



SUMMIT
ONLINE / 2020

"WHAT'S NEW IN ZABBIX 5.2"

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ZABBIX 5.2

MORE THAN 35
NEW FEATURES AND
FUNCTIONAL IMPROVEMENTS



01

SYNTHETIC MONITORING

FREEDOM TO MONITOR EVERYTHING



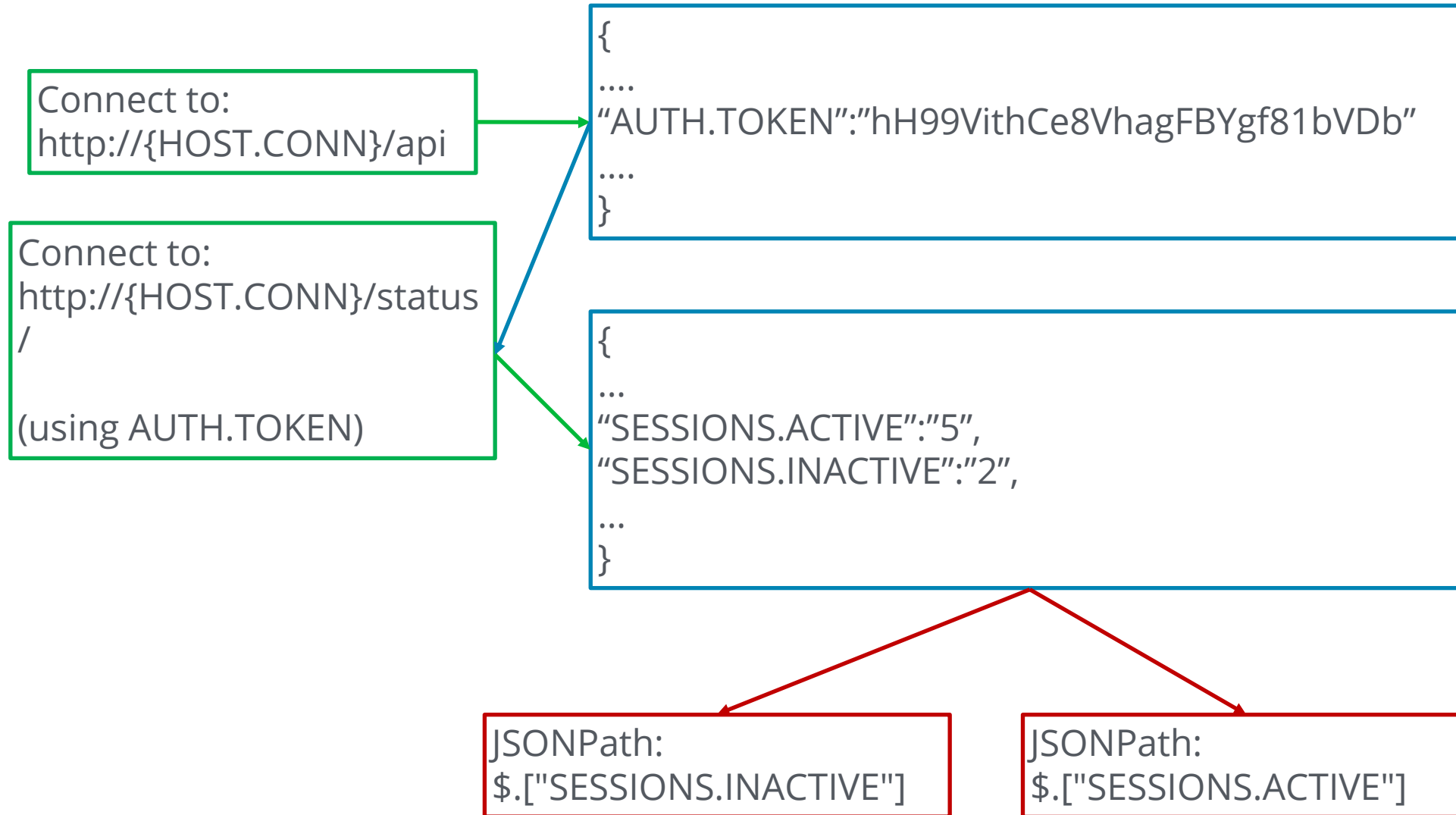
WHY?

