



Webinar

# Data visualization with zabbix

all your microphones are muted

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

use Chat for discussion, networking or applause

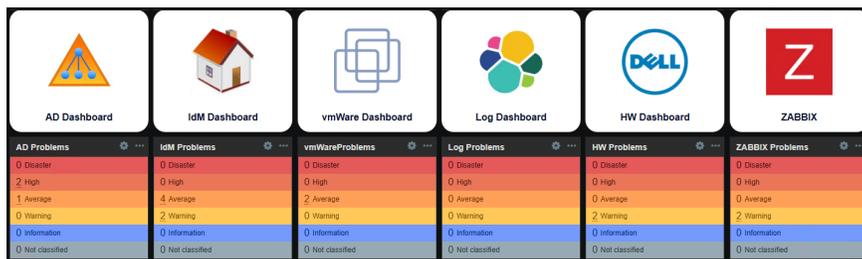
## Data visualization with zabbix

# Data visualization with Zabbix



Timestamp	Vřídka	Vrata
2025-06-18 05:44:46 PM		Zavřeno (0)
2025-06-18 05:44:19 PM		Otevřeno (1)
2025-06-18 03:29:22 PM		Zavřeno (0)
2025-06-18 03:28:30 PM		Otevřeno (1)
2025-06-18 10:23:16 AM		Zavřeno (0)
2025-06-18 10:22:12 AM		Otevřeno (1)

Top hosts			
Hostname	Ping	AP Clients	Guests
AP_OBYVAK	Up (1.00)		5.00
AP_PUDA	Up (1.00)		1.00
AP_SENIORI	Up (1.00)		1.00
AP_DILNA	Up (1.00)		2.00
AP_CL_RAS	Up (1.00)		0.00



1

Latest Data



## Data visualization with zabbix

# LATEST DATA

### Monitoring > Latest data

- ▶ Performance data for a selected server/group
- ▶ Simple graphs
- ▶ Plain text information
- ▶ Config details

Timestamp	Processor load (15 min average per core)
2022-04-13 15:52:15	0.045
2022-04-13 15:51:15	0.045
2022-04-13 15:50:15	0.045
2022-04-13 15:49:15	0.045
2022-04-13 15:48:15	0.035
2022-04-13 15:47:15	0.035
2022-04-13 15:46:15	0.04

Latest data

Host groups: type here to search  Select

Hosts: **Zabbix server**  Select

Name:

Tags:  And/Or Or  Contains  value  Remove

Add

Show tags: None 1 2 3 Tag name: Full Shortened None

Tag display priority: comma-separated list

Show details:

Save as Apply Reset

Subfilter affects only filtered data

TAGS

component 103 node-id 4 node-name 4

TAG VALUES

component: application 1 cluster 4 cpu 17 data-collector 13 environment 2 internal-process 20 memory 7 os 3 raw 1 storage 3 system 35

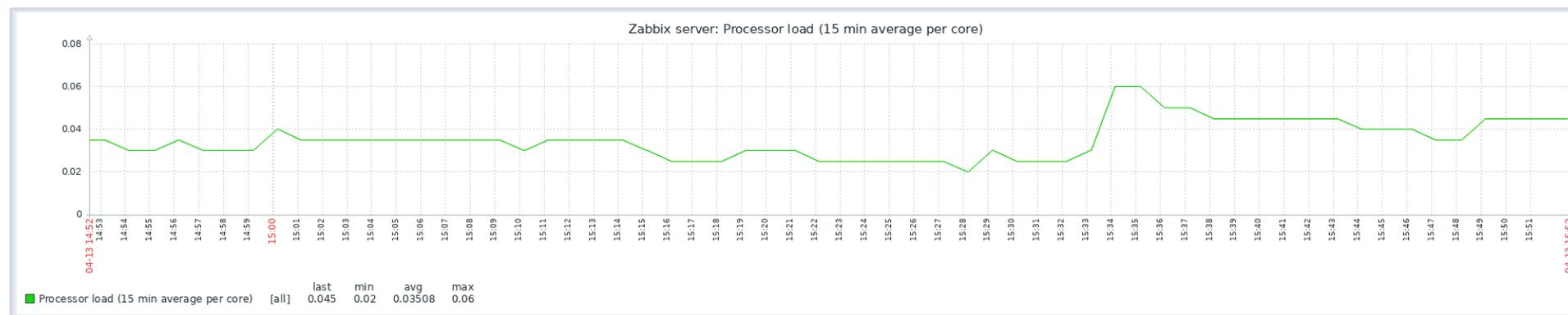
node-id: c11w239wq0014qnpj71vxceh 4

node-name: None 4

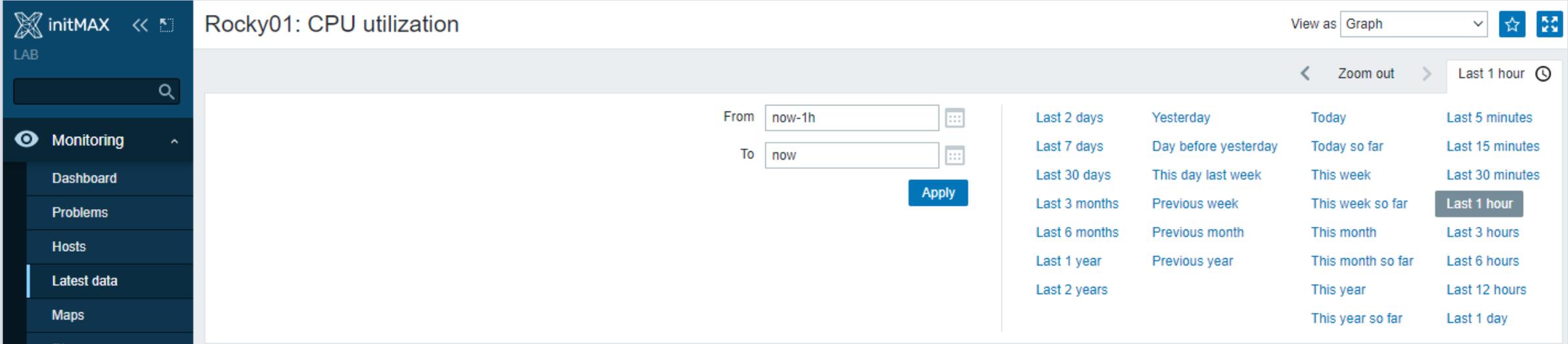
DATA

With data 53 Without data 50

<input type="checkbox"/> Host	Name	Last check	Last value	Change	Tags	Info
<input type="checkbox"/>	Zabbix server	Available memory			component: memory	Graph
<input type="checkbox"/>	Zabbix server	Available memory in %			component: memory	Graph
<input checked="" type="checkbox"/>	Zabbix server	Checksum of /etc/passwd			component: environment	History
<input checked="" type="checkbox"/>	Zabbix server	Cluster node [1] Address	7h 57m 18s	localhost:10051	component: cluster node-id: c11w239wq00... node-name	History
<input type="checkbox"/>	Zabbix server	Cluster node [1] Last access age	18s	00:00:00	component: cluster node-id: c11w239wq00... node-name	Graph
<input type="checkbox"/>	Zabbix server	Cluster node [1] Last access time	18s	2022-04-13 15:50:25 +00:01:00	component: cluster node-id: c11w239wq00... node-name	Graph
<input type="checkbox"/>	Zabbix server	Cluster node [1] Status	7h 57m 18s	Active (3)	component: cluster node-id: c11w239wq00... node-name	Graph
<input type="checkbox"/>	Zabbix server	Context switches per second			component: cpu	Graph
<input type="checkbox"/>	Zabbix server	CPU guest nice time			component: cpu	Graph
<input type="checkbox"/>	Zabbix server	CPU guest time			component: cpu	Graph
<input type="checkbox"/>	Zabbix server	CPU idle time			component: cpu	Graph



# LATEST DATA



The screenshot displays the Zabbix monitoring interface for 'Rocky01: CPU utilization'. The interface includes a sidebar with navigation options like 'Monitoring', 'Dashboard', 'Problems', 'Hosts', 'Latest data', and 'Maps'. The main content area shows a graph view of CPU utilization. In the top right corner, there is a 'View as' dropdown set to 'Graph', a star icon, and a zoom icon. Below this, there is a 'Zoom out' button and a time period selector set to 'Last 1 hour'. The time period selector is a grid of buttons with 'Last 1 hour' highlighted. To the left of the grid, there are 'From' and 'To' input fields with 'now-1h' and 'now' respectively, and an 'Apply' button.

From	To	Apply
now-1h	now	Apply

Time Period
Last 2 days
Last 7 days
Last 30 days
Last 3 months
Last 6 months
Last 1 year
Last 2 years
Yesterday
Day before yesterday
This day last week
Previous week
Previous month
Previous year
Today
Today so far
This week
This week so far
This month
This month so far
This year
This year so far
Last 5 minutes
Last 15 minutes
Last 30 minutes
<b>Last 1 hour</b>
Last 3 hours
Last 6 hours
Last 12 hours
Last 1 day

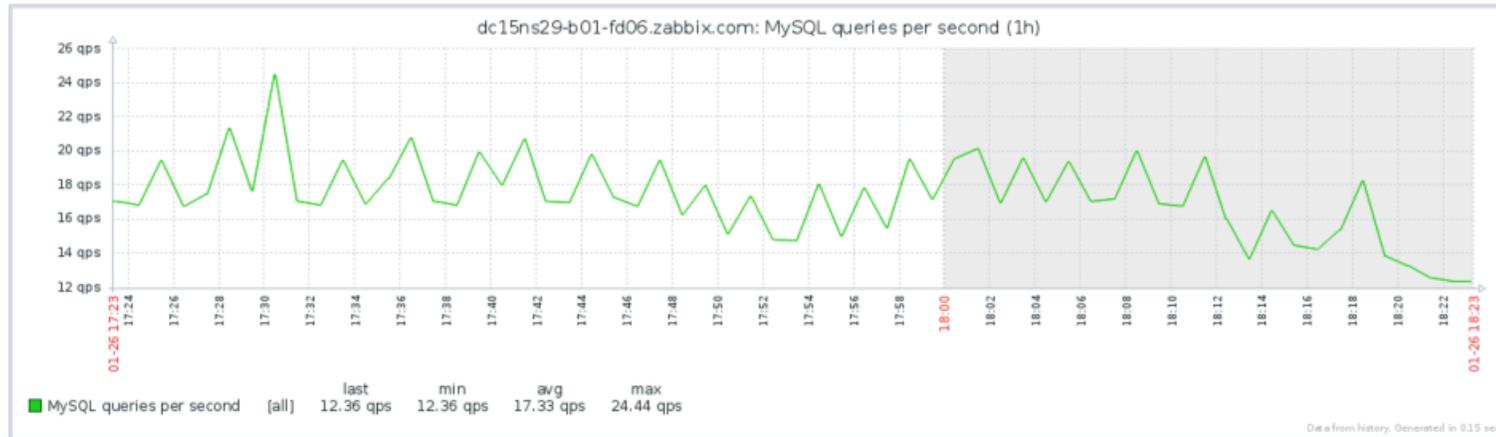
**In the top right, there is a time period selector**

