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Webinar

What's new in Zabbix 6.0 LTS

all our microphones are muted

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

use Chat for discussion, networking or applause

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Many of Zabbix 6.0 LTS features are focused on solving complex enterprise-level requirements.

Zabbix 6.0 focuses on:

- Solving enterprise level security and redundancy requirements
- Improving performance for large Zabbix instances
- Providing additional value to different types of Zabbix users – DevOps and ITOps teams, Business process owner, Managers
- Further extending Zabbix monitoring and data collection capabilities
- Continued delivery of official integrations with 3rd party systems

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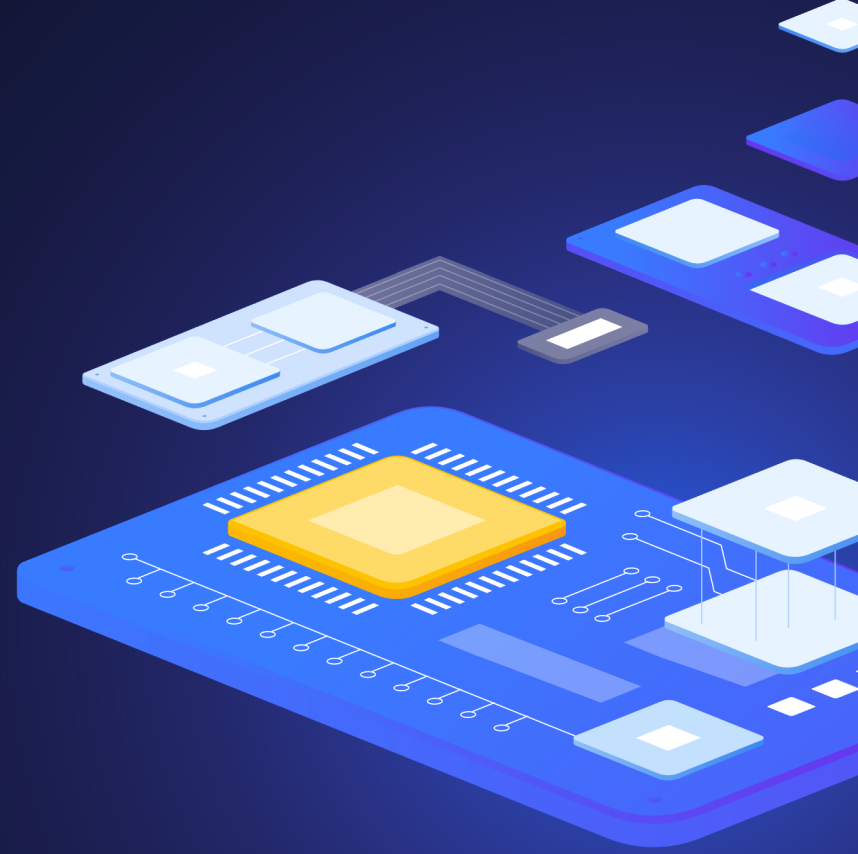
Zabbix server High availability Cluster



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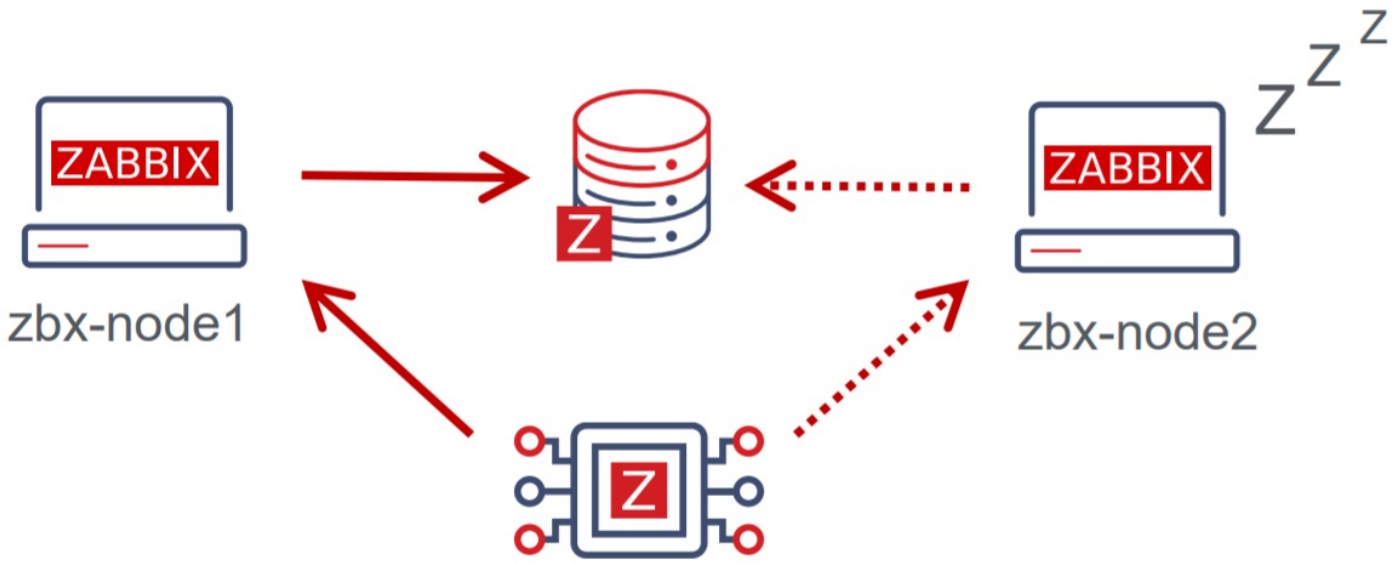
Zabbix Server high availability cluster

Zabbix administrators now have the ability to define Zabbix server HA clusters:

- Define one or multiple redundant nodes
- All nodes use the same database
- Ability to define the failover delay period
- The Zabbix server nodes send their heartbeat to the Zabbix database every 5 seconds



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Zabbix Server high availability cluster

New parameter in Zabbix Server configuration file – HANodeName:

- Empty by default
- This parameter should contain an arbitrary name of the HA node
- The parameter is mandatory for the node to start in the HA mode

```
## Option: HANodeName
#       The high availability cluster node name.
#       When empty server is working in standalone mode.
HANodeName=zbx-node1
```

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Zabbix Server high availability cluster

New parameter in Zabbix Server configuration file – NodeAddress:

- Empty by default
- This parameter should contain the address of the HA node
- Let's the Zabbix frontend know the address of the currently active node

```
## Option: NodeAddress
#       IP or hostname to define hoe frontend should connect to the server.
#       Format: <address>[:port]
NodeAddress=node1.example.com
```

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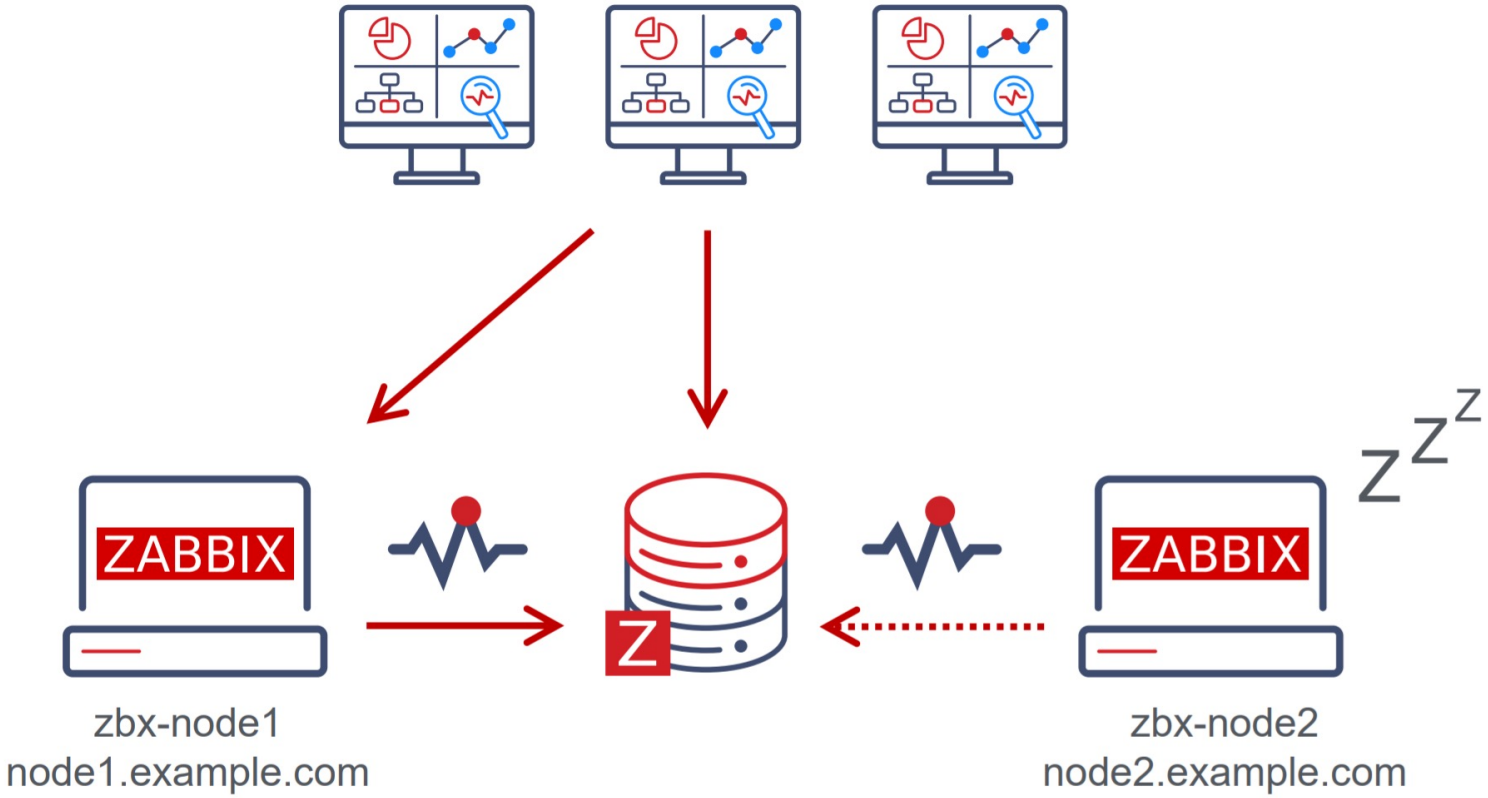
Zabbix Server high availability cluster

- Each frontend node will connect to the Zabbix database, obtain the active node address and start communicating with it.