Typical use cases

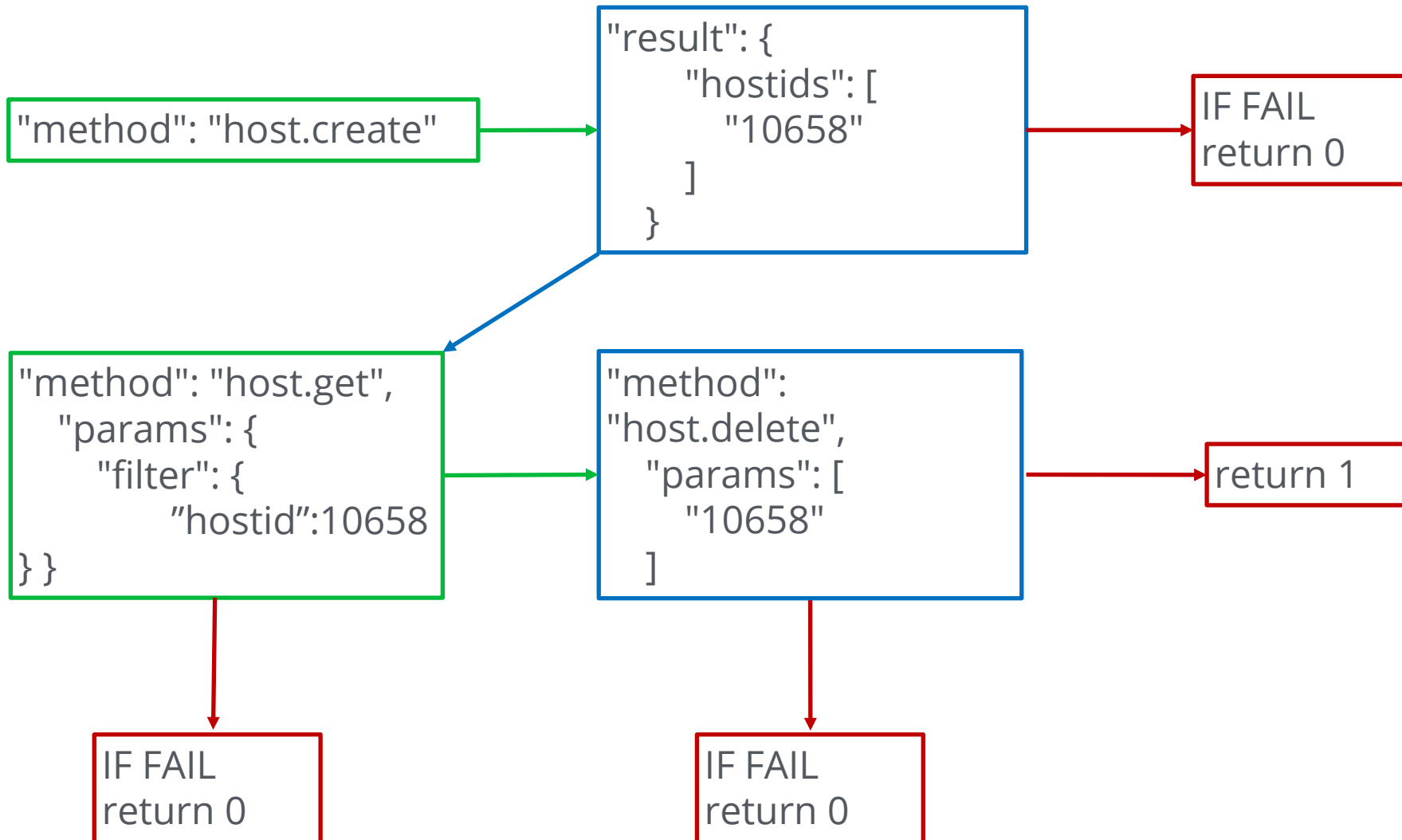
- ✓ Support of **complex multi-step scripted** monitoring scenarios
- ✓ Advanced availability checks
- ✓ Complex interaction with different HTTP APIs



MULTIPLE STEPS TO GET DATA



CHECK IF WHOLE PROCESS WORKS: **ZABBIX API**



CALCULATE SUM OF UNKNOWN PARTS

Connect to:
http://{HOST.CONN}/api

```
[{  
  "CLIENT.NAME": "CLIENT1",  
  "CLIENT.URL": "https://client1.domain.com/status"},  
 {"CLIENT.NAME": "CLIENT2",  
  "CLIENT.URL": "https://client2.domain.com/status"},  
 ...  
]
```

Connect to:
https://client1.domain.com/status/

Connect to:
https://client2.domain.com/status/

Connect to:

....

sum(get "CLIENT1.URL" + get
"CLIENT2.URL" + get "CLIENT3.URL")

NEW ITEM TYPE SCRIPT

* Name

Type

* Key

Name	Value	Action
host	{HOST.CONN}	Remove
endpoint	{ENDPOINT}	Remove

[Add](#)

* Script

* Timeout

Type of information

Units

* Update interval

JavaScript

```
1 function request(method, query, data) {  
2   var response,  
3     url = params.url + query,  
4     request = new CurlHttpRequest();  
5  
6   request.AddHeader('Content-Type: application/json');  
}
```


02

STORAGE OF SECRETS IN EXTERNAL VAULT



WHY?