- ▶ It allows to select required period with a mouse click
- ▶ This allows to show values for specific time period

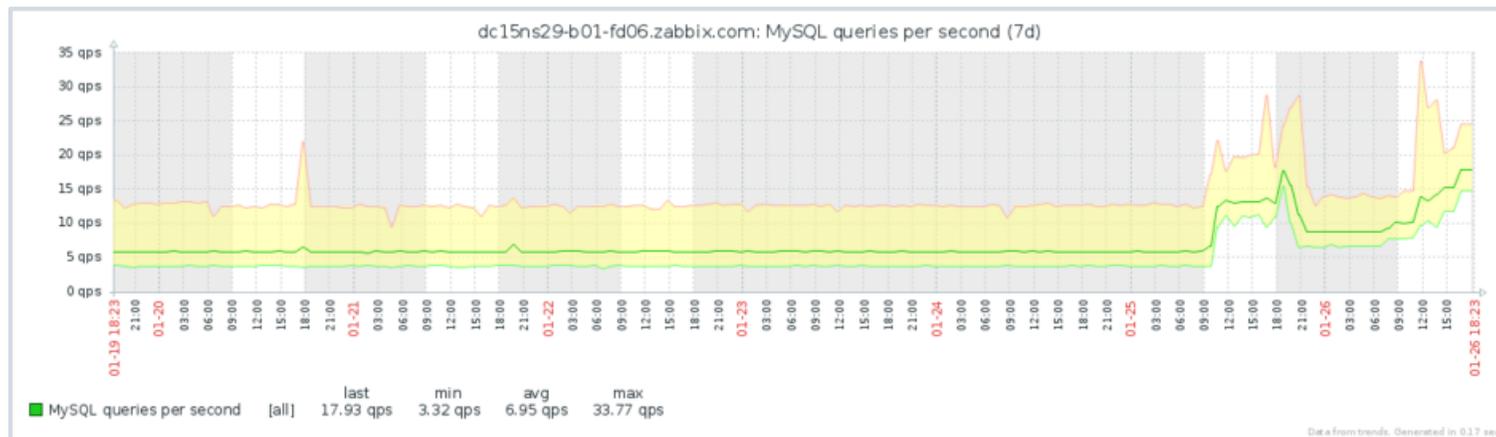
## Data visualization with zabbix

# SIMPLE GRAPHS

### History ( raw data )



### Trends (min, max, avg)



## SIMPLE GRAPHS


initMAX

<< >>

Latest data

⌵

---

Host groups  Select  
type here to search

Hosts  Select  
type here to search

Name

Tags And/Or Or

Contains value Remove

[Add](#)

Show tags None 1 2 3 Tag name Full Shortened None

Tag display priority

Show details

Update Apply Reset

Subfilter affects only filtered data

TAG VALUES

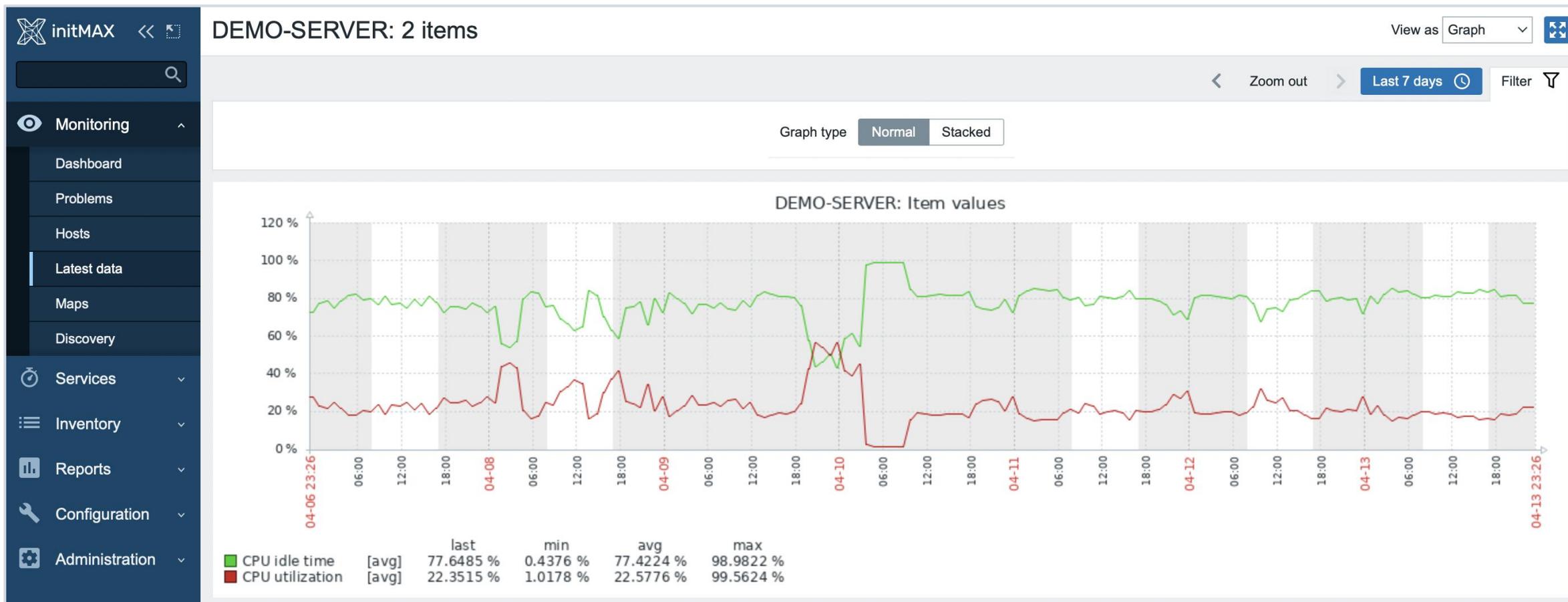
Application: CPU 2

<input checked="" type="checkbox"/>	Host	Name ▲	Last check	Last value	Change	Tags	Info
<input checked="" type="checkbox"/>	DEMO-SERVER	CPU idle time ?	15s	80.2008 %	+8.7639 %	Application: CPU	Graph
<input checked="" type="checkbox"/>	DEMO-SERVER	CPU utilization ?	15s	19.7992 %	-8.7639 %	Application: CPU	Graph

Displaying 2 of 2 found

2 selected
Display stacked graph
Display graph

# SIMPLE GRAPHS



-  Monitoring ^
- Dashboard
- Problems
- Hosts
- Latest data
- Maps
- Discovery
-  Services v
-  Inventory v
-  Reports v
-  Configuration v
-  Administration v

# SIMPLE GRAPHS



# 2

## Graphs and Classic graphs



# CUSTOM GRAPHS (LEGACY)

## Configuration > Templates > Graphs

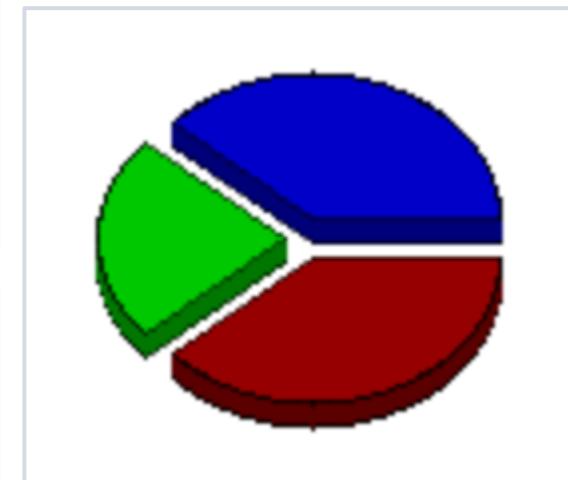
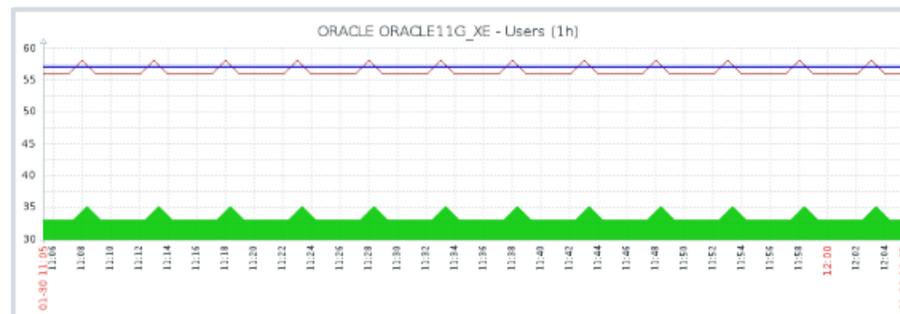
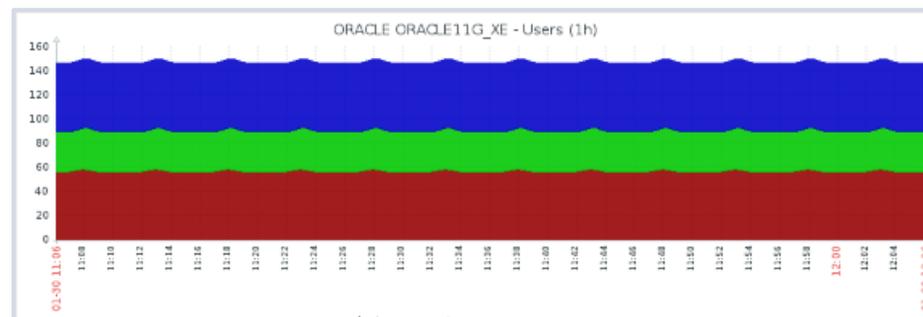
- › Multiple items in a single customized graph
- › Multiple graph types
- › Normal
- › Stacked
- › Pie
- › Exploded pie