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Zabbix Server high availability cluster

- Zabbix Server HA cluster status can be observed in System information section or in the System information dashboard widget

System information

Parameter	Value	Details
Zabbix server is running	Yes	192.168.1.91:10051
Number of hosts (enabled/disabled)	34	34 / 0
Number of templates	232	
Number of items (enabled/disabled/not supported)	1488	1412 / 1 / 75
Number of triggers (enabled/disabled [problem/ok])	624	619 / 5 [52 / 567]
Number of users (online)	5	1
Required server performance, new values per second	135.29	
High availability cluster	Enabled	Fail-over delay: 1 minute

Name	Address	Last access	Status
zbx-node1	192.168.1.91:10051	1s	Active
zbx-node3	192.168.1.19:10051	13d 3h 23m	Unavailable
zbx-node4	192.168.1.19:10051	13d 3h 22m	Stopped
zbx-node2	192.168.1.92:10051	2s	Standby

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Zabbix Server high availability cluster

Many other new HA features:

- Ability to set a custom failover delay
- Ability to manually remove a node from the cluster

```
#zabbix_server -R ha_remove_node=ckyjydgop0001c1pvhaoz4o4e
Removed node "zbx-node4" with ID "ckyjydgop0001c1pvhaoz4o4e"
```

- Both active and passive agents can now communicate with HA nodes
- Both active and passive proxies can now communicate with HA nodes
- Cluster node LLD rule added to the Zabbix server health template

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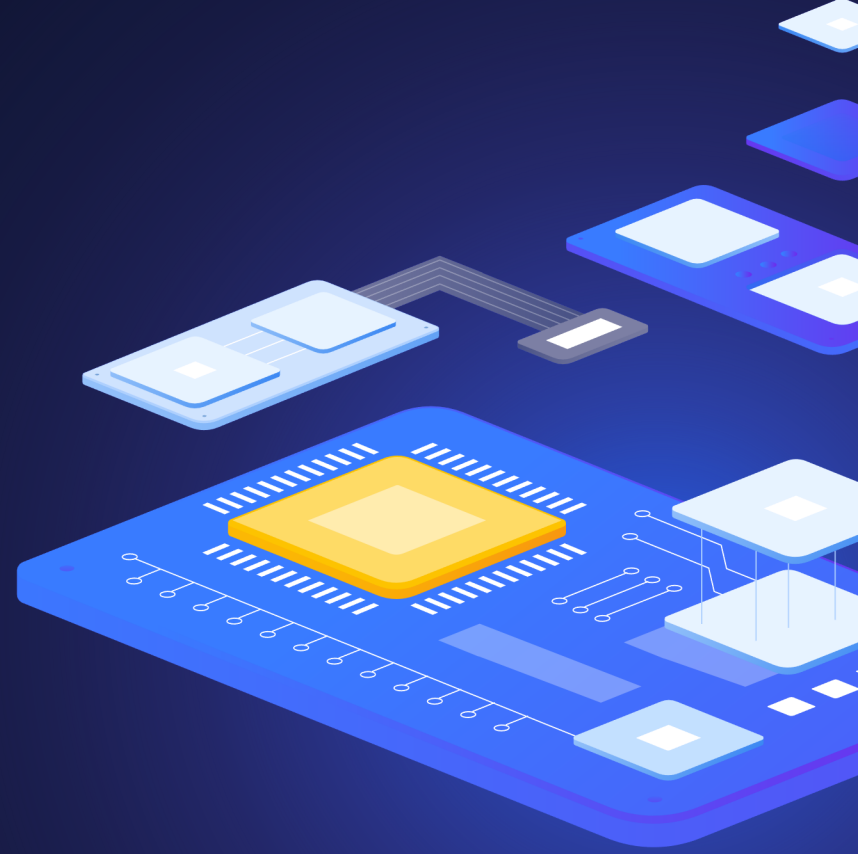
Business service monitoring



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Business service monitoring

Business Service monitoring (BSM) enables Zabbix administrators to define services of varying complexity and monitor their status

Most common use cases:

- Server clusters
- Services that utilize load balancing
- Services which consist of a complex IT stack
- Systems with redundant components in place

Business service monitoring is extremely scalable with support for over 100k services.

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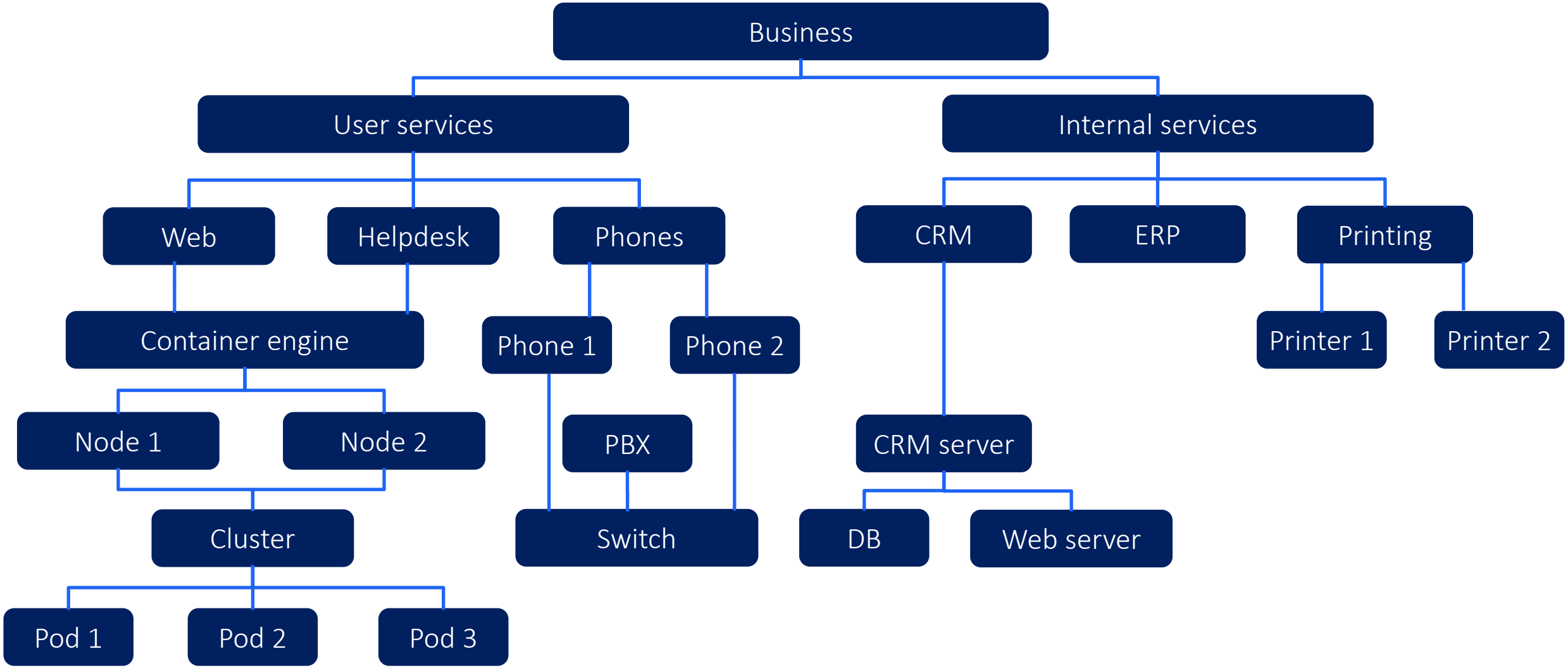
Business service example



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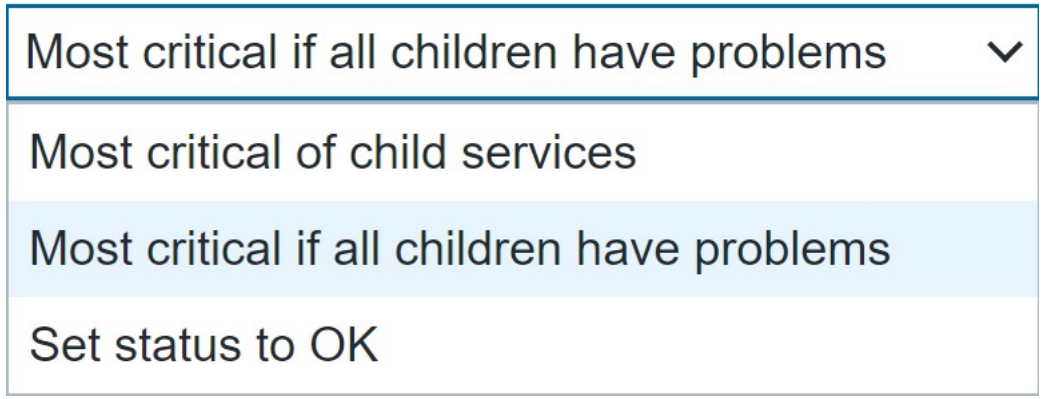
Calculating service status

There are multiple approaches to calculating service status

In case of a problem, the service state can be changed to:

- The most critical problem severity based on the child service problem severities
- The most critical problem severity based on the child service problem severities, only if all child services are in a problem state
- The service is set to constantly be in an OK state



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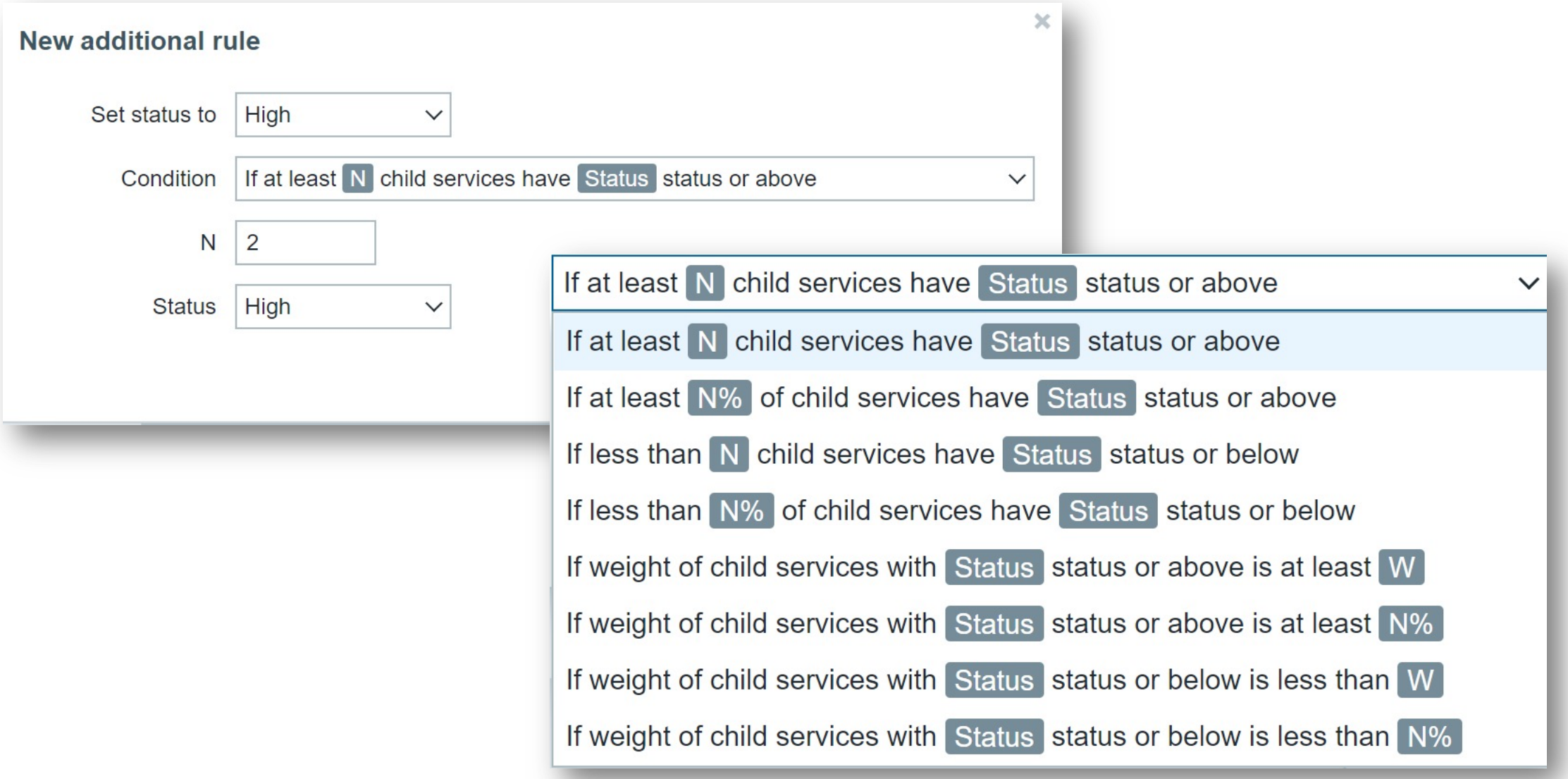
Calculating service status – additional rules



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Business service monitoring - notes

Many other additional features and improvements:

- Ability to define permissions on specific services
- Business Service root cause analysis
- SLA monitoring
- Receive alerts and react on Business Service status change
- Provide a list of root cause problems in service-based notifications and commands with **{SERVICE.ROOTCAUSE}**