Benefits

- ✓ All sensitive information is kept outside of Zabbix in a secure place
- ✓ Therefore no secret data is stored in Zabbix DB
- ✓ Sensitive data: passwords, API tokens, usernames, etc



03

ZABBIX INSIGHTS

LET'S LOOK AT LONGER PERIODS OF DATA



**“TOTAL AMOUNT OF NETWORK TRAFFIC
INCREASED BY 28% IN SEPTEMBER”**



**“AMOUNT OF ON-SITE CUSTOMERS
DECREASED BY 12% LAST WEEK”**



WHY?

Benefits

- ✓ Ability to analyze long term data efficiently using new trigger functions
- ✓ Zabbix will provide you with information about anomalies



04

GRANULAR CONTROL OF USER PERMISSIONS



WHY?

Benefits

- ✓ Granular control of user permissions
- ✓ Control user operations:
 - problem acknowledgements
 - creation and editing of maps and dashboards
 - management of maintenance times
 - etc
- ✓ Control access to API and its methods



05

IOT MONITORING



SUPPORT OF **MODBUS** AND **MQTT** PROTOCOLS



MODBUS

- ✓ Modbus has become a de facto standard communication protocol and is now a commonly available means of connecting industrial electronic devices.
- ✓ Works on agent and agent2 tcp or serial connections



MODBUS

`modbus.get[endpoint,<slave id>,<function>,<address>,<count>,<type>,<endianness>,<offset>]`

- ✓ **endpoint** - endpoint defined as protocol://connection_string
- ✓ **slave id** - slave ID
- ✓ **function** - Modbus function
- ✓ **address** - address of first registry, coil or input
- ✓ **count** - number of records to read
- ✓ **type** - type of data
- ✓ **endianness** - endianness configuration
offset - number of registers, starting from 'address', the results of which will be discarded.



MODBUS

- ✓ Returns json

- ✓ Examples:

```
modbus.get["tcp://192.168.6.1:511"]
```

```
Modbus.get["rtu://COM1:9600:8n"]
```



MQTT

- ✔ MQTT is a standard messaging protocol for the Internet of Things (IoT)
- ✔ Native solution for monitoring messages published by MQTT brokers
- ✔ Supported by agent2 Active check only



MQTT

```
mqtt.get[<broker_url>,topic,<username>,<password>]
```

- ✓ **broker_url** - MQTT broker URL (if empty, localhost with port 1883 is used)
topic - MQTT topic (mandatory). Wildcards (+,#) are supported
username,password - authentication credentials (if required)
- ✓ Subscribes to a specific topic or topics (with wildcards) of the provided broker and waits for publications.
- ✓ Examples:

```
mqtt.get["tcp://host:1883","path/to/topic"]  
mqtt.get["localhost","path/to/topic"]
```



06

TIMEZONES
FOR EACH USER



TIMEZONES FOR EACH USER

* Alias

Name

Surname

* Groups
type here to search

Password

Language ⓘ

Time zone

Theme

Auto-login ☒

Auto-logout ☐ 15m

* Refresh

* Rows per page

URL (after login)

