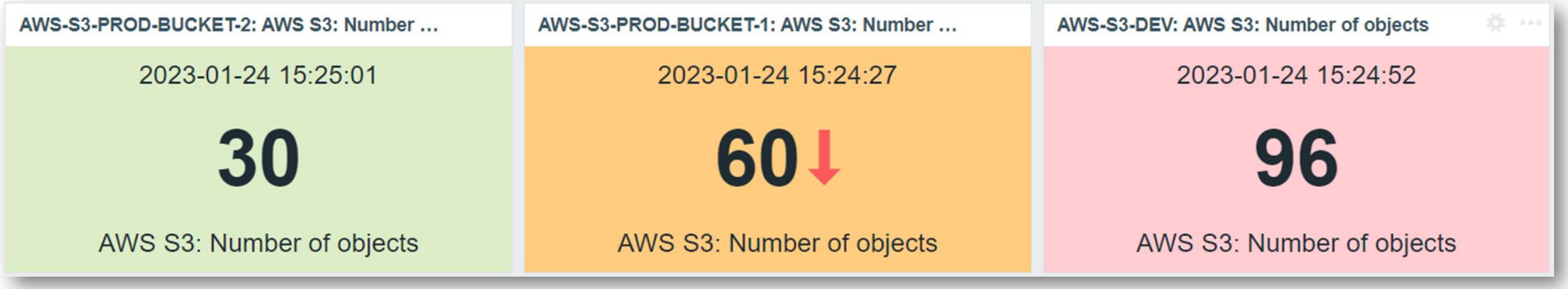
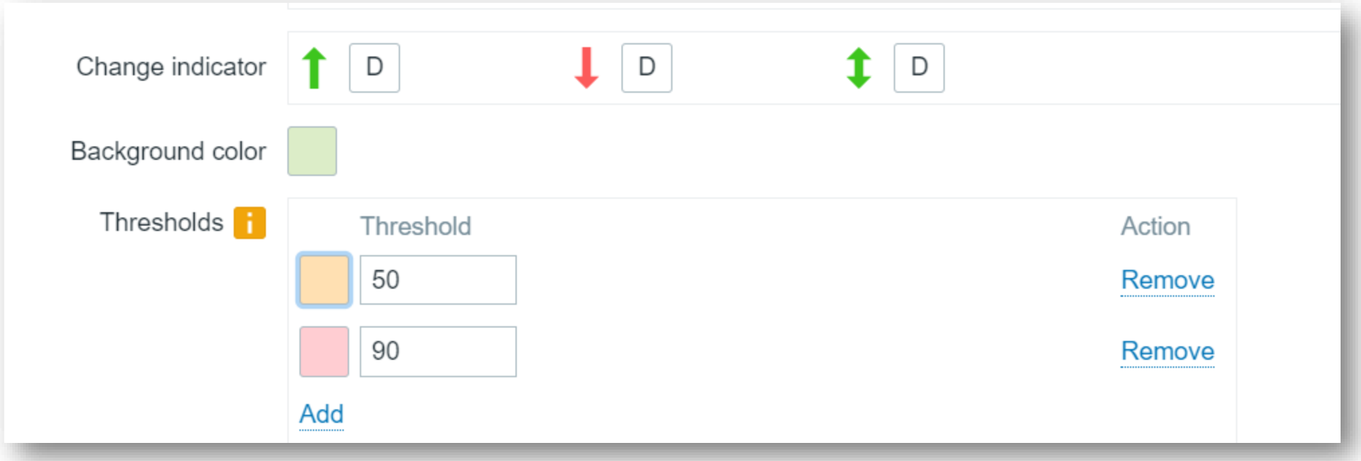
What's new in zabbix 6.4

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:

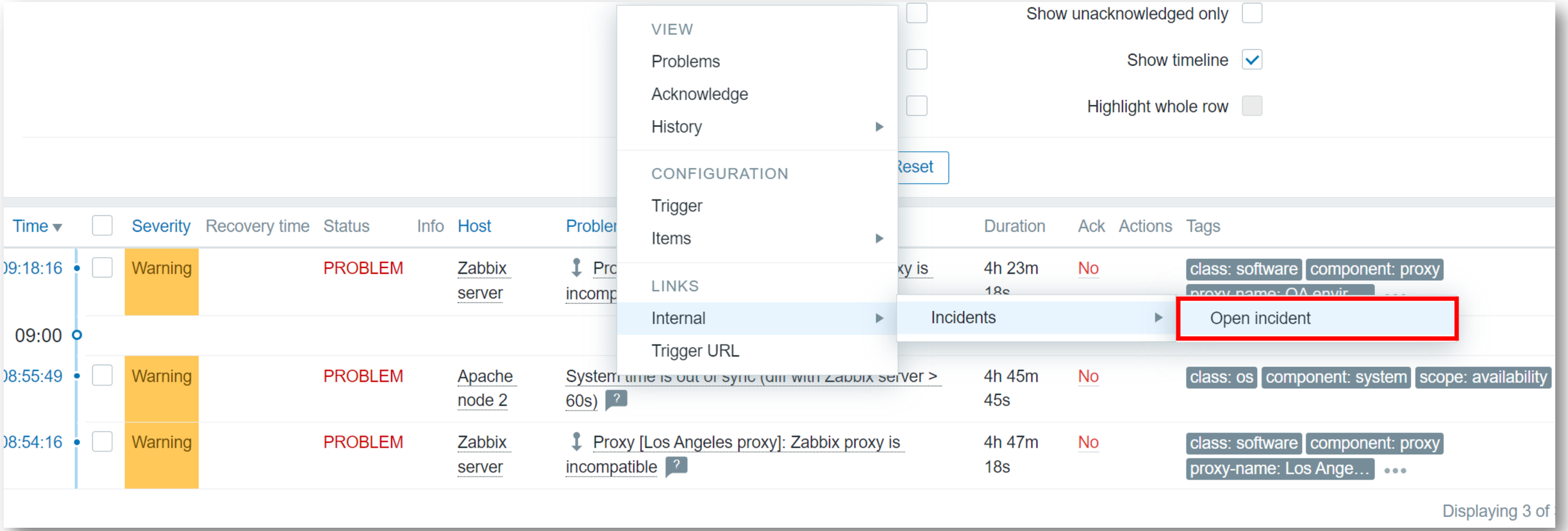




TRIGGER URL NAMES

Zabbix 6.4 contains an additional way of adding URLS to trigger events

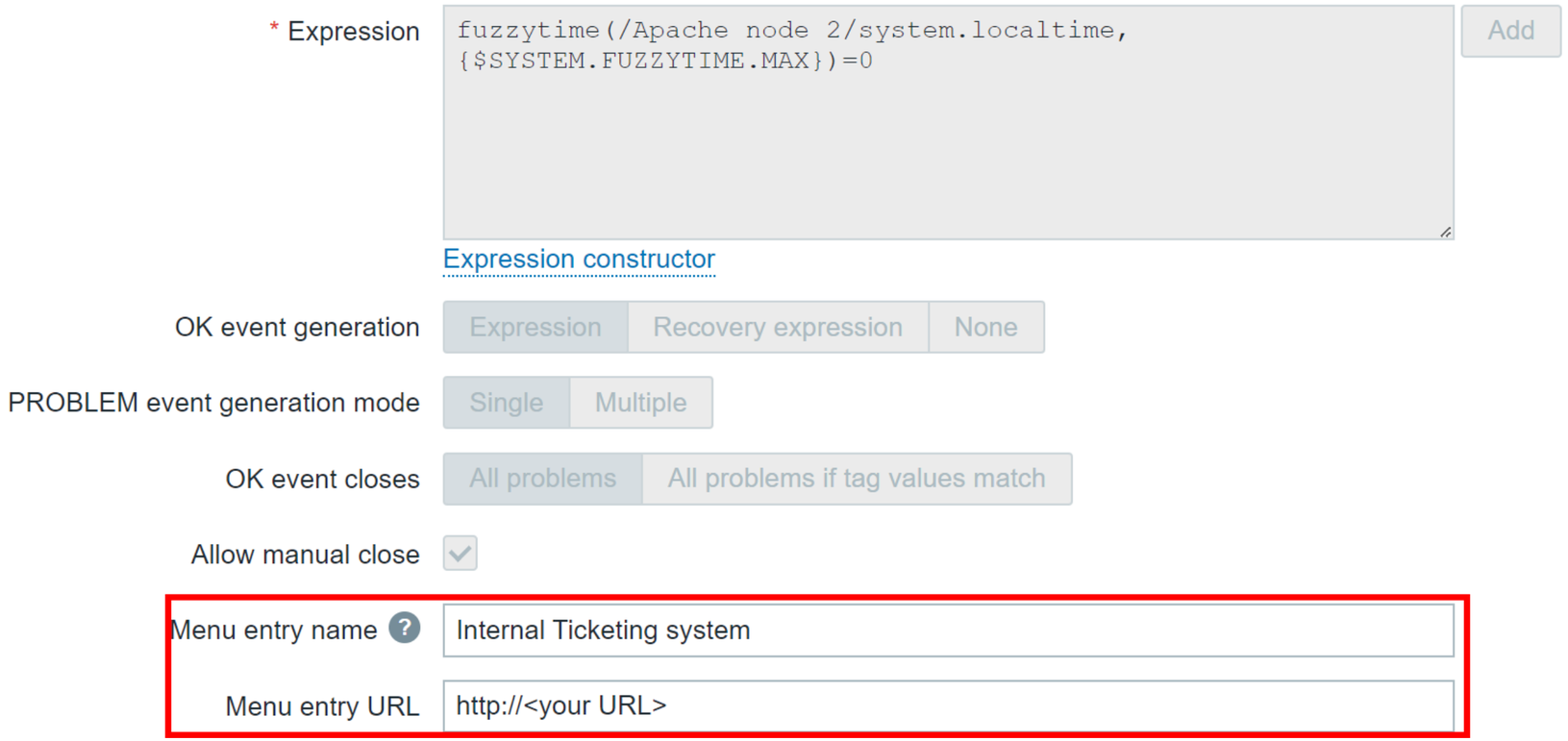
- URLs can still be assigned in trigger configuration
- Ability to define more user-friendly navigation to URLs from events