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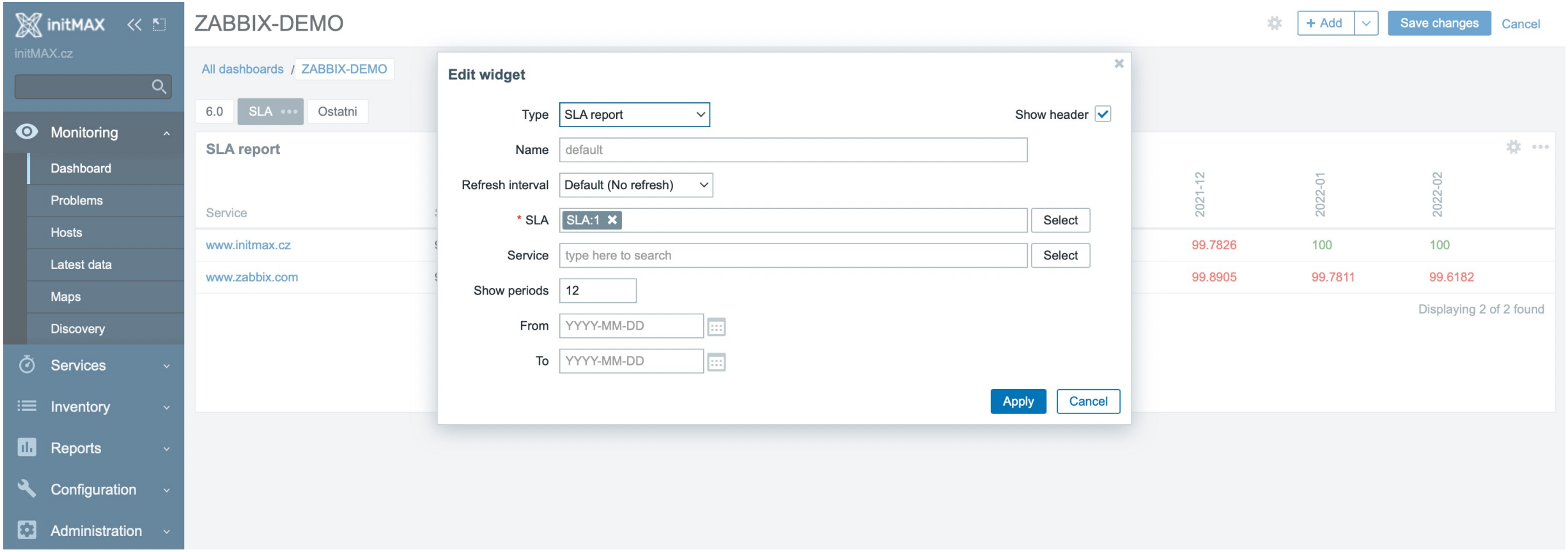
Business service monitoring - SLA



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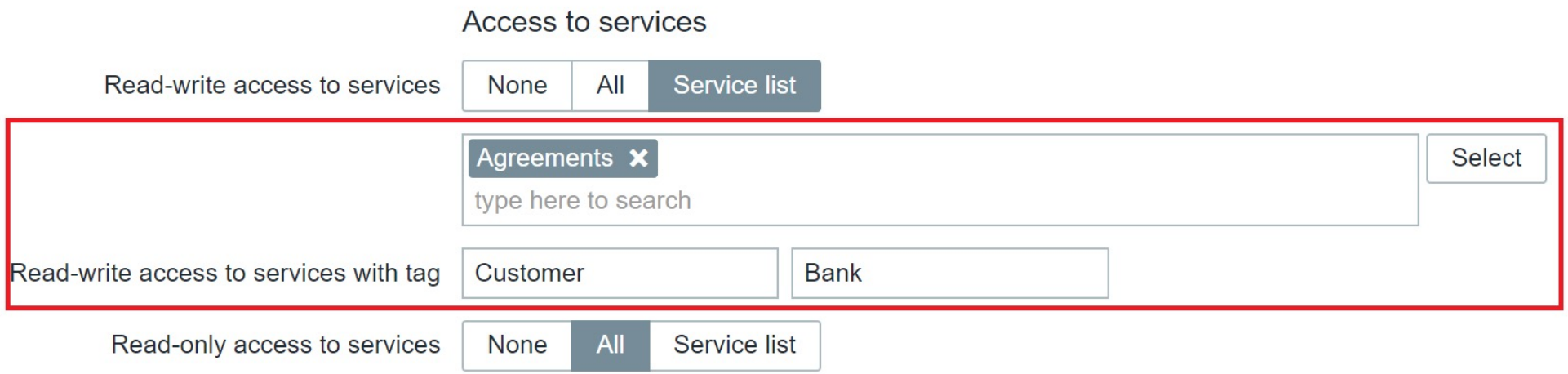
Business service monitoring - notes

Many other additional features and improvements:

- Define Business Service permissions for multi-tenant environments



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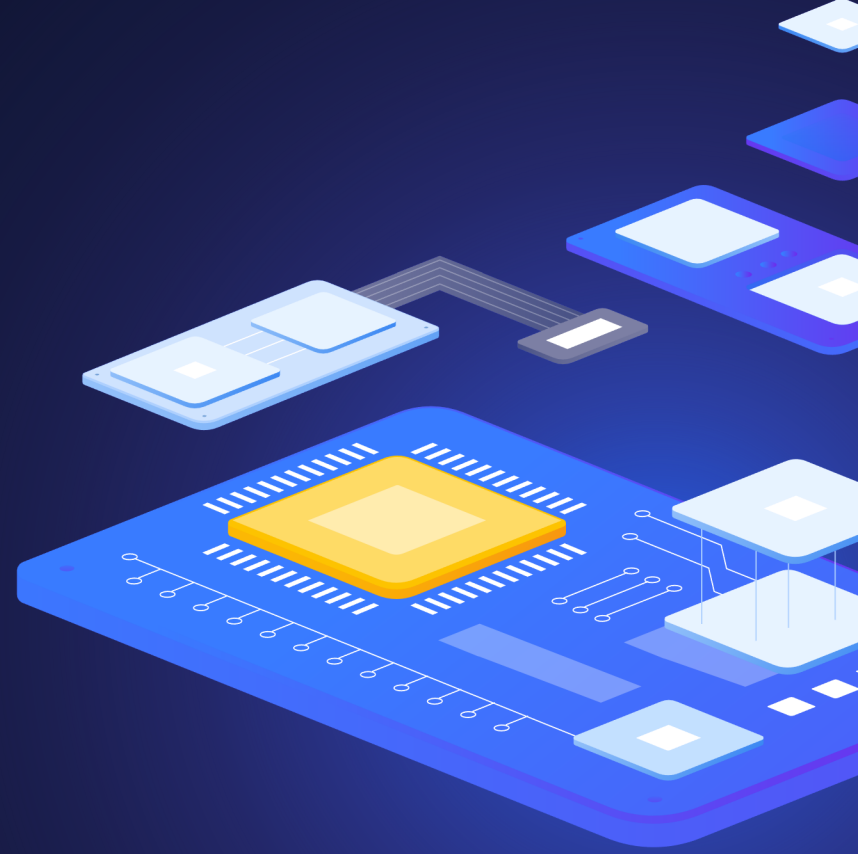
New audit log schema



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New Audit log schema – technical details

Many new changes had to be made under the hood when designing the new audit log

- Zabbix 6.0 LTS introduces a new database structure for the Audit log
- Collision resistant IDs (CUID) will be used for ID generation to prevent audit log row locks
- Audit log records will be added in bulk SQL requests
- Introducing Recordset ID column. This will help users recognize which changes have been made in a particular operation

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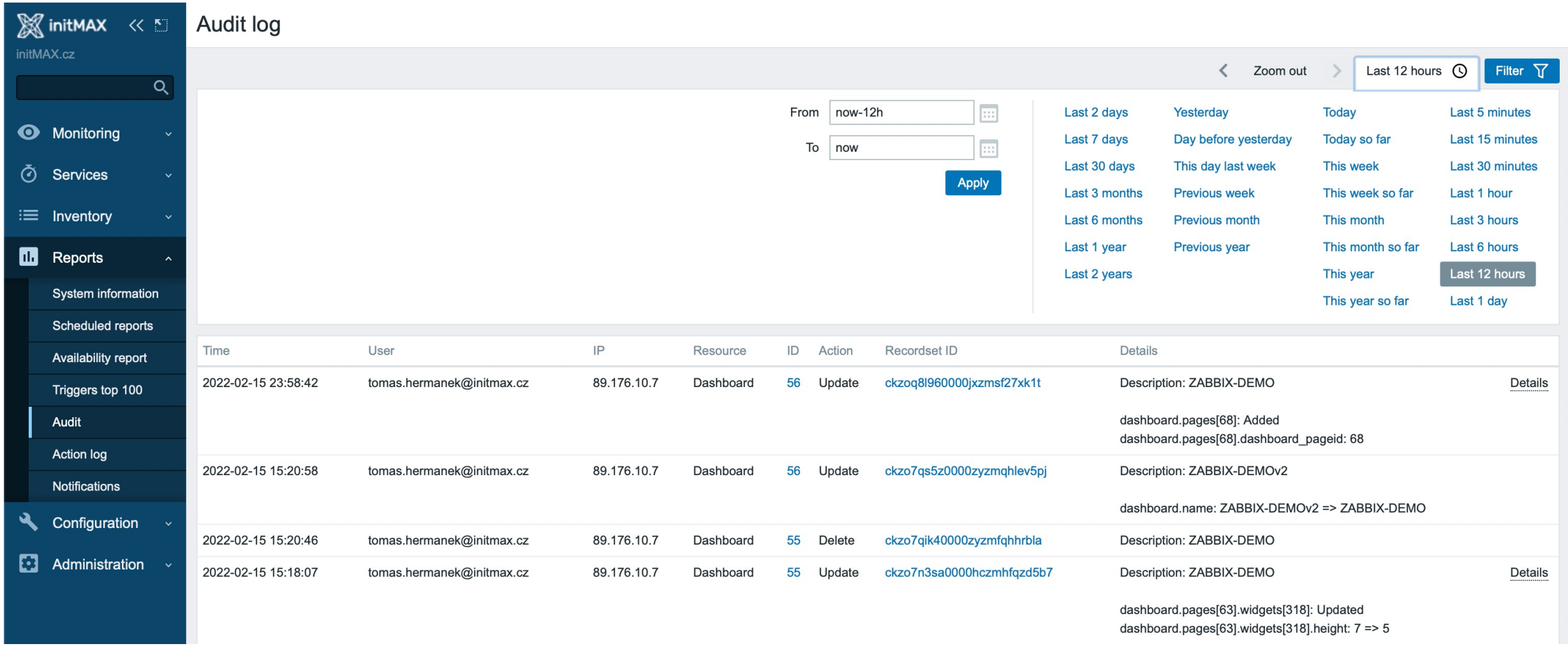
New Audit log schema – Example



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New Audit log schema

The goal of the Zabbix 6.0 LTS audit log rework is to make a reliable and detailed audit log which would provide logging for both Frontend and Zabbix server

- Detailed logging of both Zabbix frontend and Zabbix server records
- Designed with minimal performance impact in mind
- Accessible via Zabbix API
- Implementing the new audit log schema is an ongoing effort – further improvements will be done throughout Zabbix update life-cycle

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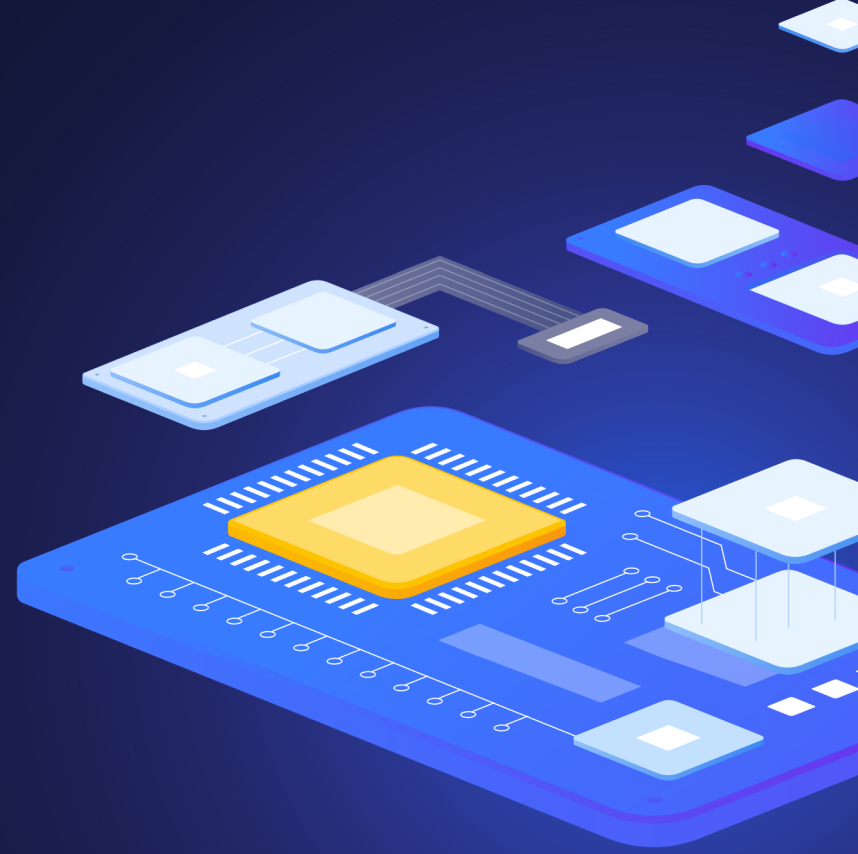
Machine learning