* Alias

Name

Surname

* Groups
type here to search

Password

Language ⓘ

Time zone

Theme

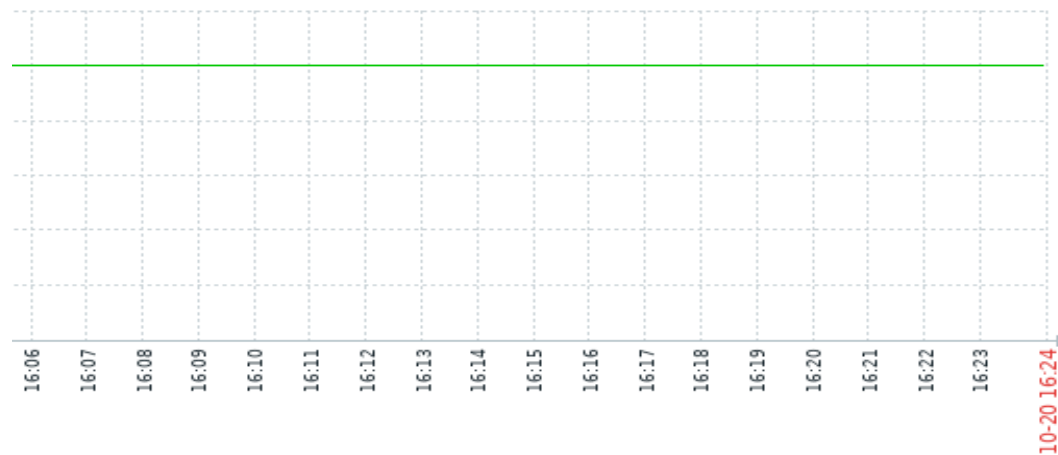
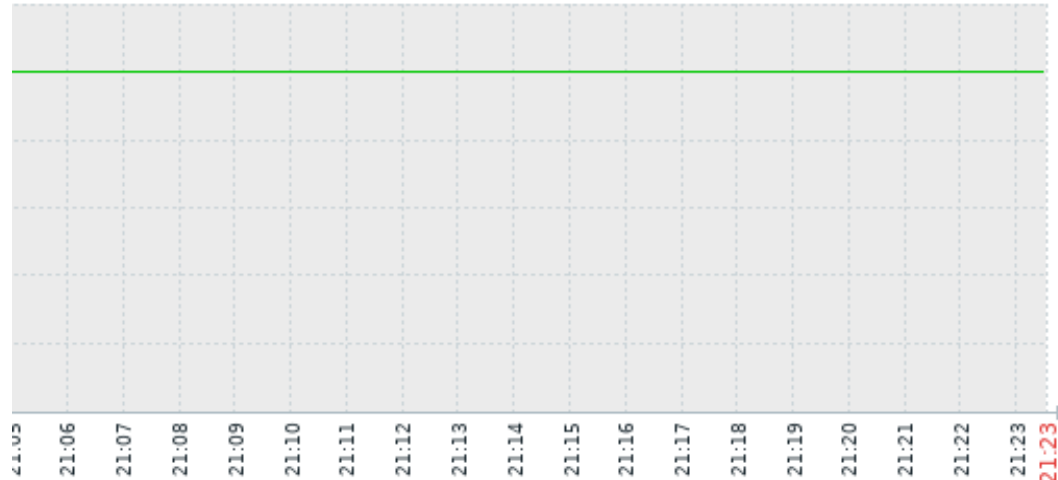
Auto-login ☒

Auto-logout ☐ 15m

* Refresh

* Rows per page

URL (after login)