TRIGGER URL LABELS

A menu entry label can now be defined for trigger URLS

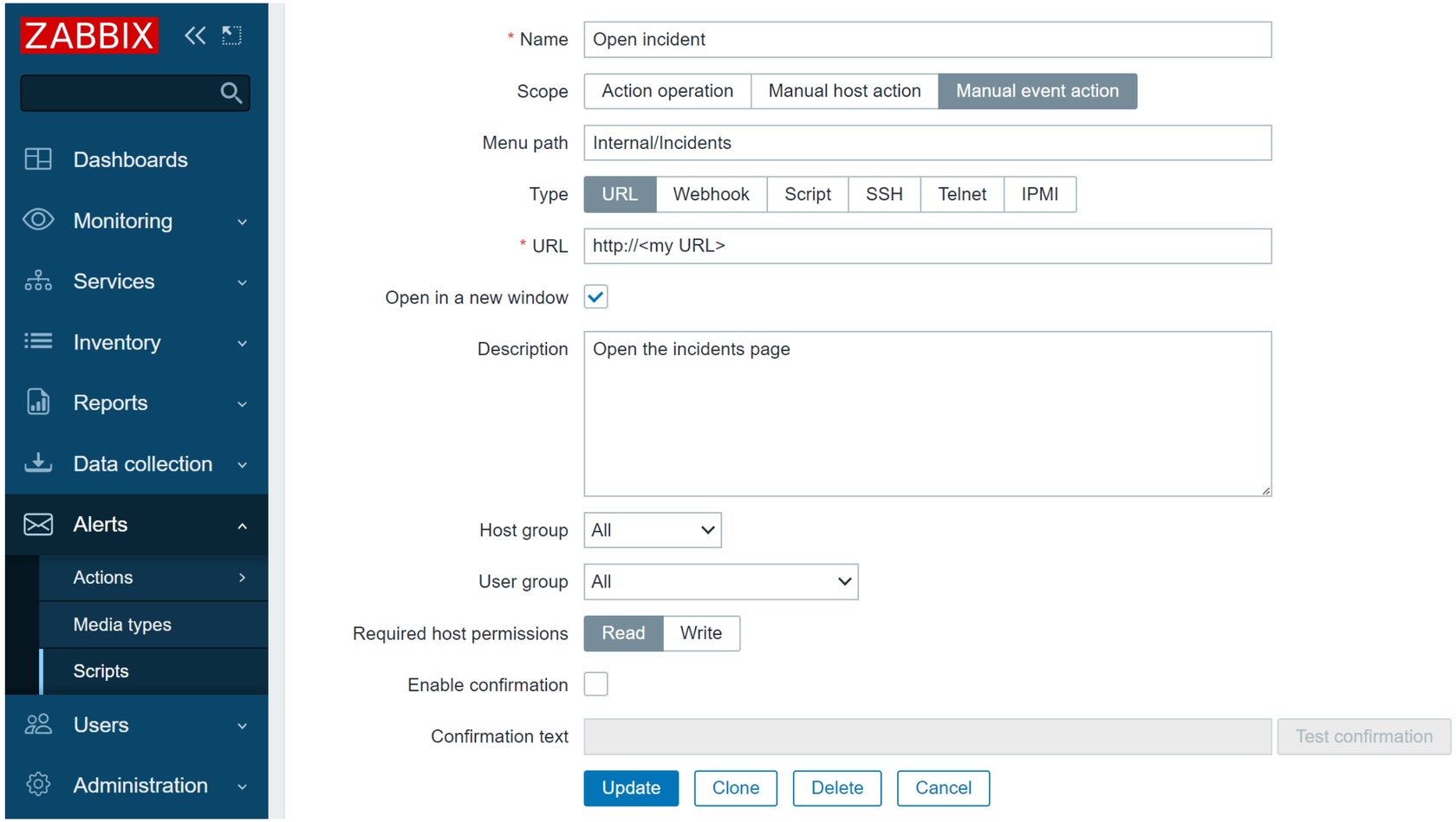
- Visible when clicking on the problem event generated by the trigger