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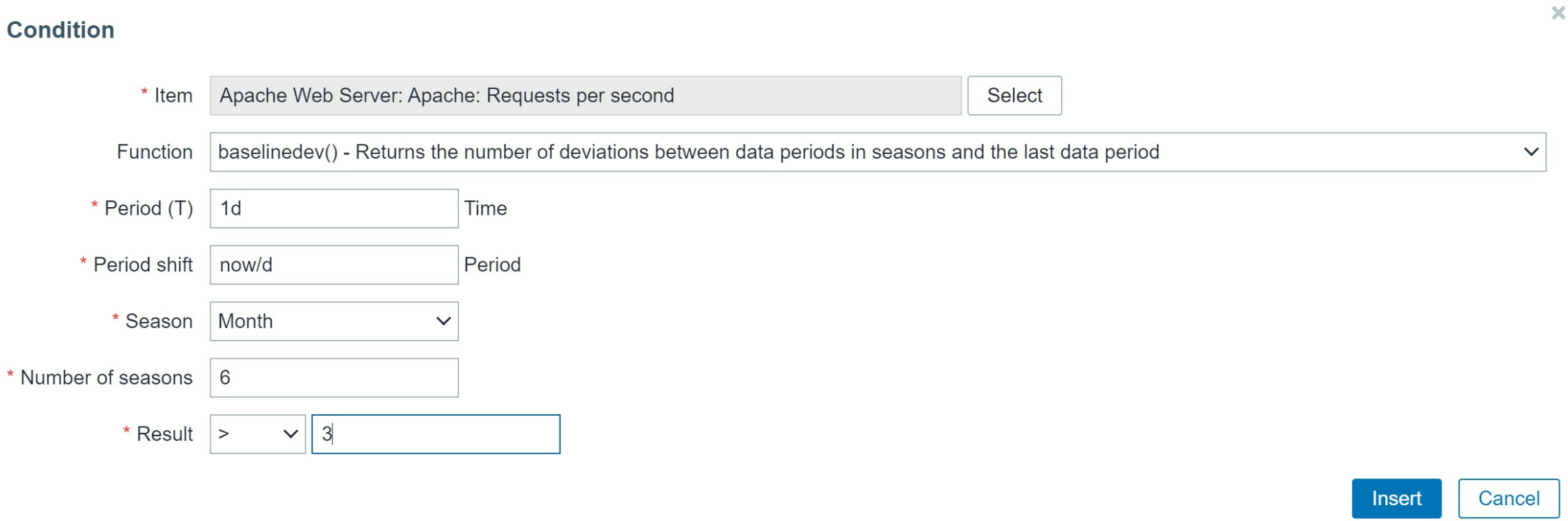
Machine learning trend functions

The new baseline monitoring and anomaly detection trend functions allow you to avoid static threshold creation and detect problems in a dynamic manner:

- New trend functions – **baselinewma** and **baselinedev** allow you to calculate baselines of your metrics as well as detect deviations from it



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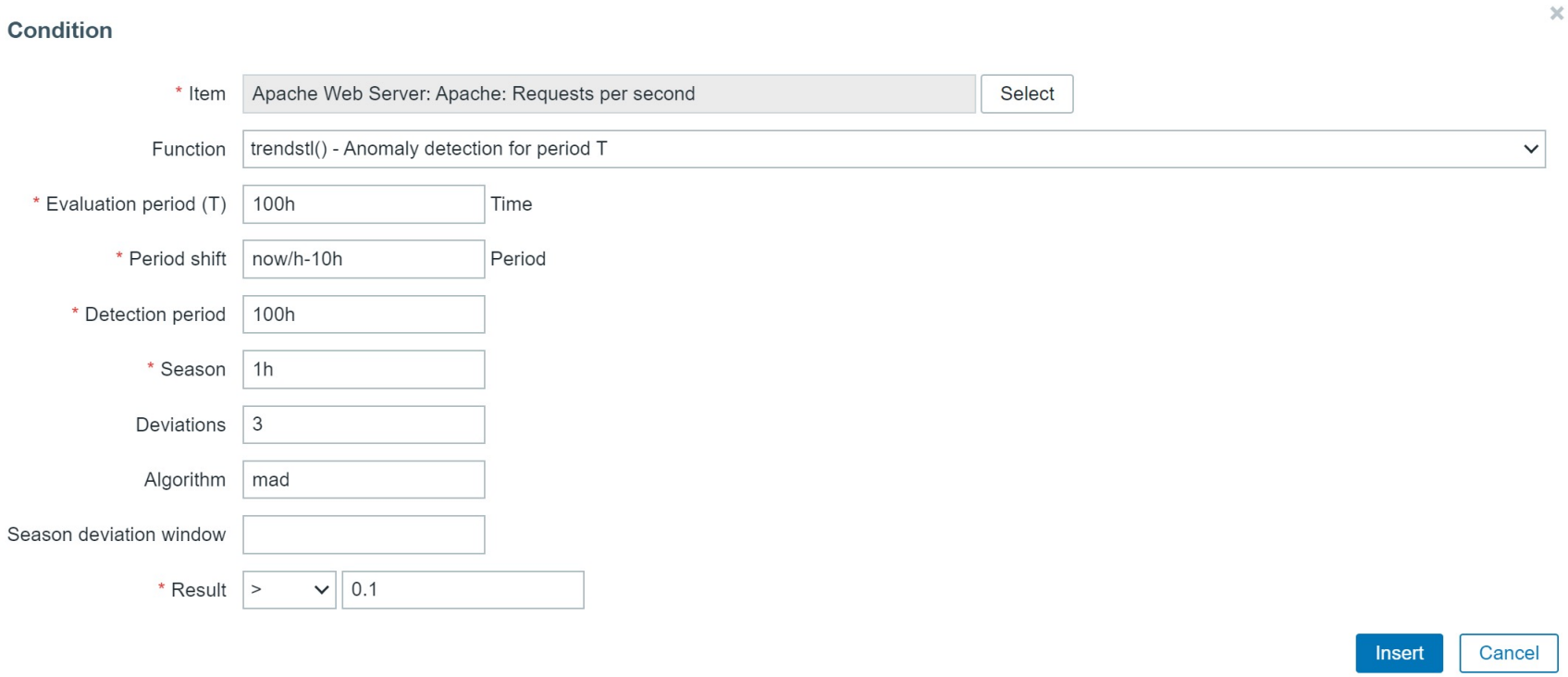
Machine learning trend functions

The new baseline monitoring and anomaly detection trend functions allow you to avoid static threshold creation and detect problems in a dynamic manner:

- New trend function - **trendstl**, allows you to detect anomalous metric behavior
- Ability to specify anomaly detection deviation algorithm and seasonality



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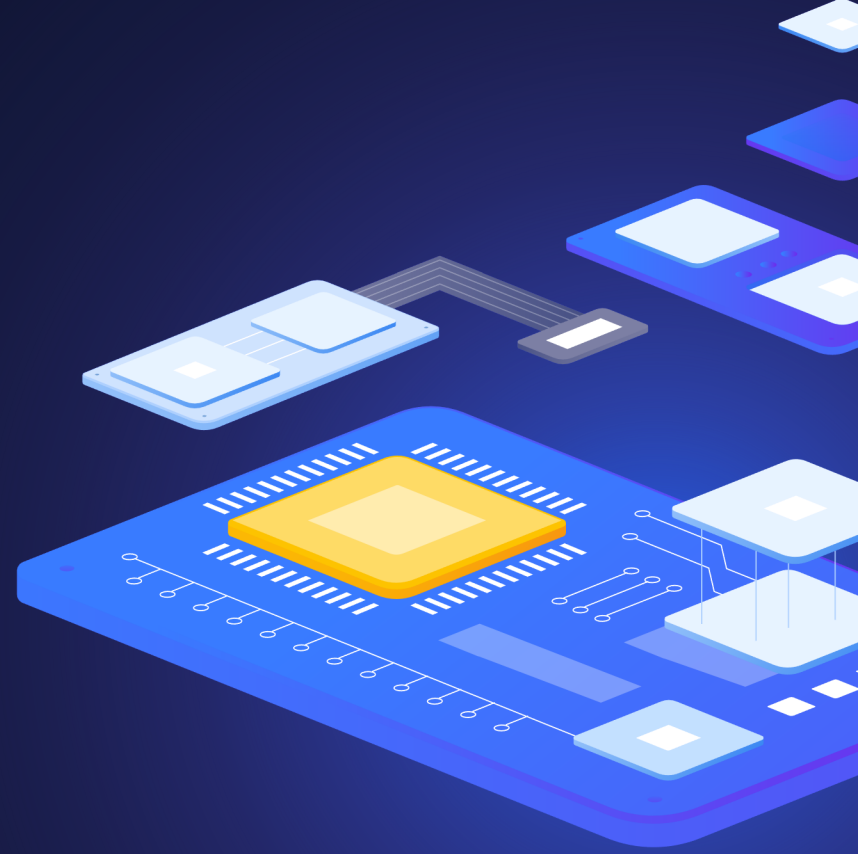
Kubernetes monitoring



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Kubernetes Monitoring

New templates for discovering and monitoring Kubernetes nodes and pods:

- Automatic discovery of Kubernetes nodes and pods
- Discover and monitor node capacity, information, request and other metrics
- Discover and monitor pod condition metrics, status and uptime

Metrics are collected agentlessl by communicating with the Kubernetes API

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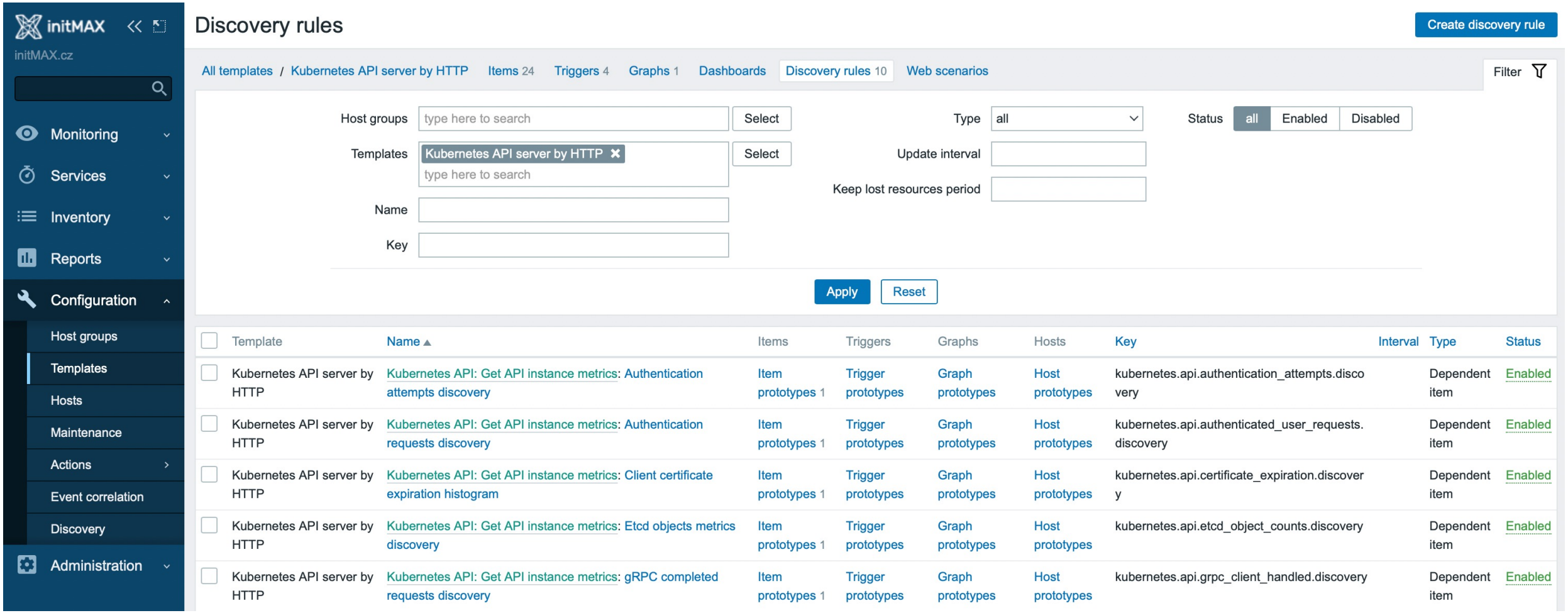
Kubernetes Monitoring