Draw style

Line

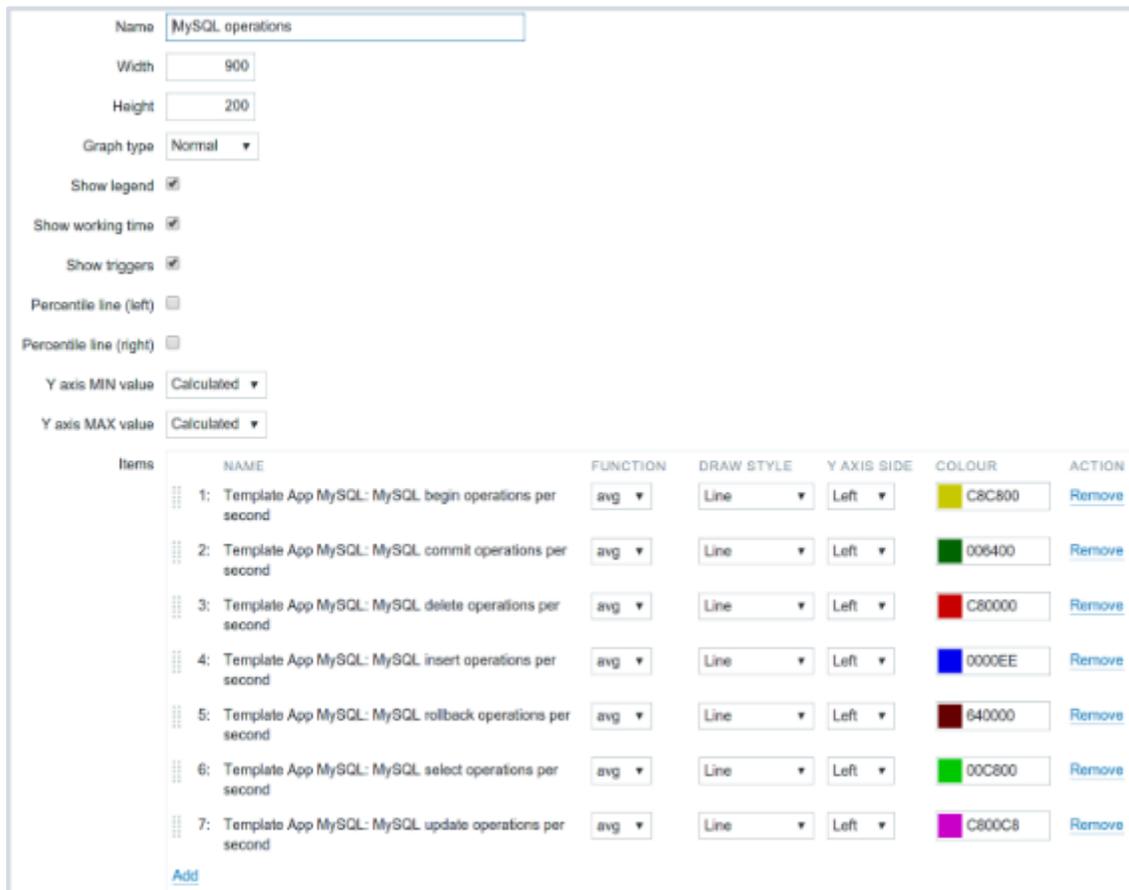
Filled region

Bold line



# CUSTOM GRAPHS (LEGACY)

- ▶ Legend, working time, trigger line, percentile lines (left/right)
- ▶ Automatic, fixed or referenced Y axis min/max
- ▶ Multiple items on two axis with different colors & draw styles



The screenshot shows the configuration interface for a Zabbix custom graph named "MySQL operations". The graph dimensions are set to 900 width and 200 height, with a "Normal" graph type. Several options are checked: "Show legend", "Show working time", and "Show triggers". The Y-axis values are set to "Calculated". Below these settings is a table of items to be displayed in the graph.

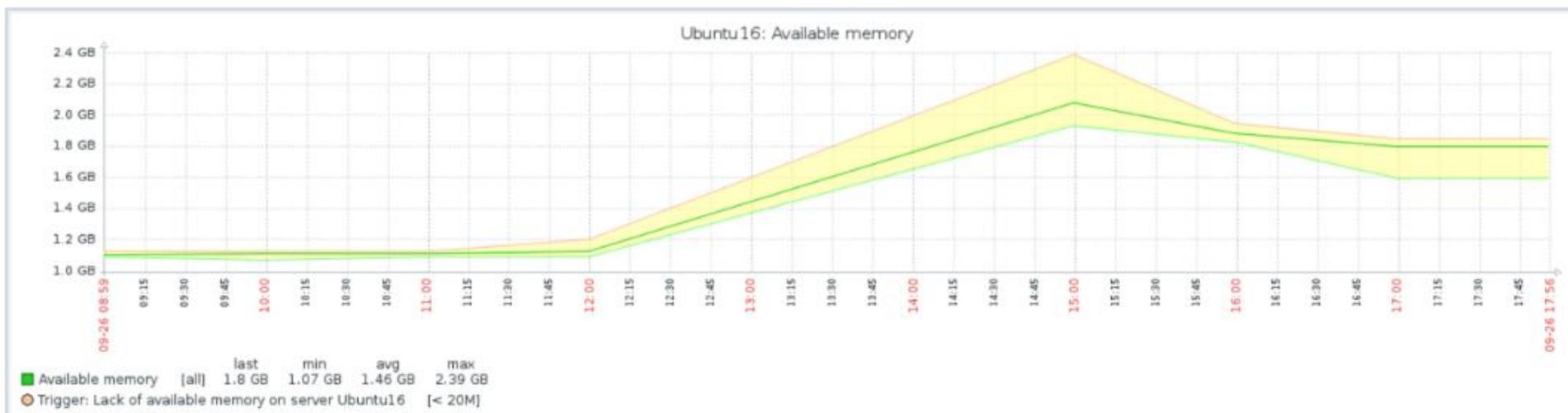
Items	NAME	FUNCTION	DRAW STYLE	Y AXIS SIDE	COLOUR	ACTION
1:	Template App MySQL: MySQL begin operations per second	avg	Line	Left	C8C800	<a href="#">Remove</a>
2:	Template App MySQL: MySQL commit operations per second	avg	Line	Left	006400	<a href="#">Remove</a>
3:	Template App MySQL: MySQL delete operations per second	avg	Line	Left	C80000	<a href="#">Remove</a>
4:	Template App MySQL: MySQL insert operations per second	avg	Line	Left	0000EE	<a href="#">Remove</a>
5:	Template App MySQL: MySQL rollback operations per second	avg	Line	Left	840000	<a href="#">Remove</a>
6:	Template App MySQL: MySQL select operations per second	avg	Line	Left	00C800	<a href="#">Remove</a>
7:	Template App MySQL: MySQL update operations per second	avg	Line	Left	C800C8	<a href="#">Remove</a>

[Add](#)

# CUSTOM GRAPHS (LEGACY)

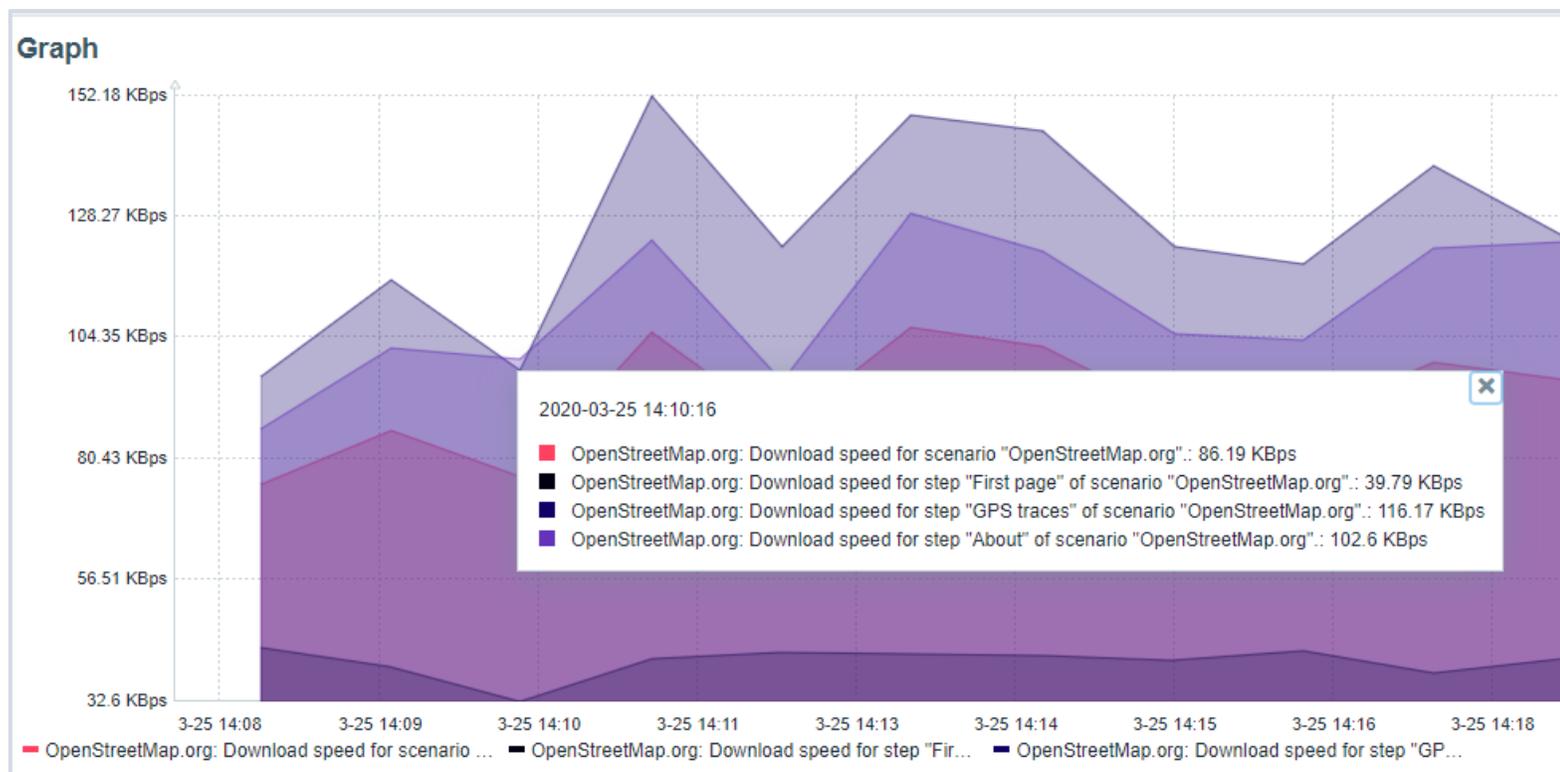
Ability to select what values will be displayed for Trend graphs:

- › avg - display the average values
- › last - display the latest values
- › max - display the maximum values
- › min - display the minimum values
- › all - display all possible values



# CUSTOM GRAPHS (NEW)

- ▶ In version 4.0 the graph widget was updated to use redesigned new graphs!
- ▶ Legacy graph widget has been renamed to Graph (classic)



## Data visualization with zabbix

# CUSTOM GRAPHS (NEW)

- ▶ Uses vector image file format
- ▶ Displaying of values is based on Data sets, which are comprised of hosts and items
- ▶ Wildcard use is supported when referencing hosts/items!