CUSTOM LINKS

Custom labeled URLs can be mapped to Host and Event context menus

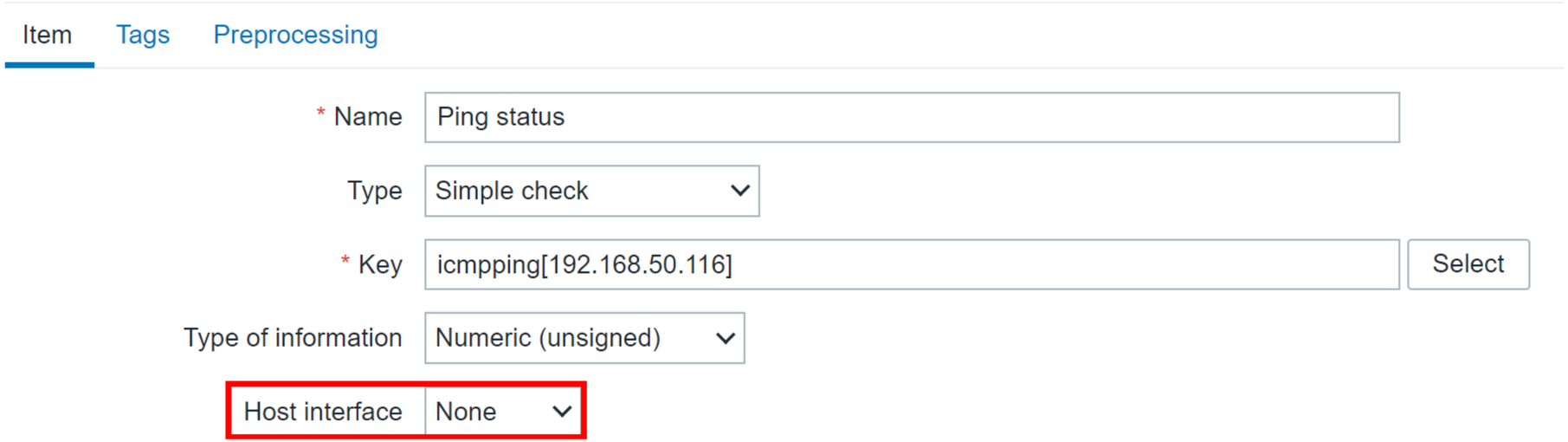
- Same selection of settings as for other scripts