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Kubernetes Monitoring

New templates for discovering and monitoring Kubernetes components such as:

- API servers
- Kubelet
- Controller manager
- Replicasets
- Scheduler
- And more

Metrics are collected agentlessl by communicating with the Kubernetes API

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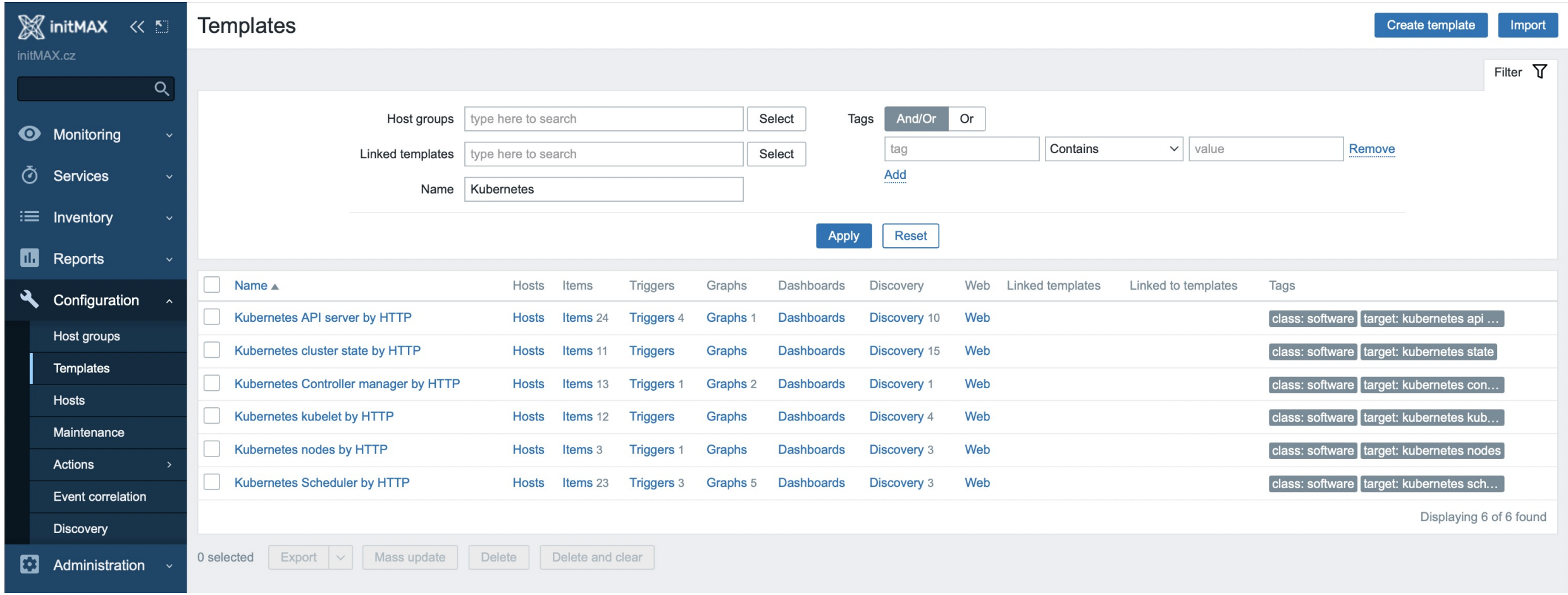
Kubernetes Monitoring



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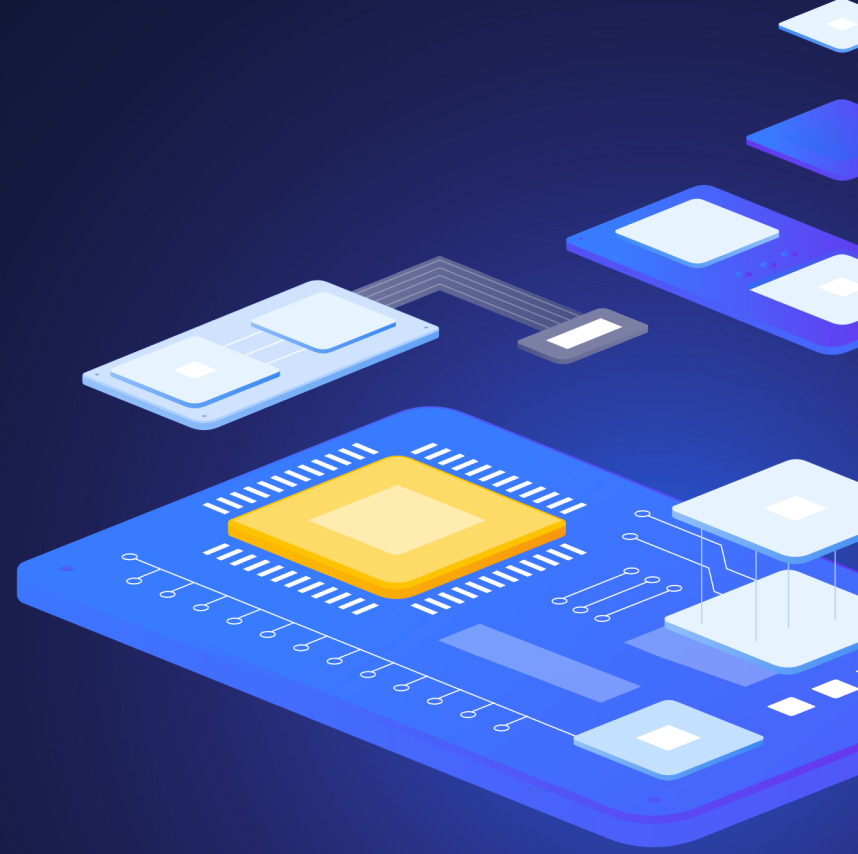
New ways to visualize your data



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New Dashboard widgets

The new widgets introduced in Zabbix 6.0 grant you many new ways to display information about your environment:

- New widgets such as Top hosts, Single item, Geomaps
- The SLA report widget displays the current SLA for services filtered by service tags
- All new widgets are highly customizable

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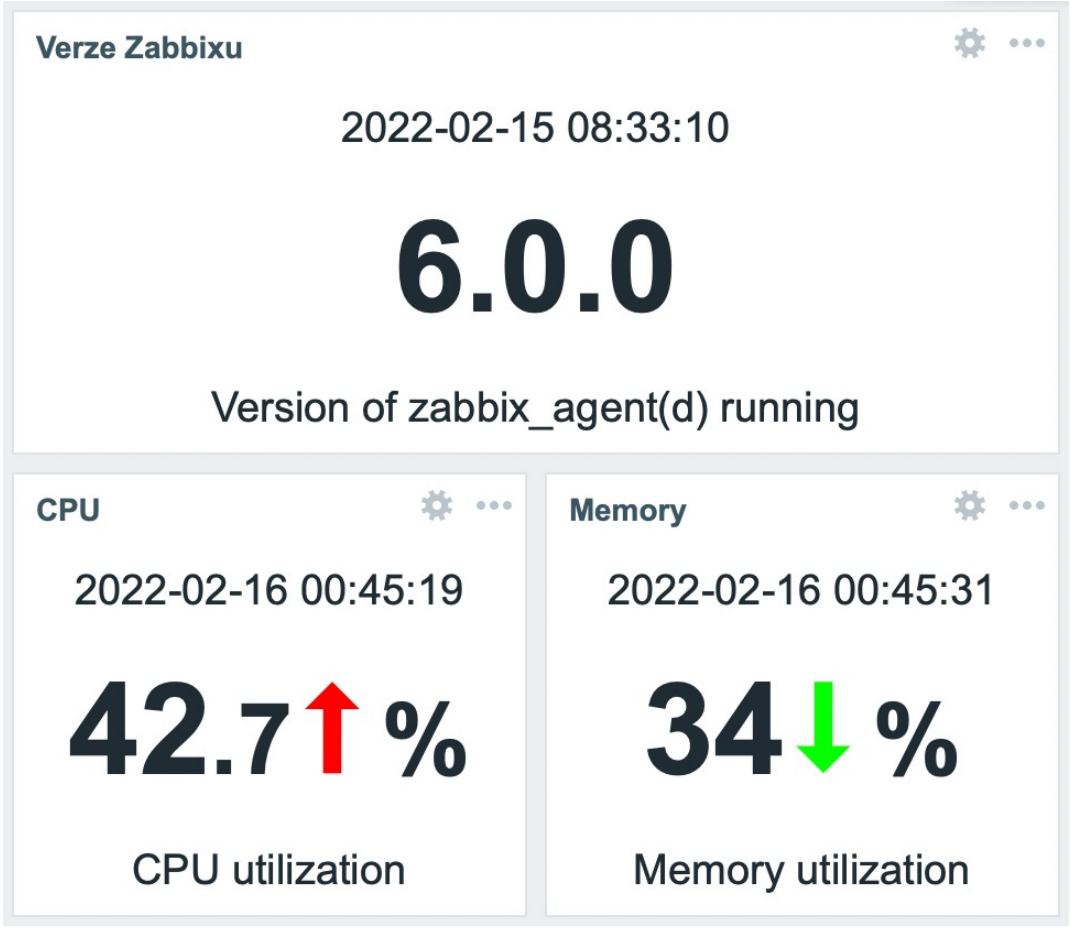
New Dashboard widgets

- The single item widget allows you to display values for a single metric



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New Dashboard widgets

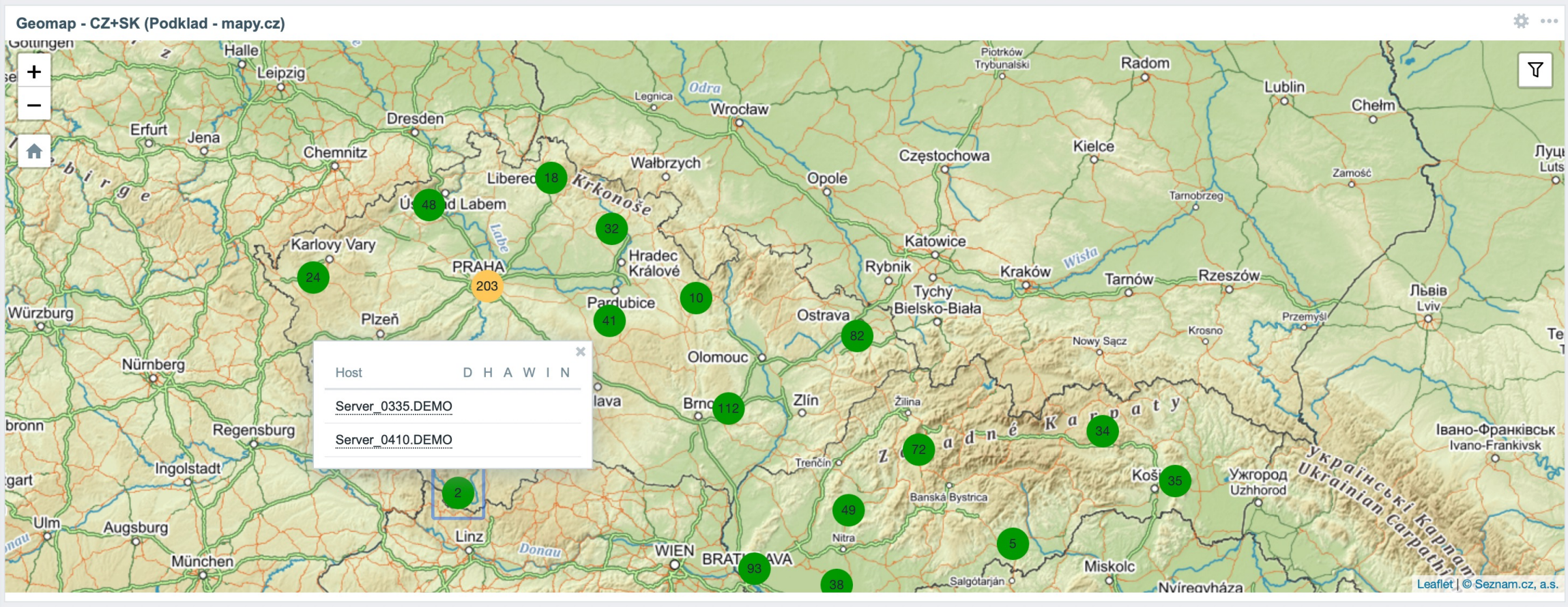
- The Top hosts widget can be used to display a list of Top N or Bottom N hosts sorted by an item value