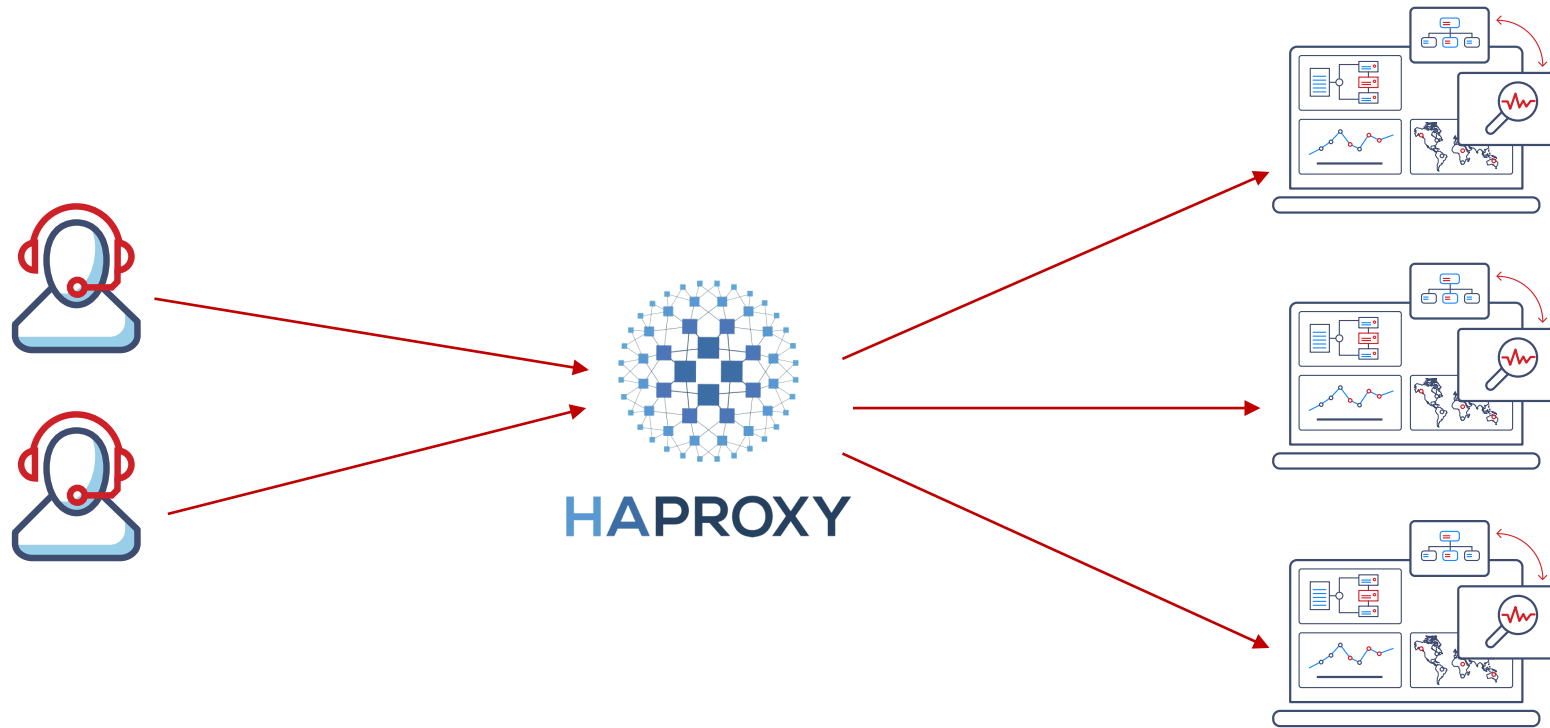


07

LOAD BALANCING FOR UI AND API



LOAD BALANCING UI AND API



08

YAML
FOR IMPORT/EXPORT



YAML FOR IMPORT/EXPORT

JSON

```
"zabbix_export": {
  "version": "5.2",
  "date": "2020-10-22T16:53:53Z",
  "groups": [
    {
      "name": "Templates/Applications"
    }
  ],
  "templates": [
    {
      "template": "Zabbix Server",
      "name": "Zabbix Server",
      "groups": [
        {
          "name": "Templates/Applications"
        }
      ],
      "applications": [
        {
          "name": "Zabbix server"
        }
      ],
      "items": [
        {
          "name": "Zabbix LLD queue",
          "type": "INTERNAL",
          "key": "zabbix[lld_queue]",
          "history": "1w",
          "description": "Count of values enqueued in the preprocessing queue.",
          "applications": [
            {
              "name": "Zabbix server"
            }
          ]
        }
      ]
    }
  ],
}
```

YAML

```
zabbix_export:
  version: '5.2'
  date: '2020-10-22T16:55:52Z'
  groups:
    - name: Templates/Applications
  templates:
    - template: 'Zabbix Server'
      name: 'Zabbix Server'
      groups:
        - name: Templates/Applications
      applications:
        - name: 'Zabbix server'
      items:
        - name: 'Zabbix LLD queue'
          type: INTERNAL
          key: 'zabbix[lld_queue]'
          history: 1w
          description: 'Count of values enqueued in the preprocessing queue.'
          applications:
            - name: 'Zabbix server'
```