OPTIONAL INTERFACES FOR SERVER-ORIGINATED CHECKS

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

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



INSTANT REFRESH OF ACTIVE CHECKS

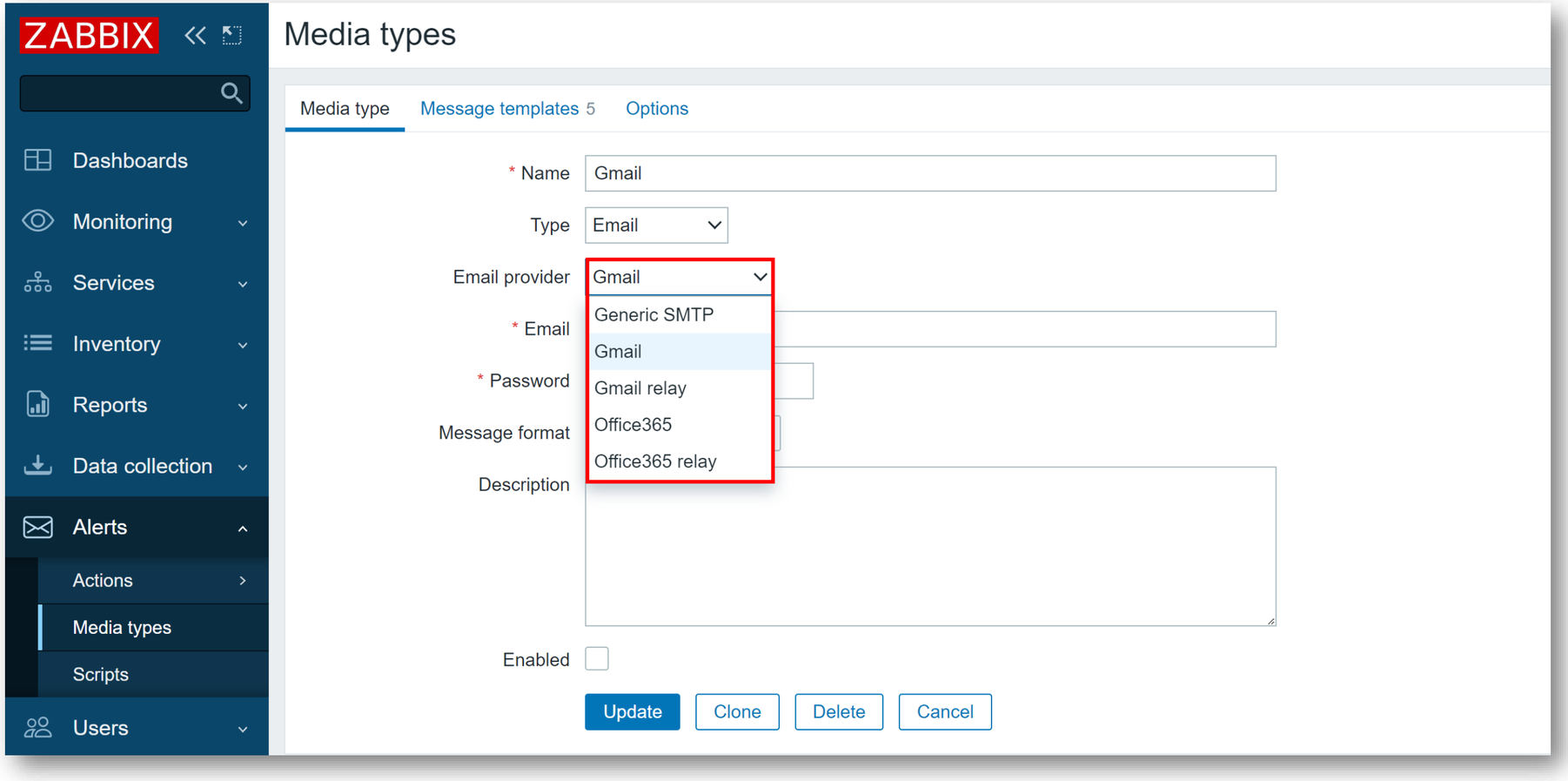
Instead of receiving the full configuration copy every 2 minutes (old behavior), in Zabbix 6.4 active agent receives configuration copy only when changes have been performed

- *RefreshActiveChecks* parameter now supports a range 1-86400 (old range: 60-3600)
- This behavior is supported both by Zabbix agent and Zabbix agent2
- We have introduced an underlying *config_revision* comparison logic, which is used to check for configuration changes

IMPROVE MEDIA TYPE CONFIGURATION

Zabbix 6.4 introduces the ability to select an email provider

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



NEW TEMPLATES

Zabbix 6.4 comes with a multiple new templates as well as updates for existing templates:

- AWS RDS instance By HTTP
- AWS S3 bucket by HTTP
- Azure by HTTP
- OPNsense by SNMP

The templates Windows by Zabbix agent and Windows by Zabbix agent active have been updated and now include the *system.sw.os* item and a new trigger for monitoring system version changes.

OTHER CHANGES

Multiple other changes have been introduced

- SQLite3 Zabbix proxies now automatically recreate the SQLite3 databas efile 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 import 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
- When configuring a Graph widget, it is now possible to rename data sets by customizing the Data set label
- Value cache optimizations
- Added commands to enable profiling of rwlocks/mutexes (for debugging)

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QUESTIONS?

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THANK YOU!

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