Top Hosts

Host	CPU	CPU BAR		MEM		Disk /		Zabbix Agent
DEMO-SERVER	42.6845 %		42.6845 %		33.7656 %		24.8984 %	Up (1)
Server_0003.DEMO	42.6639 %		42.6639 %		33.7896 %		24.8984 %	Up (1)
Server_0001.DEMO	42.6185 %		42.6185 %		33.784 %		24.8984 %	Up (1)
Server_0006.DEMO	42.2567 %		42.2567 %		33.8099 %		24.8984 %	Up (1)
Server_0008.DEMO	41.3816 %		41.3816 %		33.8315 %		24.8984 %	Up (1)
Server_0010.DEMO	40.5235 %		40.5235 %		33.8091 %		24.8984 %	Up (1)
Server_0009.DEMO	38.2109 %		38.2109 %		33.7908 %		24.8984 %	Up (1)
Server_0007.DEMO	36.8553 %		36.8553 %		33.7917 %		24.8984 %	Up (1)
Server_0004.DEMO	35.1001 %		35.1001 %		33.8048 %		24.8984 %	Up (1)
Server_0002.DEMO	33.5342 %		33.5342 %		33.8456 %		24.8984 %	Up (1)

New Dashboard widgets

Now Zabbix users have the ability to see their host location on a geographical map in their dashboard:



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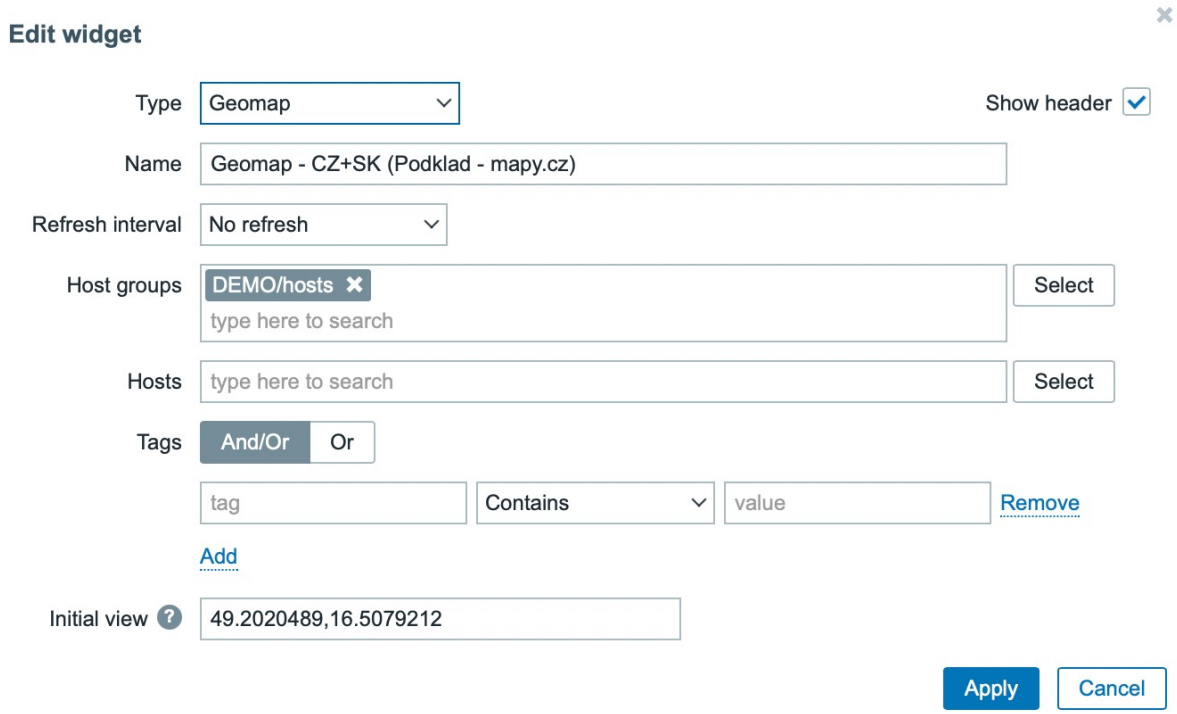
New Dashboard widgets

Now Zabbix users have the ability to see their host location on a geographical map in their dashboard:

- The host coordinates are provided in the host inventory fields
- Filter by host groups and tags



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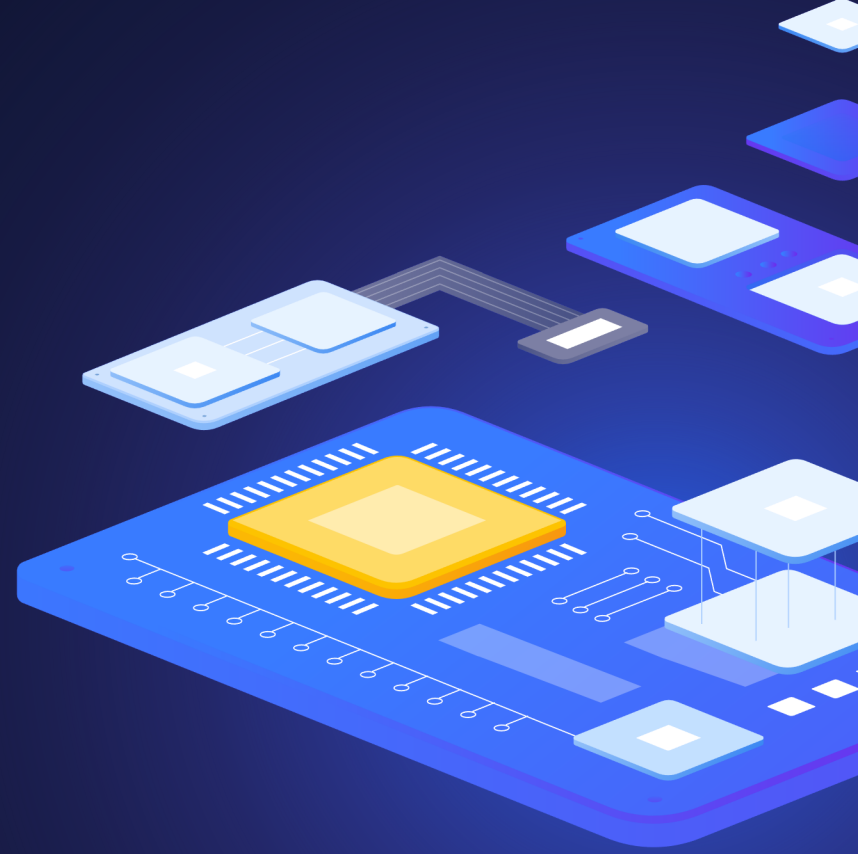
Zabbix agent – improvements and new items



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New Zabbix agent items

Multiple new items have been added for both Zabbix Agent And Zabbix Agent2. These items give you the ability to:

- Obtain additional file information such as file owner and file permissions
- Collect agent host metadata as a metric
- Collect Zabbix agent variant (agent or agent2) as a metric
- New **system.hostname** parameter for returning the short hostname
- Count matching TCP/UDP sockets
- You can now natively monitor your SSL/TLS certificates with a new Zabbix Agent2 item. The item can be used to validate a TLS/SSL certificate and provide you additional certificate details.

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Zabbix agent improvements

Zabbix agent and Zabbix agent2 have received significant improvements:

- Zabbix agent2 now supports loading stand-alone plugins without having to recompile Zabbix agent2.
- It is now possible to reload user parameters without restarting the Zabbix agent
- Support of persistent log monitoring state file to prevent log file re-reads under specific scenarios
- The new optional parameter persistent_dir specifies a directory for storing this state of log[], log.count[], logrt[] or logrt.count[] item in a file.
- Each Zabbix agent 2 plugin now has a separate configuration file

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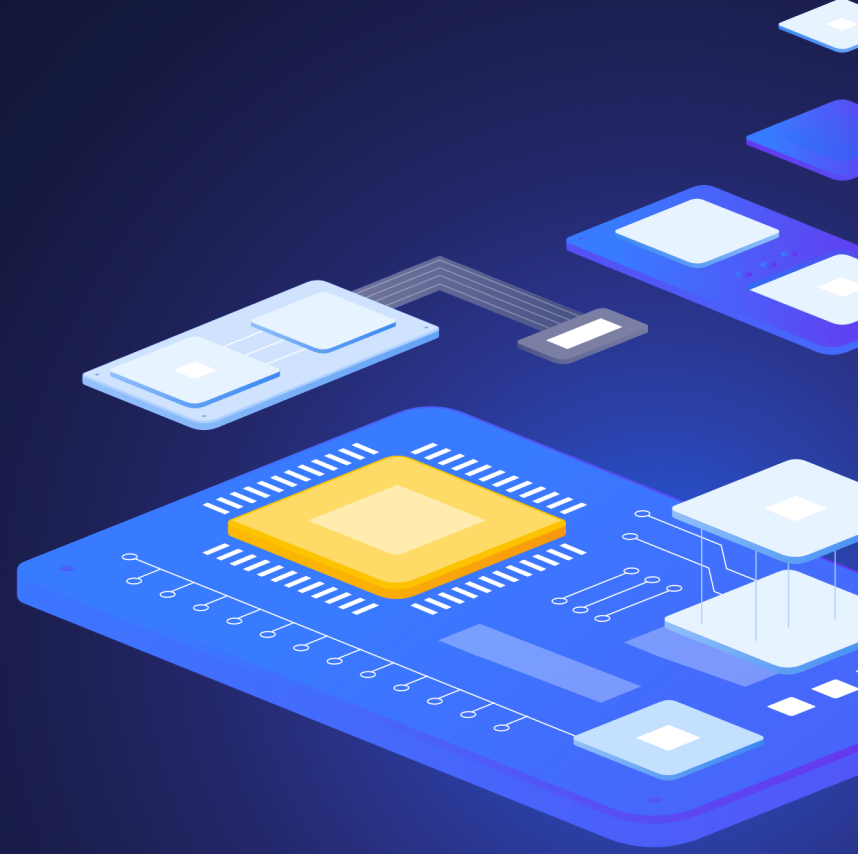
Custom zabbix password complexity requirements

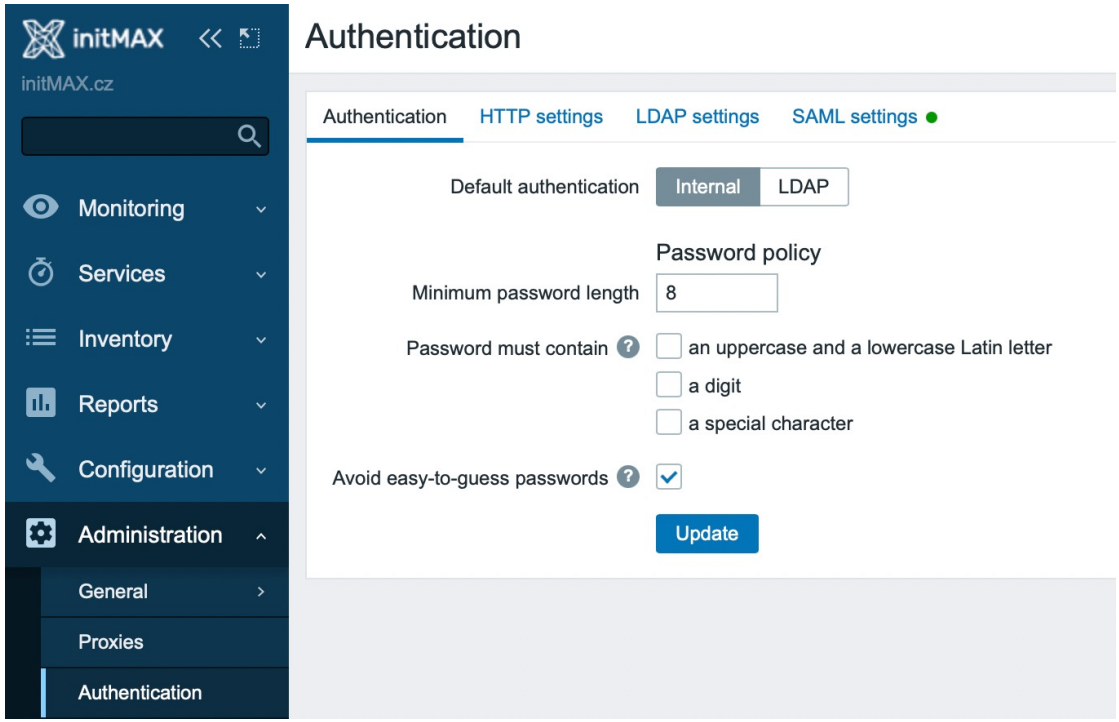


Zabbix 6.0 LTS

zabbix password complexity requirements

Zabbix Super admins now have the ability to define the password complexity requirements. Now you can:

- Set the minimum password length
- Define password character requirements
- Mitigate the risk of a dictionary attack by prohibiting the usage of the most common password strings.