09

TEMPLATE
IMPROVEMENTS



TEMPLATE IMPROVEMENTS

✓ Simpler template names

Template App Apache by Zabbix agent

Template App Ceph by Zabbix Agent2

Template App HAProxy by Zabbix agent

Template App Nginx by Zabbix agent

Template App RabbitMQ cluster by Zabbix agent

Template App RabbitMQ node by Zabbix agent

Template App Remote Zabbix proxy

Template App Remote Zabbix server

Template App Zabbix Proxy

Template App Zabbix Server

Template DB MySQL by Zabbix agent

Template Module Linux block devices by Zabbix agent

Template Module Linux block devices by Zabbix agent active

Template Module Linux CPU by Zabbix agent

Template Module Linux CPU by Zabbix agent active

Template Module Linux filesystems by Zabbix agent

Template Module Linux filesystems by Zabbix agent active

Template Module Linux generic by Zabbix agent

Template Module Linux generic by Zabbix agent active

Apache by Zabbix agent

Ceph by Zabbix Agent2

HAProxy by Zabbix agent

IIS by Zabbix agent

IIS by Zabbix agent active

Linux block devices by Zabbix agent

Linux block devices by Zabbix agent active

Linux by Zabbix agent

Linux by Zabbix agent active

Linux CPU by Zabbix agent

Linux CPU by Zabbix agent active

Linux filesystems by Zabbix agent

Linux filesystems by Zabbix agent active

Linux generic by Zabbix agent

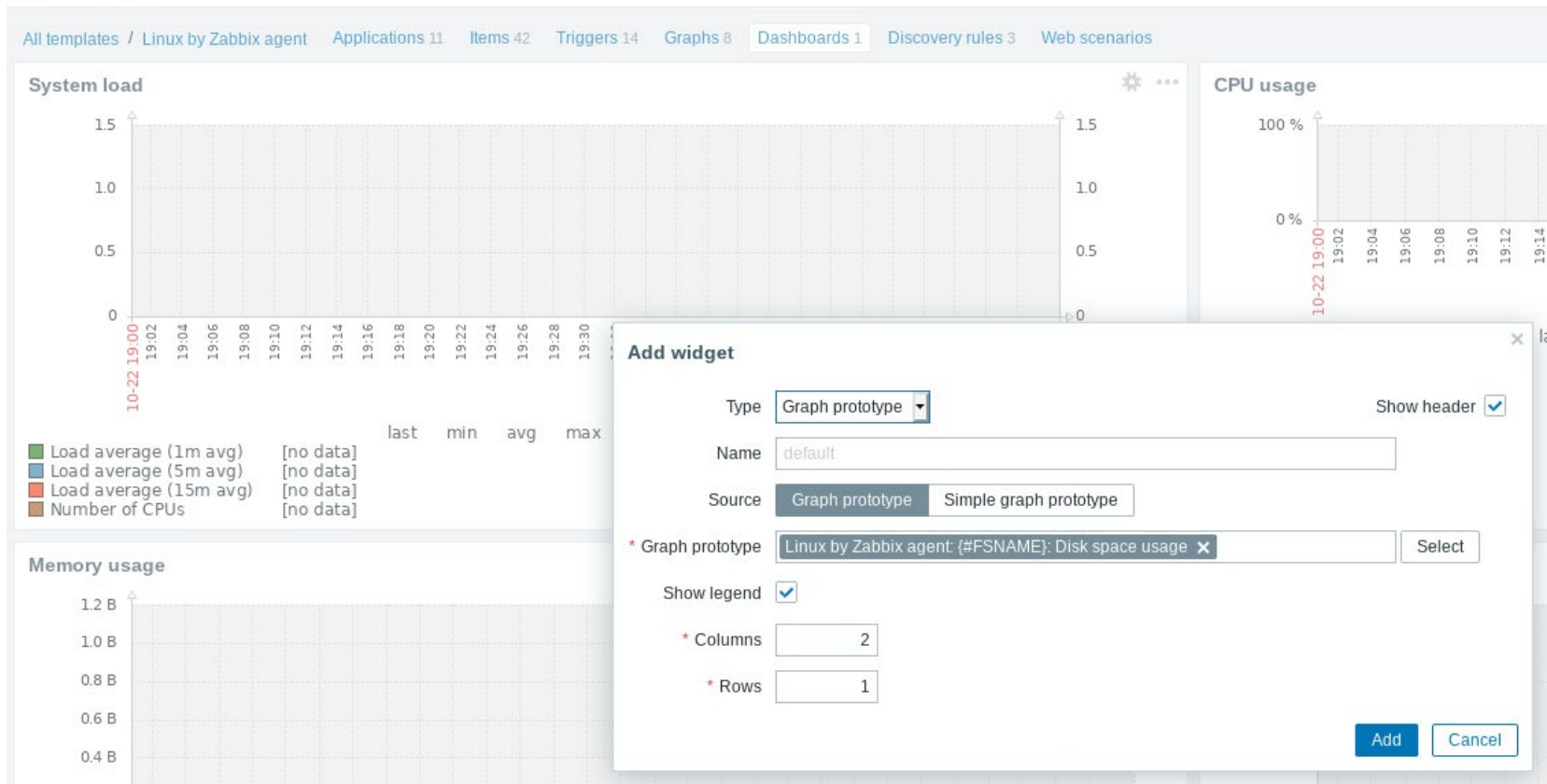
Linux generic by Zabbix agent active



TEMPLATE IMPROVEMENTS

- ✓ Templated screens converted to dashboards

Dashboards



TEMPLATE IMPROVEMENTS

- ✓ See all hosts linked to template

☐ Linux by Zabbix agent	Hosts 1 Applications 11 Items 42 Triggers 14 Graphs 8 Dashboards 1 Discovery 3 Web
☐ Linux by Zabbix agent active	Hosts Applications 11 Items 42 Triggers 14 Graphs 8 Dashboards 1 Discovery 3 Web