■ Zabbix server: Zabbix configuration cache, % u... 
 ■ Zabbix server: Zabbix history index cache, % us... 
 ■ Zabbix server: Zabbix history write cache, % used

Data set    Displaying options    Time period    Axes    Legend    Problems    Overrides

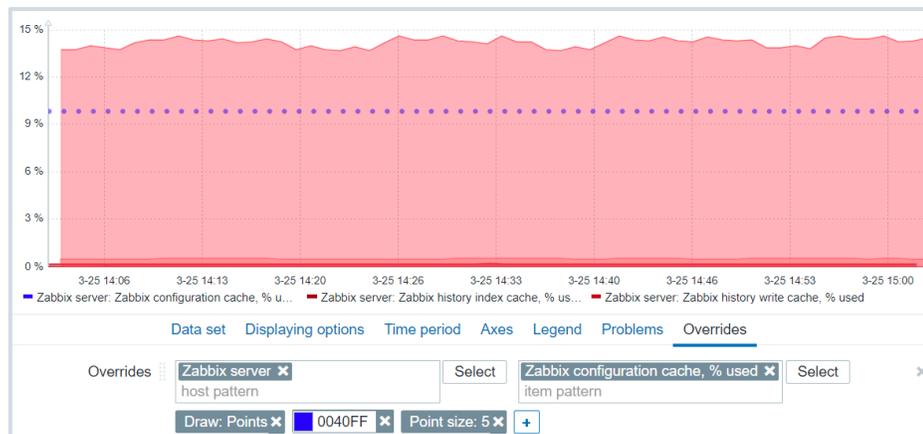
Data set: ■     

host pattern    item pattern

Base colour: ■ FF465C

Missing data:        

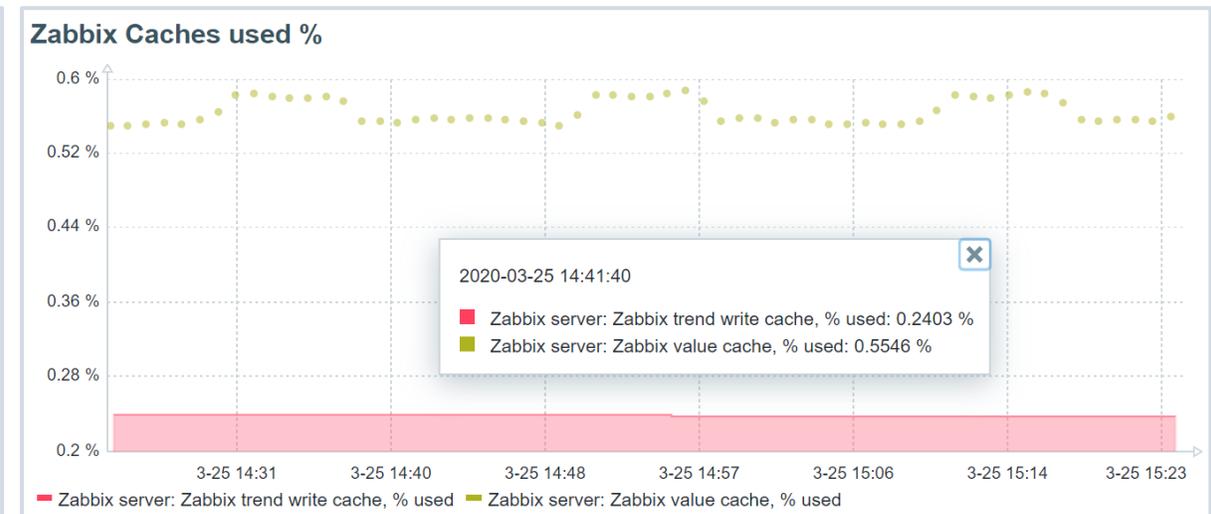
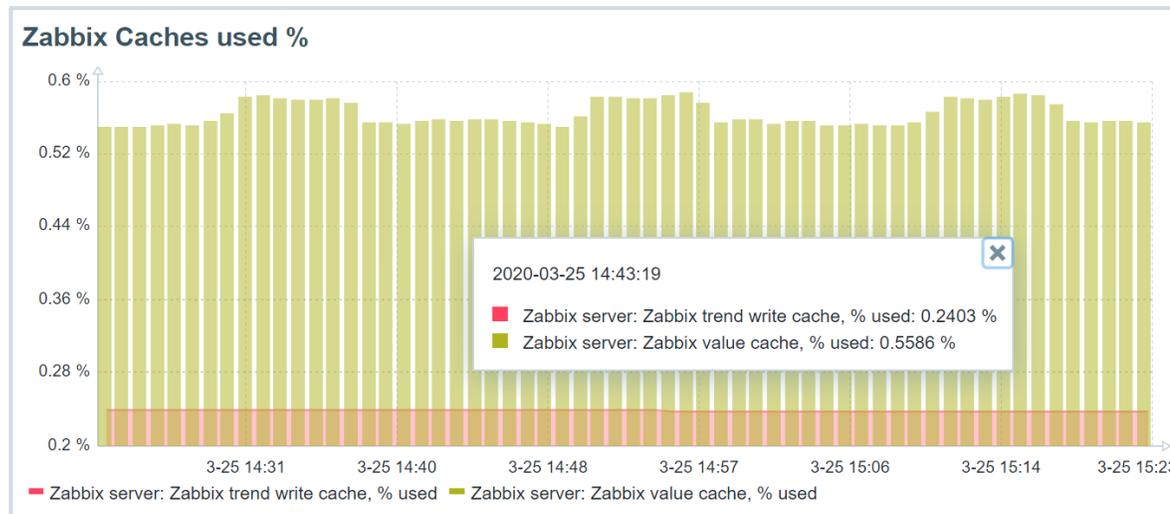
- ▶ Parameters of a Data set element can be overridden in the “ Overrides ” section



# CUSTOM GRAPHS (NEW)

The following graph types are supported for the New graph:

- ▶ Line
- ▶ Points
- ▶ Staircase
- ▶ Bar



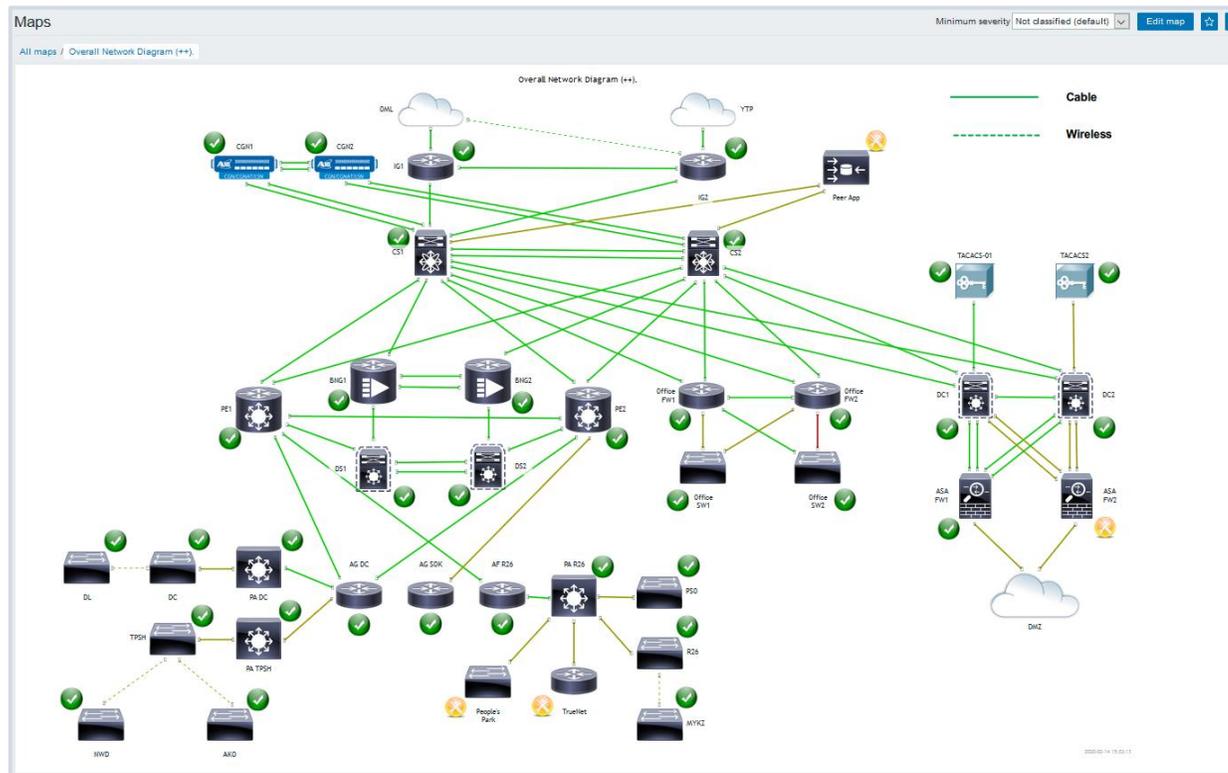
3

Maps



## Data visualization with zabbix

# MAPS



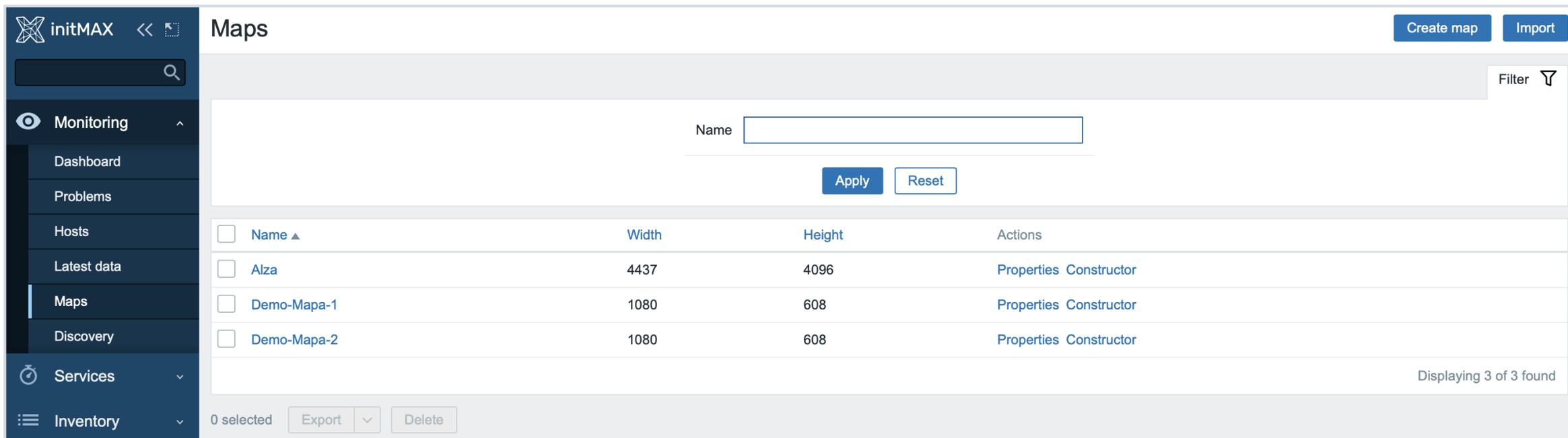
### A Map is a graphical representation of data

- ▶ Real-time data can be shown (e.g. CPU load, bandwidth, etc.)
- ▶ If some event occurs, icon status or link color on the map is changed automatically
- ▶ Access to scripts, as well as links to other pages

## Data visualization with zabbix

# MAPS

- › Configuration for the entities is available under Monitoring
- › All users in Zabbix (including non-admin users) can create network maps



The screenshot shows the Zabbix web interface for managing network maps. On the left is a dark sidebar with navigation options: Monitoring (selected), Dashboard, Problems, Hosts, Latest data, Maps, Discovery, Services, and Inventory. The main content area is titled 'Maps' and includes a search bar, a 'Filter' button, and a 'Name' input field with 'Apply' and 'Reset' buttons. Below this is a table listing three maps: 'Alza', 'Demo-Mapa-1', and 'Demo-Mapa-2'. Each row shows a checkbox, the map name, width, height, and actions (Properties, Constructor). At the bottom, it indicates '0 selected' and provides 'Export' and 'Delete' buttons. The status 'Displaying 3 of 3 found' is shown in the bottom right.