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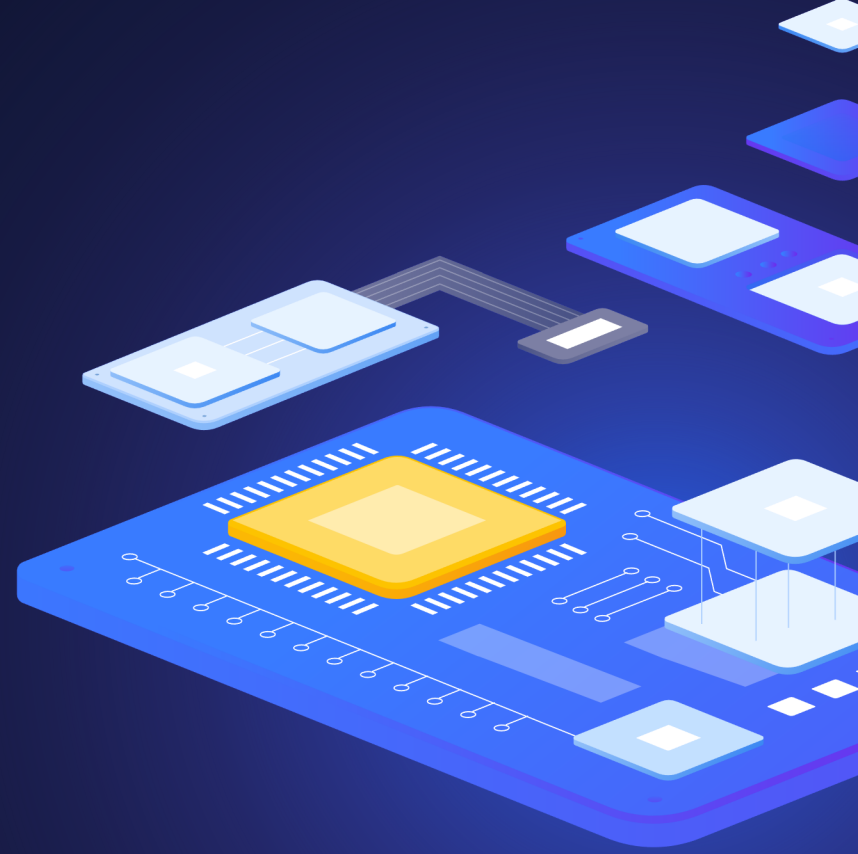
UI/UX improvements



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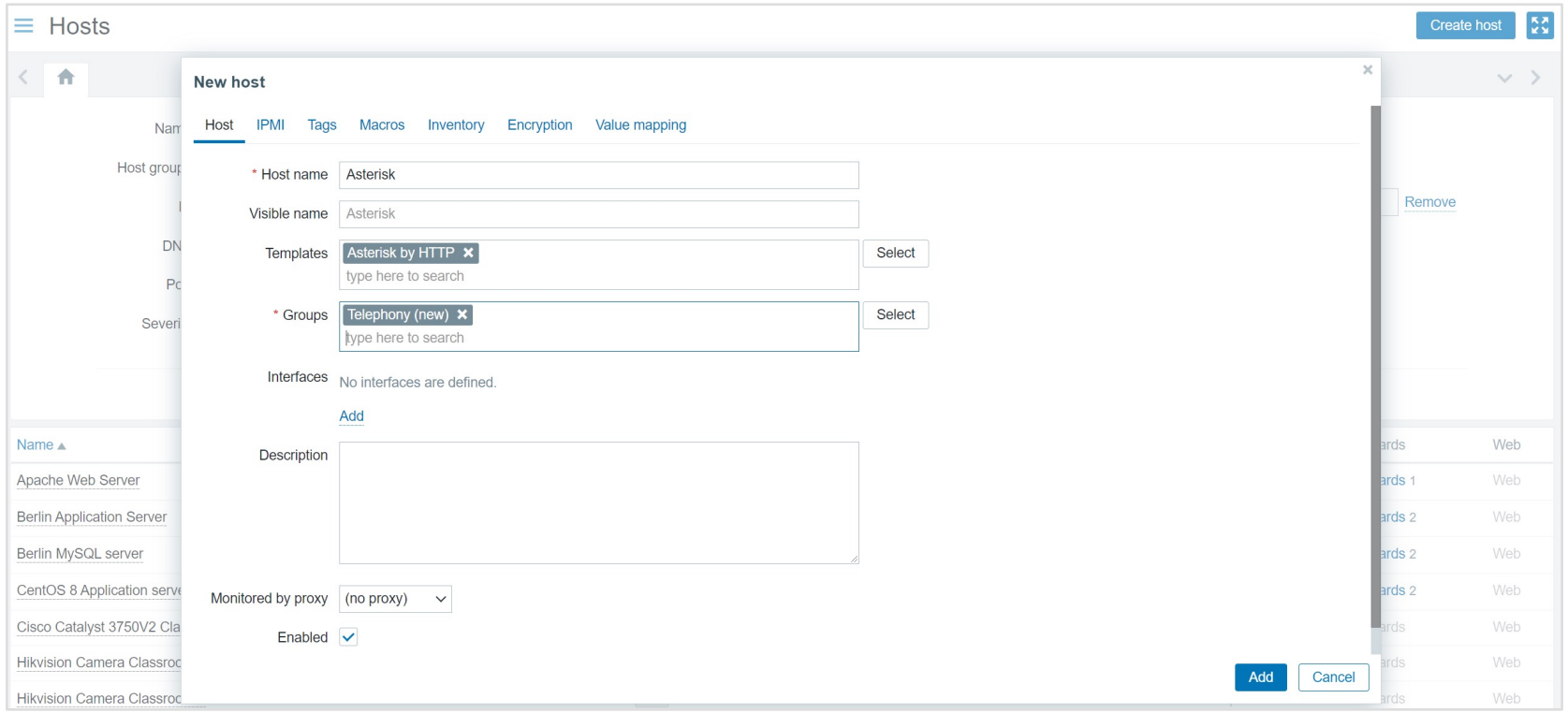
UI/UX Improvements

Multiple UI/UX improvements have been added, based on the community feedback:

- Create hosts directly from 'Monitoring' - 'Hosts'
- Templates can now be assigned in the main Host creation tab



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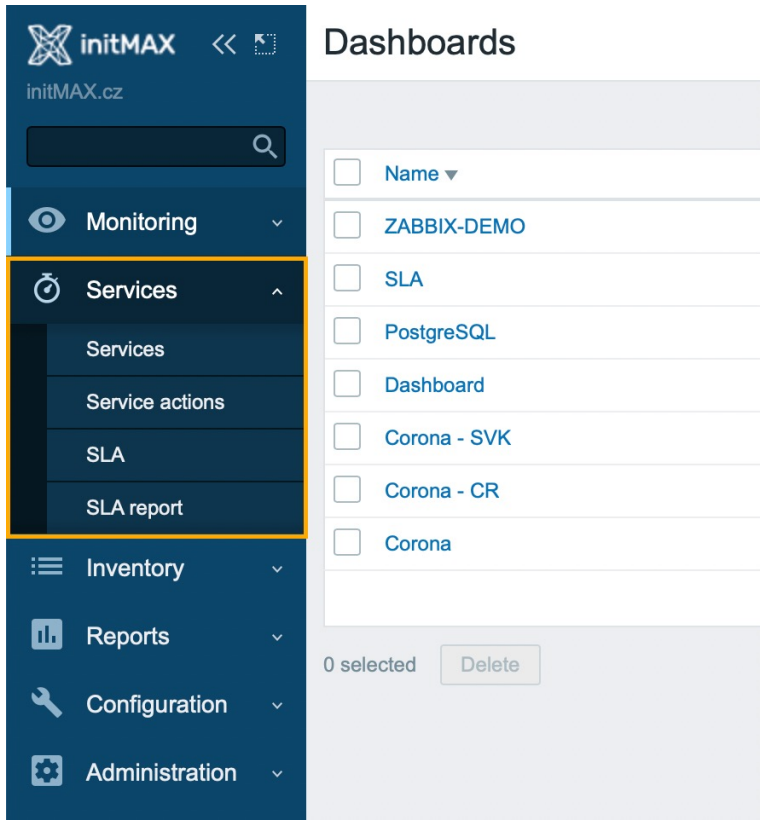
UI/UX Improvements – Services section

- New Services sections for business service, SLA, SLA report and service action configuration
- The default type of information for items will now be selected automatically



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UI/UX Improvements - Graphs

- Monitoring – Hosts – Graphs section has been redesigned for better UX and performance

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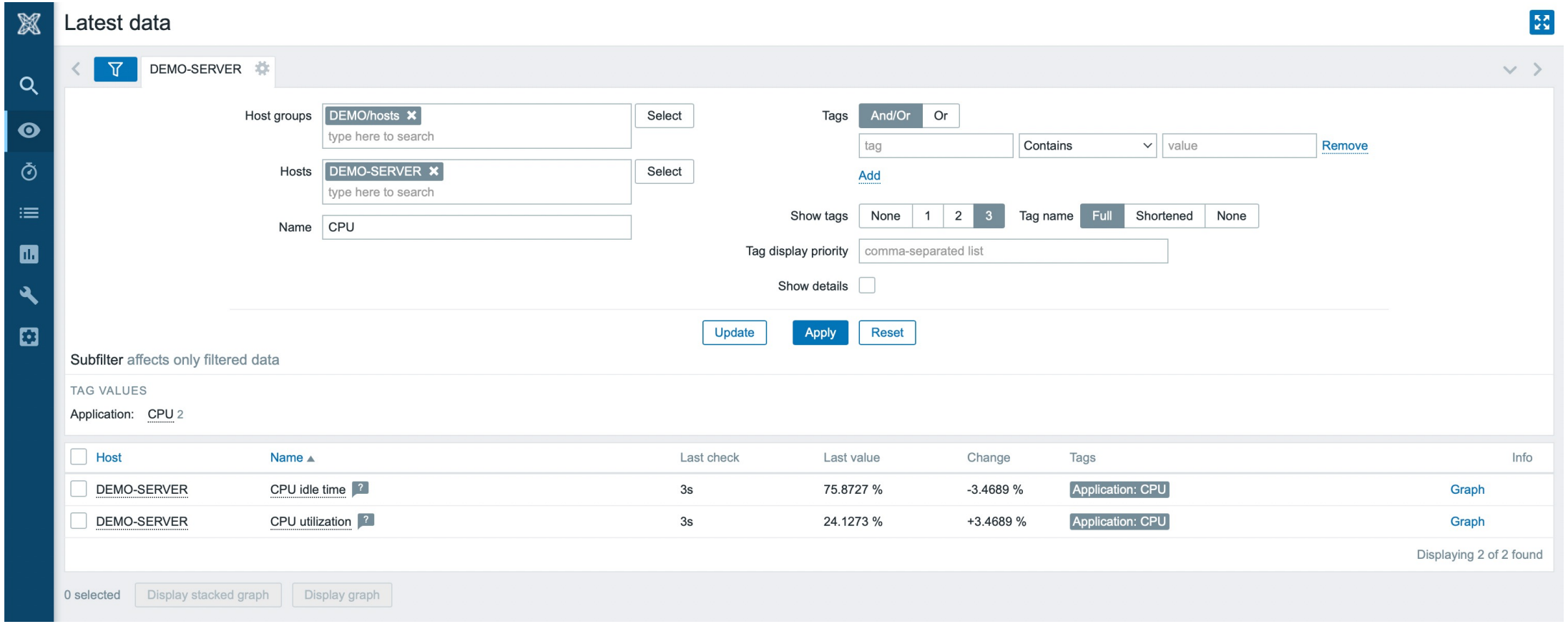
UI/UX Improvements – Latest data