Host groups	type here to search	Select
Templates	Linux by Zabbix agent ✕ type here to search	Select
Name		
DNS		
IP		
Port		

TEMPLATE IMPROVEMENTS

- ✓ Number of templates in System information

System information ⚙️ ⋮		
Parameter	Value	Details
Zabbix server is running	Yes	localhost:10051
Number of hosts (enabled/disabled)	1	1 / 0
Number of templates	146	
Number of items (enabled/disabled/not supported)	122	113 / 0 / 9
Number of triggers (enabled/disabled [problem/ok])	61	61 / 0 [1 / 60]
Number of users (online)	2	1
Required server performance, new values per second	1.54	

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DISCOVERY AND CLOUD
MONITORING



DISCOVERY AND CLOUD MONITORING

- ✓ Host interfaces can be discovered from LLD

Interfaces

Type	IP address	DNS name	Connect to	Port	Default
Agent	{#VM.IP}		<input checked="" type="button" value="IP"/> DNS	10050	☒ Remove

[Add](#)

- ✓ Hosts without interfaces
- ✓ Tags on host prototypes tags from any discovery macro

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BETTER UI



UI IMPROVEMENTS

✓ Save filters

Zabbix Problems

Production problems 1

API problems 0

Last 1 hour

Zoom out

Show

Recent problems

Problems

History

Host groups

Zabbix servers

type here to search

Select

Hosts

type here to search

Select

Application

Select

Triggers

type here to search

Select

Problem

Severity

☐ Not classified

☐ Warning

☐ High

☐ Information

☐ Average

☐ Disaster

Age less than

☐ 14 days

Host inventory

Type

Remove

Add

Tags

And/Or

Or

tag

Contains

Equals

value

Remove

Add

Show tags

None

1

2

3

Tag name

Full

Shortened

None

Tag display priority

comma-separated list

Show operational data

None

Separately

With problem name

Show suppressed problems

☐

Show unacknowledged only

☐

Compact view

☐

Show timeline

☒

Show details

☐

Highlight whole row

☐

Update

Apply

Reset

Time

Severity

Recovery time

Status

Info

Host

Problem

Duration

Ack

Actions

Tags

15:14:40

Average

Zabbix server

Zabbix icmp pinger processes more than 75% busy

3s

No

Displaying 1 of 1 found

UI IMPROVEMENTS

- ✓ No more tabs in maintenance definitions

* Name

Maintenance type With data collection No data collection

* Active since 

* Active till 

* Periods

Period type	Schedule	Period	Action
Add			

Host groups Select

Hosts Select

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

Tags

And/Or Or

Contains Equals [Remove](#)

[Add](#)

Description

Add Cancel

UI IMPROVEMENTS

- ✓ Show clearly that a tab in Zabbix UI contains non-empty list

Item **Preprocessing 2**

Discovered by [Network interface discovery](#)

* Name

Type

* Key

* Host interface

Type of information

Units

* Update interval

Custom intervals

Type	Interval	Period
☒ Flexible ☐ Scheduling	50s	1-7,00:00-24:00

UI IMPROVEMENTS

✓ Default language

GUI ▾

Default language English (en_GB) ⓘ

Default time zone System

Default theme Blue

* Limit for search and filter results 1000

* Max number of columns and rows in overview tables 50

* Max count of elements to show inside table cell 50

Show warning if Zabbix server is down ☒

* Working time 1-5,09:00-18:00

Show technical errors ☐

* Max history display period 24h

* Time filter default period 1h

* Max period 2y

Update Reset defaults

UI IMPROVEMENTS

- ✓ Essential configuration parameters moved from defines.in.php to Zabbix UI

Other configuration parameters ▾

* Group for discovered hosts

Default host inventory mode

User group for database down message

Log unmatched SNMP traps ☒

Authorization

* Login attempts

* Login blocking interval

Security

Validate URI schemes ☒

Valid URI schemes

* X-Frame-Options HTTP header

Use iframe sandboxing ☒

Iframe sandboxing exceptions

Communication with Zabbix server

* Network timeout

* Connection timeout

* Network timeout for media type test

* Network timeout for script execution

* Network timeout for item test

UI IMPROVEMENTS

- ✓ SNMP settings in test item window

Test item ×

Get value from host ☒

* Host address

SNMP version

* SNMP community

Proxy

Value

Previous value

End of line sequence

Port

Time

Prev. time

Get value

Get value and test

Cancel

UI IMPROVEMENTS

- ✓ Filters and additional details in list of dashboards

Dashboards

Create dashboard 

Filter 

Name

Show All Created by me

Apply Reset

☐ Name ▲	
☐ Everything else should go here	My
☐ Global view	My Shared
☐ My best dashboard	My
☐ The last dashboard you'll ever need	My
☐ The only dashboard you'll ever need	My
☐ Zabbix server health	My Shared