<input type="checkbox"/>	Name ▲	Width	Height	Actions
<input type="checkbox"/>	Alza	4437	4096	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/>	Demo-Mapa-1	1080	608	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/>	Demo-Mapa-2	1080	608	<a href="#">Properties</a> <a href="#">Constructor</a>

## Data visualization with zabbix

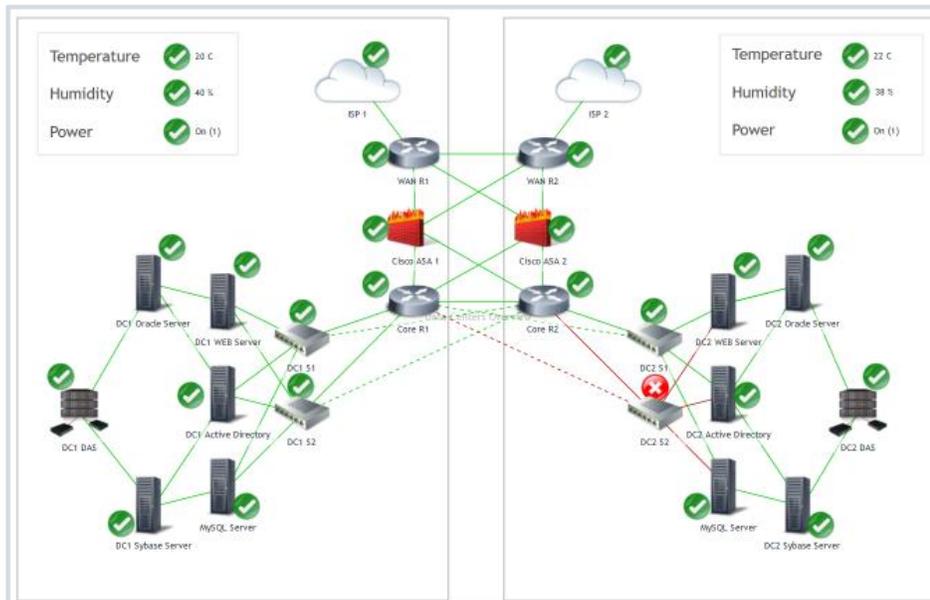
# MAPS

Map properties:

- Name, dimensions
- Background image
- Icon highlighting
- Icon label type and location
- Icon mapping
- Min. trigger severity
- URLs

Map elements:

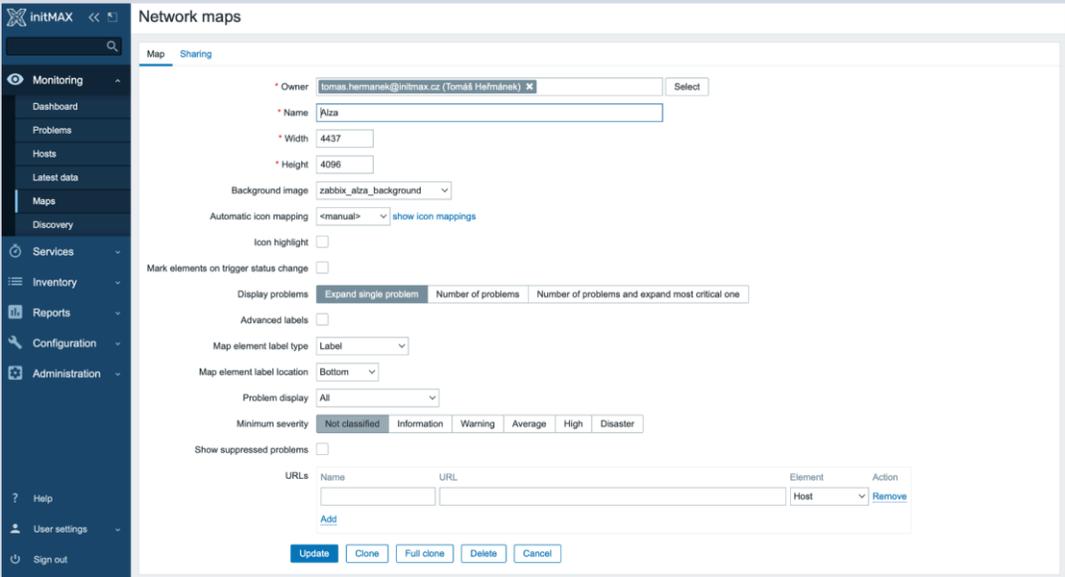
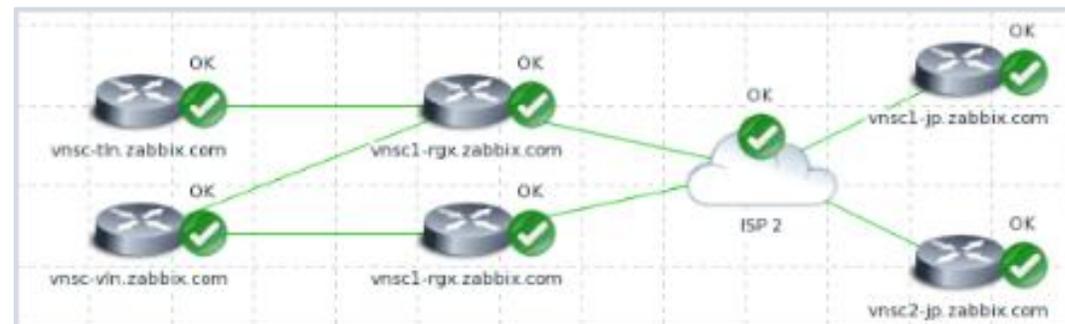
- Image
- Trigger
- Host
- Host group
- Map
- Shape



## Data visualization with zabbix

# MAPS

- › Different icons for different states
- › Custom URLs & labels
- › Drag and drop editing
- › Moving and copy-pasting
- › Icon alignment, macro expanding
- › Map links with labels and different styles
- › Macros in labels for elements and links

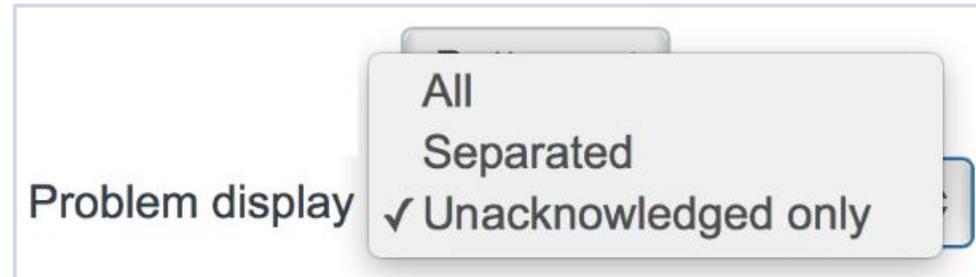



## Data visualization with zabbix

# MAPS

	None	Highlight	Mark	Don't expand	All
OK	 <p>WIN-B5768P0N4TA OK</p>	 <p>WIN-B5768P0N4TA OK</p>	 <p>WIN-B5768P0N4TA OK</p>	 <p>WIN-B5768P0N4TA OK</p>	 <p>WIN-B5768P0N4TA OK</p>
Disabled	 <p>WIN-B5768P0N4TA DISABLED</p>	 <p>WIN-B5768P0N4TA DISABLED</p>	 <p>WIN-B5768P0N4TA DISABLED</p>	 <p>WIN-B5768P0N4TA DISABLED</p>	 <p>WIN-B5768P0N4TA DISABLED</p>
Problem	 <p>WIN-B5768P0N4TA Tomcat is Down</p>	 <p>WIN-B5768P0N4TA Tomcat is Down</p>	 <p>WIN-B5768P0N4TA Tomcat is Down</p>	 <p>WIN-B5768P0N4TA 1 Problem</p>	 <p>WIN-B5768P0N4TA 1 Problem</p>
Recent problem	 <p>WIN-B5768P0N4TA Tomcat is Down</p>	 <p>WIN-B5768P0N4TA Tomcat is Down</p>	 <p>WIN-B5768P0N4TA Tomcat is Down</p>	 <p>WIN-B5768P0N4TA 1 Problem</p>	 <p>WIN-B5768P0N4TA 1 Problem</p>

# MAPS - ACKNOWLEDGE Status



WIN-BS768P0N4TA  
6 Problems



WIN-BS768P0N4TA  
5 Unacknowledged



WIN-BS768P0N4TA  
6 Problems  
5 Unacknowledged

# MAPS - Icons

## Icons are used to represent map elements:

- ▶ Host - icon representing status of all triggers of the host
  - ▶ Map - icon representing status of all elements of a map
  - ▶ Trigger - icon representing status of one or more triggers
  - ▶ Host group - icon representing status of all triggers of all hosts belonging to the selected group or host group elements
  - ▶ Image - an icon, not linked to any resource
- ▶ To add an element to map user must have at least read permission
  - ▶ Map elements that user does not have read permission to are displayed with a greyed-out icon