- Added the ability to save named filters and use subfilters in Latest data



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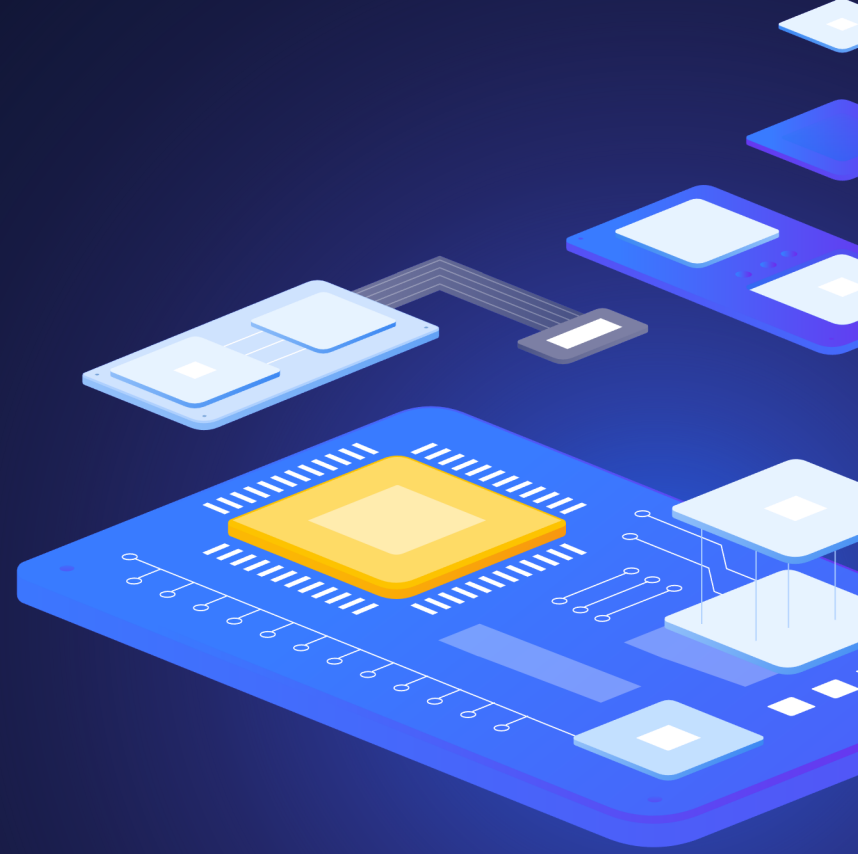
New templates and integrations



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New Templates and integrations

Zabbix 6.0 comes pre-packaged with many new templates for the most popular vendors:

- f5 BIG-IP
- Cisco ASAv
- HPE ProLiant servers
- Cloudflare
- InfluxDB
- Travis CI
- Dell PowerEdge
- pfSense
- Kubernetes
- Mikrotik
- Nginx Plus
- VMware SD-WAN VeloCloud
- GridGain
- Systemd

Zabbix 6.0 also brings a new GitHub webhook integration which allows you to generate GitHub issues based on Zabbix events!

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New Templates and integrations

Zabbix 6.0 also brings improvements to the existing set of templates and integrations:

- All of the official Zabbix templates are now stand-alone and do not require importing additional template dependencies
- HA node discovery and monitoring for Zabbix server health/Remote Zabbix server health
- Updated Zabbix proxy templates according to the latest guidelines
- Added CPU usage metrics to Docker template
- Added new tags to all official templates
- Fixed item value maps for VMware templates

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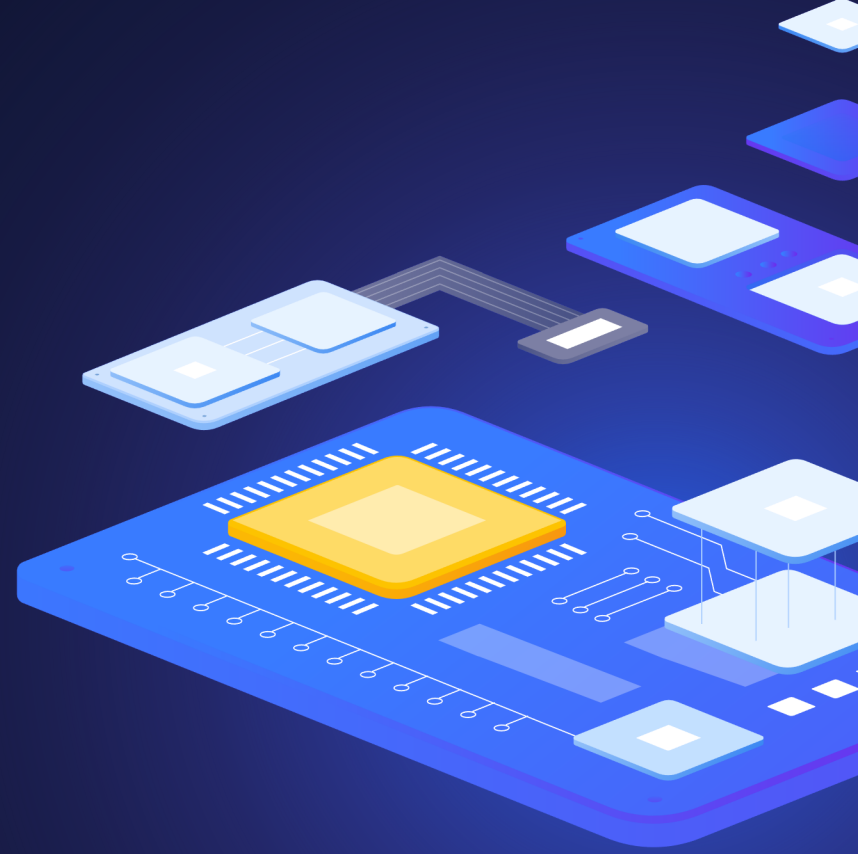
Other changes and improvements



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Vmware monitoring improvements

Multiple improvements have been made to existing VMware items. Support for new items has also been added:

- Improved data collection for VMware performance counters that return percentage values
- Collect VMware hypervisor HW vendor state sensors with **vmware.hv.sensors.get**
- Collect VMware hypervisor maintenance status with **vmware.hv.maintenance**
- Imporved the behavior of the skip parmeter for the **vmware.eventlog** key

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New History functions

Multiple new history functions have been added:

- Detect continuous increase or decrease of values with new monotonic history functions – **monodec()**, **monoinc()**
- Count the number of changes in adjacent values with **changecount()**

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New Aggregate functions

Multiple new general use aggregate functions have been added:

- Return the total number of values in an array returned by a foreach function with **count()**
- Return the total number of currently enabled items (as an integer) that match filter criteria with **item_count**
- Return the total number of currently enabled items (as an array) that match filter criteria with **exists_foreach**

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New prometheus functions

Multiple new aggregate and history functions have been added for Prometheus monitoring:

History functions:

- Calculate rates for Prometheus monotonic counters with rate()

Aggregate functions:

- Calculate percentile values from the buckets of Prometheus histograms with bucket_percentile()
- Calculate quantile from values from buckets of Prometheus histograms with histogram_quantile()
- Return pairs of bucket upper bound and rate value for use in histogram_quantile() with bucket_rate_foreach()

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New Macros

New macros are now supported for trigger expression and internal action debugging:

- **{TRIGGER.EXPRESSION.EXPLAIN}**, **{TRIGGER.EXPRESSION.RECOVERY.EXPLAIN}** - resolve to a partially evaluated trigger or recovery expression, where only item-based functions are applied
- **{FUNCTION.VALUE<1-9>}**, **{FUNCTION.RECOVERY.VALUE<1-9>}** - resolve to the results of the Nth item-based function at the time of the event
- Display a reason why an item became unsupported with **{ITEM.STATE.ERROR}**
- Display a reason why an LLD rule became unsupported with **{LLDRULE.STATE.ERROR}**
- Display a reason why a trigger became unknown with **{TRIGGER.STATE.ERROR}**

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CLI tool and runtime command changes

New features have been added to the existing command line tools:

- Added support for Timeout settings for Zabbix command-line tools
- Zabbix server and proxy runtime commands are now sent via socket instead of Unix signals
- Results of the command execution are now printed to the console
- Runtime control options are now supported on BSD-based systems

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Performance improvements

New features and improvements related to Zabbix performance:

- A new configuration parameter **StartODBCPollers** has been added to Zabbix server and proxy configuration files
- Processing ODBC checks has been moved from regular poller processes to separate server/proxy processes **ODBC pollers**
- Improved performance of template linking on Zabbix Server
- Improved performance for Prometheus pattern preprocessing

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Performance improvements

New features and improvements related to Zabbix performance:

- Improved protocol to support Zabbix proxy configuration cache of size up to 16 GB
- Improved Zabbix proxy performance and memory usage by freeing uncompressed data as fast as possible and compressing before connection
- Improved Zabbix agent2 performance by using functions introduced in Go 1.16
- Added primary key support for History tables – improved performance and reduced DB size.

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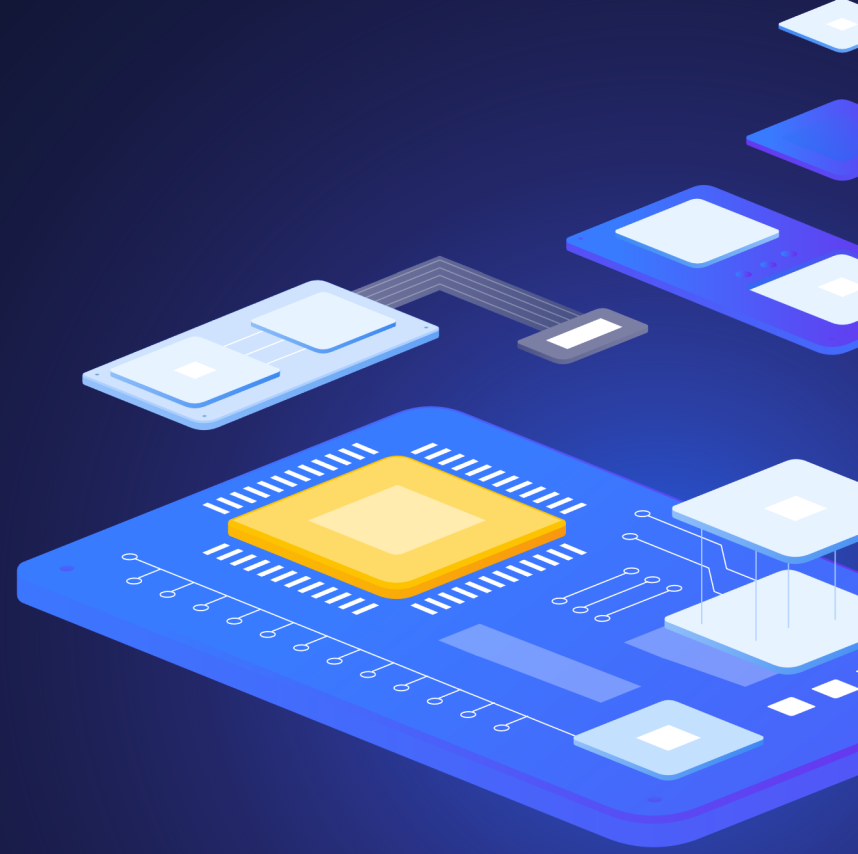
Other Changes and improvements

Many other improvements have been added in Zabbix 6.0 LTS:

- Added utf8mb4 as a supported MySQL character set and collation
- Added the support of additional HTTP methods for webhook
- Support for two new Prometheus preprocessing label matching operators **!=** and **!~**
- Calculated items now support not only numeric, but also text, log, and character types of information.
- New API method – **history.clear** can be used to clear history for items and web scenarios
- Added option to opt-out of Escalation cancelled messages

Questions?



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