Displaying 6 of 6 found

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BETTER PREPROCESSING



PREPROCESSING IMPROVEMENTS

- ✓ Macros in javascript preprocessing (also backported to 5.0)
- ✓ Check for not supported value - override item if it becomes unsupported



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OTHER IMPROVEMENTS



OTHER IMPROVEMENTS

```
[root@52 ~]# zabbix_server -R diaginfo=valuecache
zabbix_server [3191]: command sent successfully
[root@52 ~]# tail -n 30 /var/log/zabbix/zabbix_server.log
1391:20201022:212638.709 itemid:23264 values:16 request.values:11
1391:20201022:212638.709 itemid:23276 values:16 request.values:11
1391:20201022:212638.709 itemid:23266 values:16 request.values:11
1391:20201022:212638.709 top.request.values:
1391:20201022:212638.709 itemid:32463 values:104 request.values:61
1391:20201022:212638.709 itemid:32462 values:104 request.values:61
1391:20201022:212638.709 itemid:23258 values:37 request.values:31
1391:20201022:212638.709 itemid:32441 values:21 request.values:16
1391:20201022:212638.709 itemid:32443 values:19 request.values:16
1391:20201022:212638.709 itemid:23259 values:16 request.values:11
1391:20201022:212638.709 itemid:29823 values:16 request.values:11
1391:20201022:212638.709 itemid:25668 values:16 request.values:11
1391:20201022:212638.709 itemid:23273 values:16 request.values:11
1391:20201022:212638.709 itemid:23265 values:16 request.values:11
1391:20201022:212638.709 itemid:23274 values:16 request.values:11
1391:20201022:212638.709 itemid:25667 values:16 request.values:11
1391:20201022:212638.709 itemid:23269 values:16 request.values:11
1391:20201022:212638.709 itemid:28538 values:16 request.values:11
1391:20201022:212638.709 itemid:23264 values:16 request.values:11
1391:20201022:212638.709 itemid:23276 values:16 request.values:11
1391:20201022:212638.709 itemid:23266 values:16 request.values:11
1391:20201022:212638.709 itemid:23268 values:16 request.values:11
1391:20201022:212638.709 itemid:23270 values:16 request.values:11
1391:20201022:212638.709 itemid:23620 values:16 request.values:11
1391:20201022:212638.709 itemid:25371 values:16 request.values:11
1391:20201022:212638.709 itemid:23275 values:16 request.values:11
1391:20201022:212638.709 itemid:23260 values:16 request.values:11
1391:20201022:212638.709 itemid:23257 values:13 request.values:11
1391:20201022:212638.709 itemid:28536 values:13 request.values:11
1391:20201022:212638.709 ==
```



OTHER IMPROVEMENTS

- ✓ UI protected from ability to check user existence
- ✓ Simpler schedule for unsupported items
- ✓ Ability to mass-update item Timeout
- ✓ Retrieve HTTP response headers from CurlHttpRequest object in Webhooks
- ✓ Ability to specify default search path for user parameters
- ✓ Max length of user macro values - 2048 characters



OTHER IMPROVEMENTS

- ✓ Active agent can work as multiple hosts (Hostname=host1,host2,host3)
- ✓ Official support of Docker images
- ✓ Eventlog related macros in operational data
- ✓ Support of user macros in item description



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HOW TO UPGRADE



HOW TO UPGRADE FROM 5.0?

- ✓ Backup DB
- ✓ Upgrade packages (Zabbix server, Frontend)
- ✓ Restart zabbix_server
- ✓ Watch the log file, Zabbix will start DB schema upgrade automatically
- ✓ Upgrade all proxies
- ✓ *Optional – update agents.*



UPGRADE ZABBIX

LET ZABBIX ENGINEERS
DO THE JOB

ORDER NEWEST RELEASE UPGRADE AND
ENJOY ALL THE NEW FEATURE EFFORTLESSLY



What You Get

- Fully functioning instance upgraded to the latest LTS or Standard Release version
- Fully documented procedure upon task completion
- Basic Zabbix health check and performance tuning



Your Benefits

- Minimal downtime
- Zero data loss
- Fast and efficient upgrade according to Zabbix best practices

Thank you!