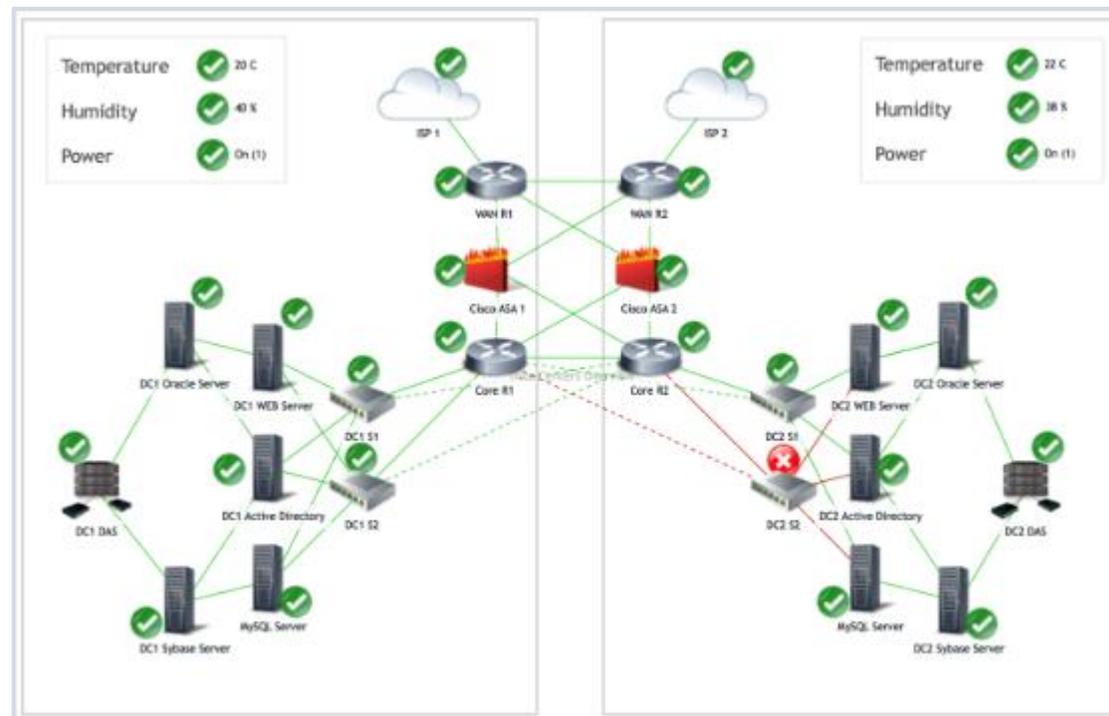


Data visualization with zabbix

# MAPS - Shapes

In addition to icons, it is also possible to add shapes

- › Shapes are just a visual representation
- › For example, a rectangle shape can be used as a background to group some hosts

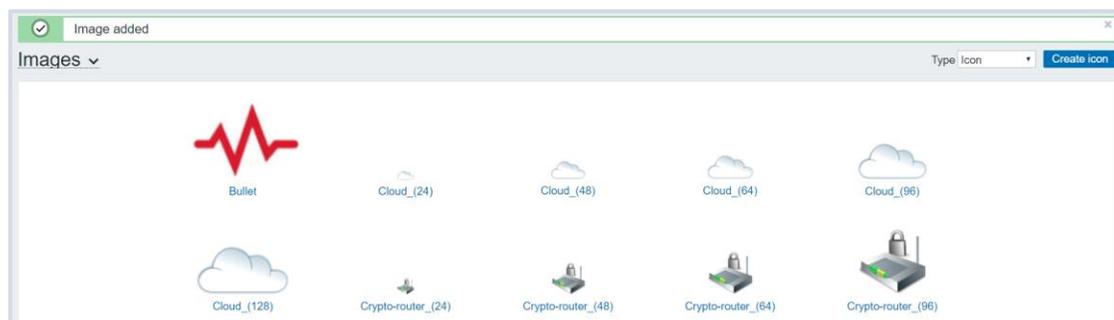


## Data visualization with zabbix

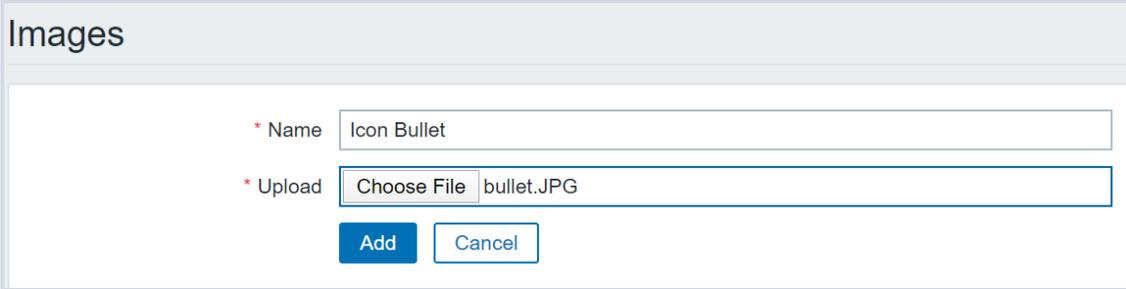
# MAPS - CUSTOM ICONS AND BACKGROUNDS

You can upload your own custom icons/backgrounds in the Administration – General – Images section!

- ▶ Select the Type of the image that you wish to upload



- ▶ Upload the image



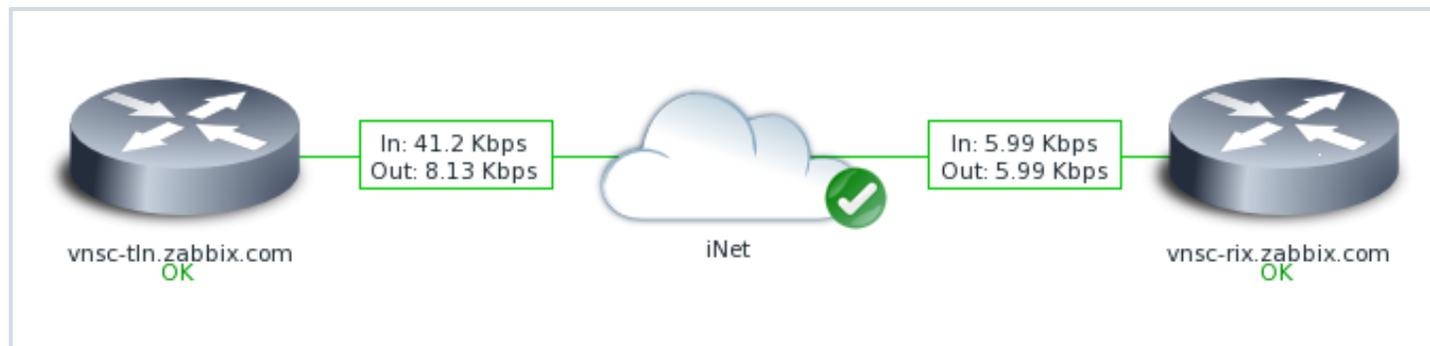
Images

\* Name

\* Upload

# MAPS - HINTS

- ▶ You can define map hierarchy by using submaps
- ▶ To display data on Elements or links, use map labels, ex: `{?last(/{HOST.HOST}/system.cpu.load)}` or `{?last(/WiFi/net.if.out[ifHCOutOctets.1])}`
- ▶ If links are the same color as the background, they will appear only when a problem is active!
- ▶ Use macros in URL's: `{$HOST.CONN}`, `{$HOST.IP}`, `{$HOST.DNS}`
- ▶ By default the links are a straight line - route links by using invisible icons or shapes
- ▶ Use icon mappings to assign icons to matching hosts automatically



# Zabbix 7.4 Map Enhancements

- › Auto-hide labels
  - › element/link labels displayed only when they are hovered on or selected
- › Proportional scaling of background images
  - › possibility to proportionally scale background images to fit the map size
- › Element ordering
  - › bring one element in front of the other (or vice versa) by clicking on the element with the right mouse button
- › Link indicators based on item value
  - › It is possible to have link style and color adjusted if an item value:
    - › reaches a defined threshold (for numeric items);
    - › matches a regular expression (for text items).

4

Icon Mapping



# Icon Mapping

## Map elements can have different icons assigned to them

- › It is possible to map Icons to host elements automatically by using icon mapping
- › Icon mapping is based on Host inventory values
- › Icon map has to be defined in Administration – Icon mapping
- › The specific Icon map has to be selected in the map Properties section

### Maps

Name

<input type="checkbox"/> Name ▲	Width	Height	Actions
<input type="checkbox"/> Local network	680	200	<a href="#">Properties</a> <a href="#">Constructor</a>

### Network maps

Map [Sharing](#)

\* Owner

\* Name

\* Width

\* Height

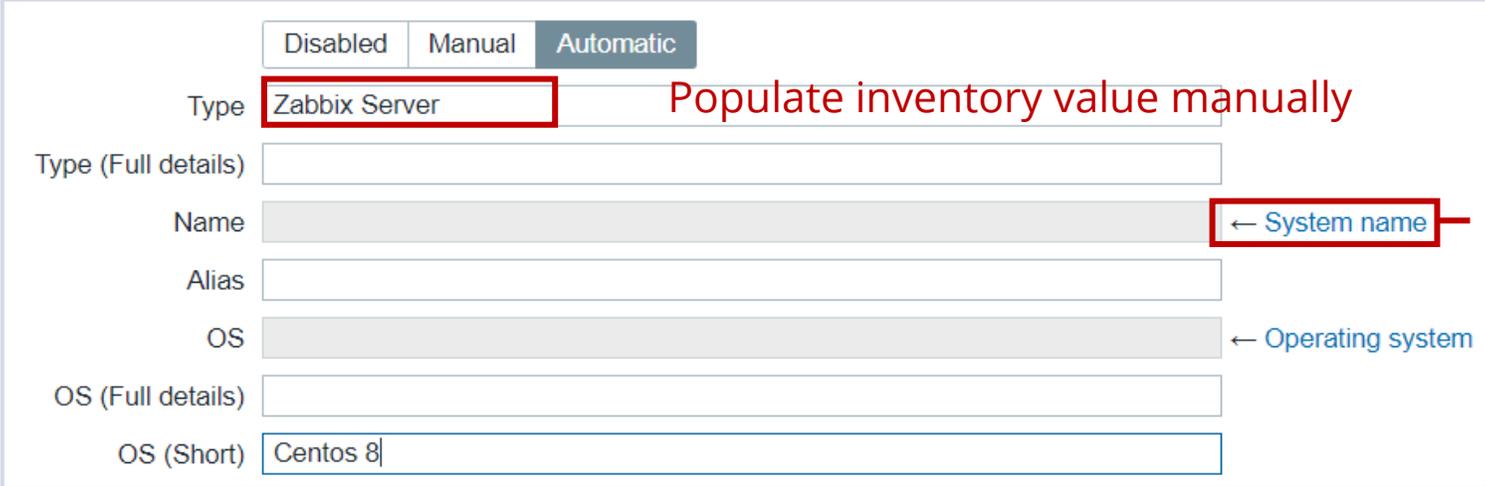
Background image

Automatic icon mapping  [show icon mappings](#)

## Data visualization with zabbix

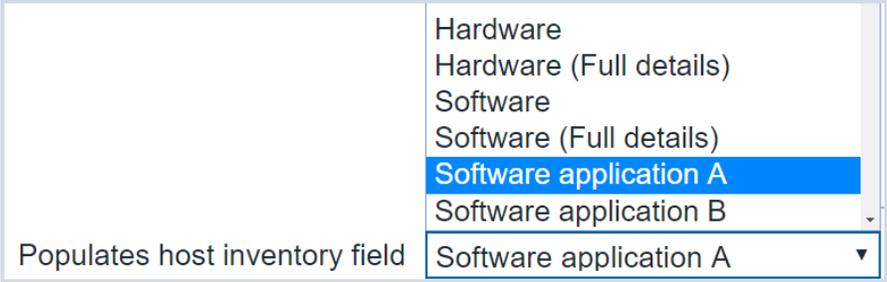
# Icon Mapping

- ▶ You can use host inventory to either populate the inventory values manually or automatically



The screenshot shows the Zabbix host configuration form with the 'Automatic' mode selected. The 'Type' field is set to 'Zabbix Server' and is highlighted with a red box, with a red arrow pointing to it from the text 'Populate inventory value manually'. The 'Name' field is highlighted with a red box, with a red arrow pointing to it from the text 'Populate inventory value from item'. The 'OS' field is highlighted with a red box, with a blue arrow pointing to it from the text '← Operating system'. The 'OS (Short)' field contains the text 'Centos 8'.

- ▶ In Automatic mode, the inventory values are obtained from any item on the host



The screenshot shows the 'Populates host inventory field' dropdown menu. The menu is open, showing a list of options: Hardware, Hardware (Full details), Software, Software (Full details), Software application A (highlighted in blue), Software application B, and Software application A. The dropdown arrow is pointing to the right.

## Data visualization with zabbix

# Icon Mapping

### › Create the Icon map

\* Name

\* Mappings

	Inventory field	Expression	Icon	Action
1:	Type	Linux Server	Server (64)	 <a href="#">Remove</a>
2:	Type	Windows Host	Notebook (64)	 <a href="#">Remove</a>
3:	Type	Zabbix Host	Workstation (64)	 <a href="#">Remove</a>

### › Assign the icon map to your map

### › Select “Automatic icon selection” on your host element

Automatic icon selection

Icons

Default	<input type="text" value="Zabbix server 3D (128)"/>
Problem	<input type="text" value="Default"/>
Maintenance	<input type="text" value="Default"/>
Disabled	<input type="text" value="Default"/>

### › If the “Automatic icon selection” is greyed out, make sure that the icon map is assigned in the map properties section!

# 5

## Dashboards and Widgets



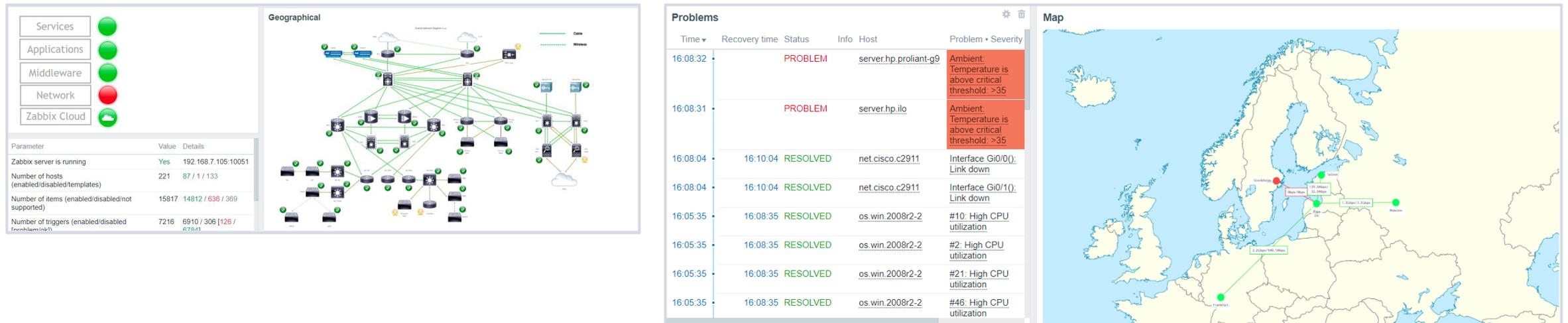
## Data visualization with zabbix

# Dashboards

**Zabbix Dashboard is your central points of monitoring.**

You can have a wide variety of different dashboards for different user groups:

- ▶ A dashboard for your networking team
- ▶ An infrastructure overview dashboard based on your Zabbix maps
- ▶ A dashboard displaying live statistics of your business, e.g: website traffic
- ▶ And much, much more!





# Widgets 7.0

## Dashboards consist of widgets.

› Widgets can represent data related to wide variety of different Zabbix elements:

- › Action log
- › Clock
- › Data overview (deprecated)
- › Discovery status
- › Favorite graphs
- › Favorite maps
- › Gauge
- › Geomap
- › Graph
- › Graph (classic)
- › Graph prototype
- › Honeycomb
- › Host availability
- › Host navigator
- › Item history
- › Item navigator
- › Item value
- › Map
- › Map navigation tree
- › Pie chart
- › Problem hosts
- › Problems
- › Problems by severity
- › SLA report
- › System information
- › Top hosts
- › Top triggers
- › Trigger overview
- › URL
- › Web monitoring

# Widgets

Most of the widgets can be filtered by hosts, host groups, items, triggers and customized in other ways:

**Edit widget**

Type:  Show header

Name:

Refresh interval:

Show:

Host groups:    
type here to search

Exclude host groups:

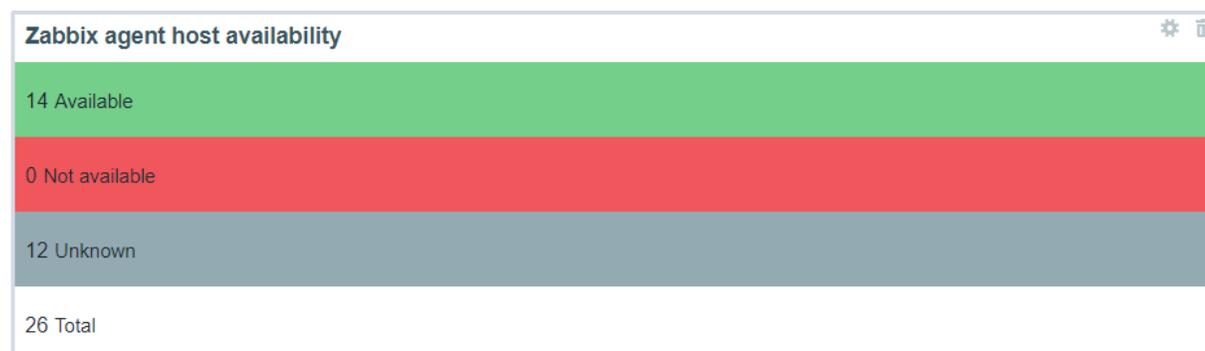
Hosts:

Problem:

Severity:  Not classified  
 Information  
 Warning  
 Average  
 High  
 Disaster

Tags:

[Remove](#)



## Widgets

Some widgets are interactive. For example, you can use a Map navigation tree widget to switch between maps:

### Maps Tree

All dashboards / Maps Tree

#### Map navigation tree

- Europe 1 1 2
- Overall Network Diagram (++)
- Network (+)
- Data Centers Overview (+) 1 1 2
- SF\_net (++)
- Vn Industrial CCTV (++)

#### Map

Temperature 72F

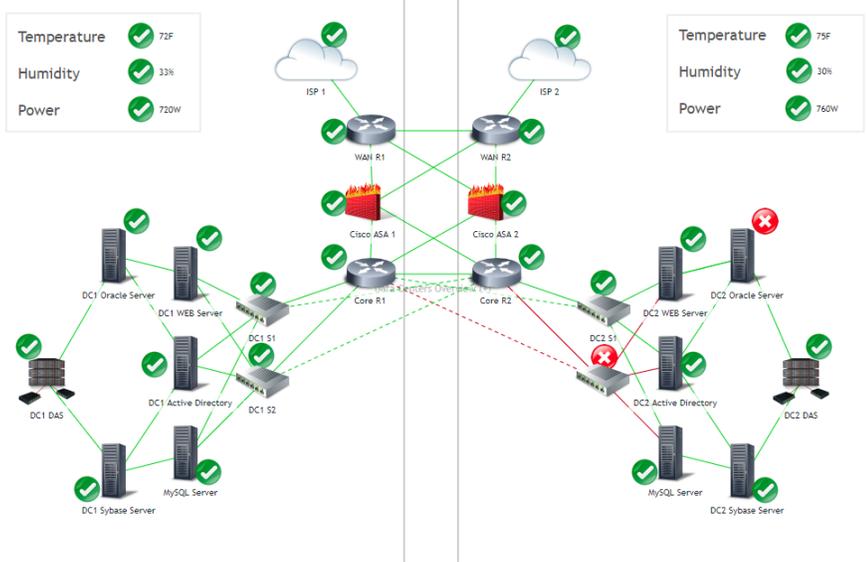
Humidity 33%

Power 720W

Temperature 75F

Humidity 30%

Power 760W



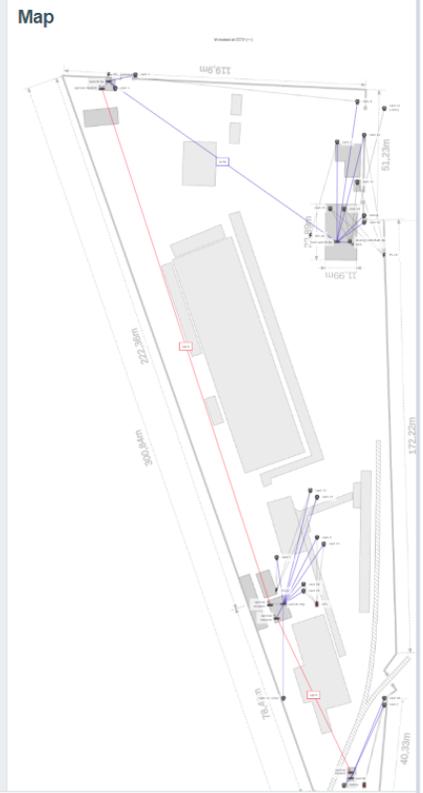
### Maps Tree

All dashboards / Maps Tree

#### Map navigation tree

- Europe 1 1 2
- Overall Network Diagram (++)
- Network (+)
- Data Centers Overview (+) 1 1 2
- SF\_net (++)
- Vn Industrial CCTV (++)

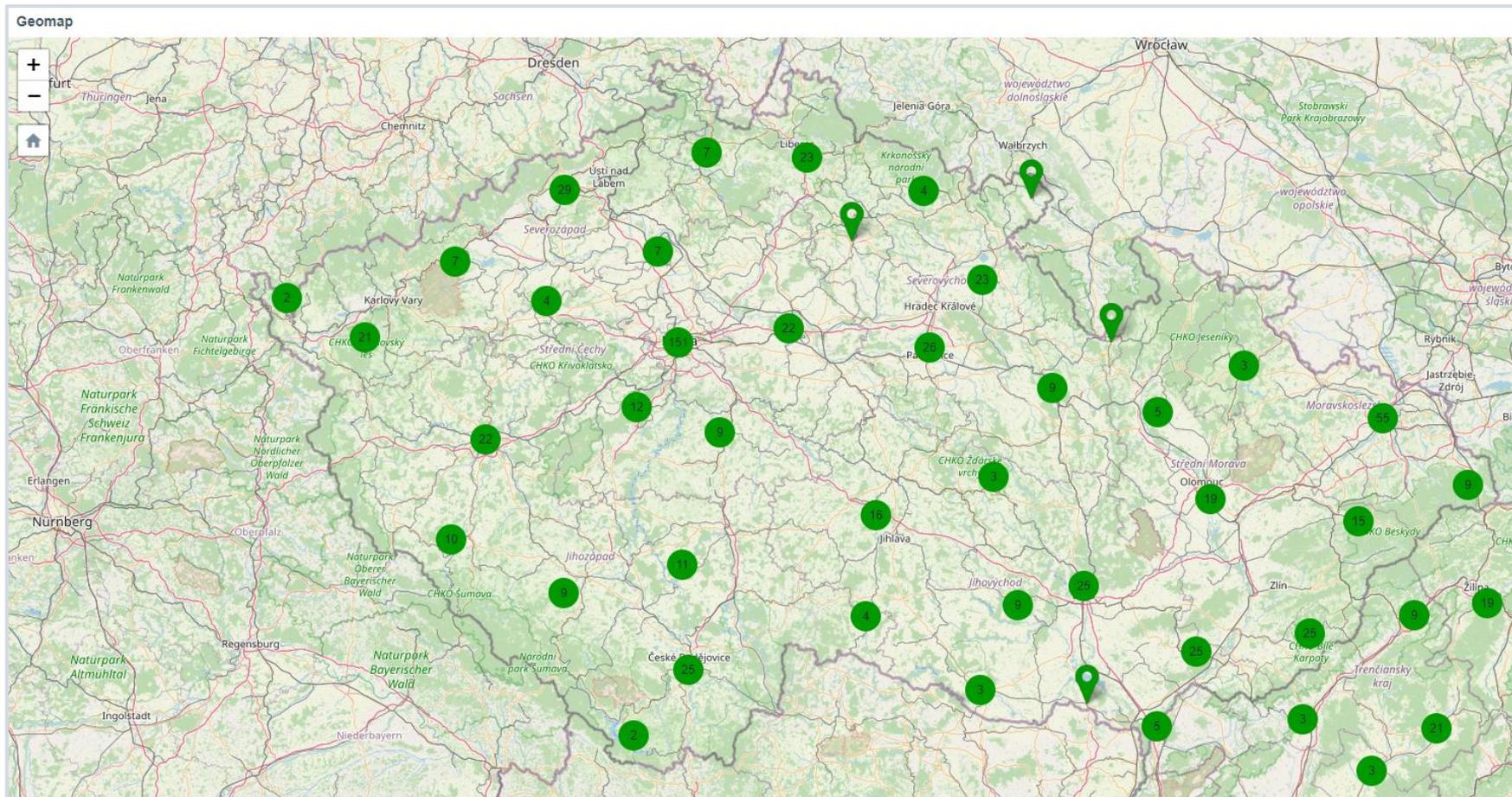
#### Map



Data visualization with zabbix

# Widgets - Geomap

The Geomap widget allows you to display your hosts and problems on a geographical map



# Widgets – Top Hosts

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

Host Name	CPU	Available MEM	disk /	MEM Util%	Agent		
Rocky01	1.4792 %		14.7753 %		19.7533 %	85.2247 %	Up (1)
RockyDB	0.651 %		67.6285 %		27.1268 %	32.3715 %	Up (1)
Rocky02	0.09176 %		73.0975 %		17.9863 %	26.9026 %	Up (1)

Host	CPU	CPU BAR	MEM	Disk /	Zabbix Agent		
Server_0009.DEMO	21.1398 %		21.1398 %		32.1901 %		25.916 %
Server_0002.DEMO	20.9575 %		20.9575 %		32.24 %		25.916 %
Server_0007.DEMO	20.834 %		20.834 %		32.1861 %		25.916 %
Server_0004.DEMO	20.4971 %		20.4971 %		32.1869 %		25.916 %

**Edit widget** ✕

Type: Top hosts Show header

Name:

Refresh interval: Default (1 minute)

Host groups: Zabbix servers ✕ Select

Hosts:  Select

Host tags: And/Or Or

Contains  Remove

[Add](#)

Name	Data	Action
Host Name	Host name	<a href="#">Edit</a> <a href="#">Remove</a>
CPU	CPU user time	<a href="#">Edit</a> <a href="#">Remove</a>
Available MEM	Available memory in %	<a href="#">Edit</a> <a href="#">Remove</a>
disk /	/: Space utilization	<a href="#">Edit</a> <a href="#">Remove</a>
MEM Util%	Memory utilization	<a href="#">Edit</a> <a href="#">Remove</a>
Agent	Zabbix agent ping	<a href="#">Edit</a> <a href="#">Remove</a>

[Add](#)

Order: Top N Bottom N

\* Order column: MEM Util%

\* Host count:

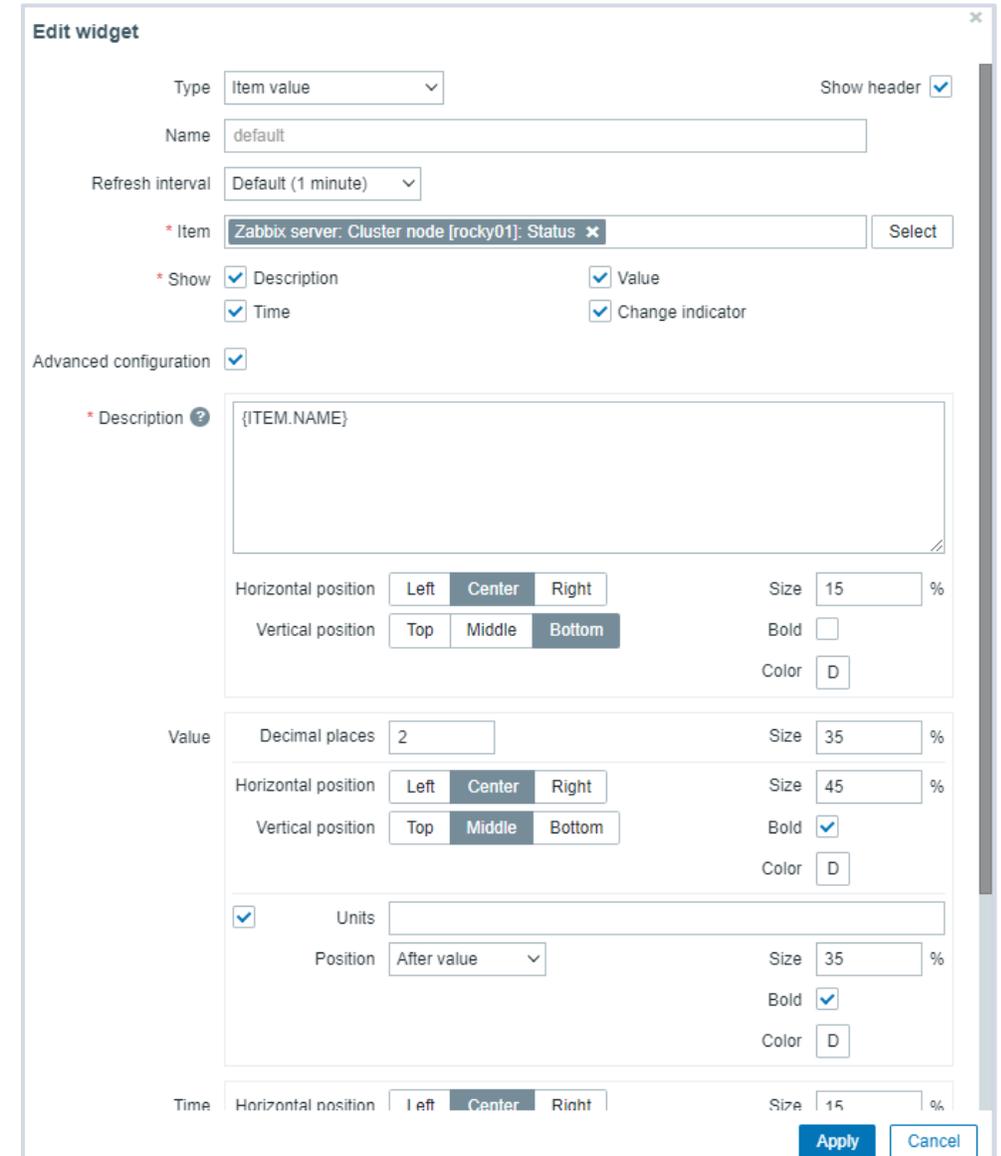
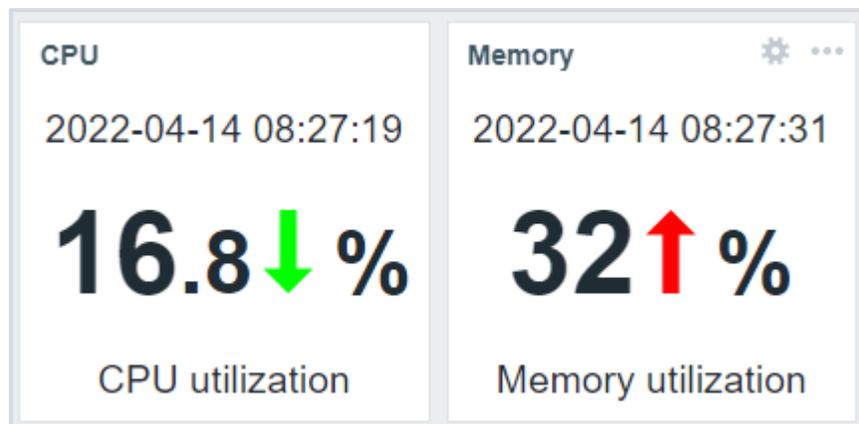
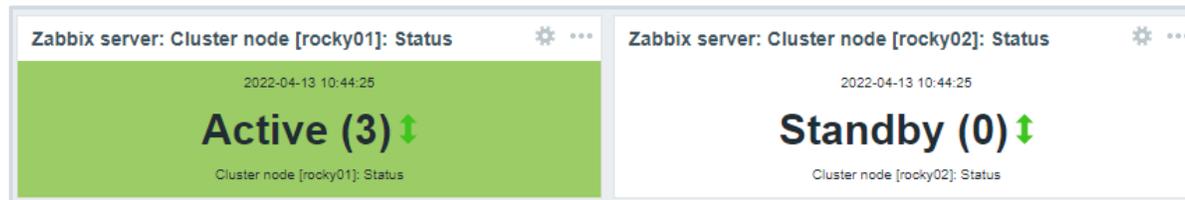
Apply Cancel

## Data visualization with zabbix

# Widgets – Item value

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

- ▶ Can be used in template dashboard



The "Edit widget" configuration window in Zabbix. It shows the following settings:

- Type: Item value
- Show header:
- Name: default
- Refresh interval: Default (1 minute)
- \* Item: Zabbix server: Cluster node [rocky01]: Status
- \* Show:  Description,  Value,  Time,  Change indicator
- Advanced configuration:
- \* Description: `{ITEM.NAME}`
- Horizontal position: Center, Vertical position: Bottom, Size: 15%, Bold: , Color: D
- Value: Decimal places: 2, Horizontal position: Center, Vertical position: Middle, Size: 35%, Bold: , Color: D
- Units:  Position: After value, Size: 35%, Bold: , Color: D
- Time: Horizontal position: Center, Size: 15%

Buttons: Apply, Cancel

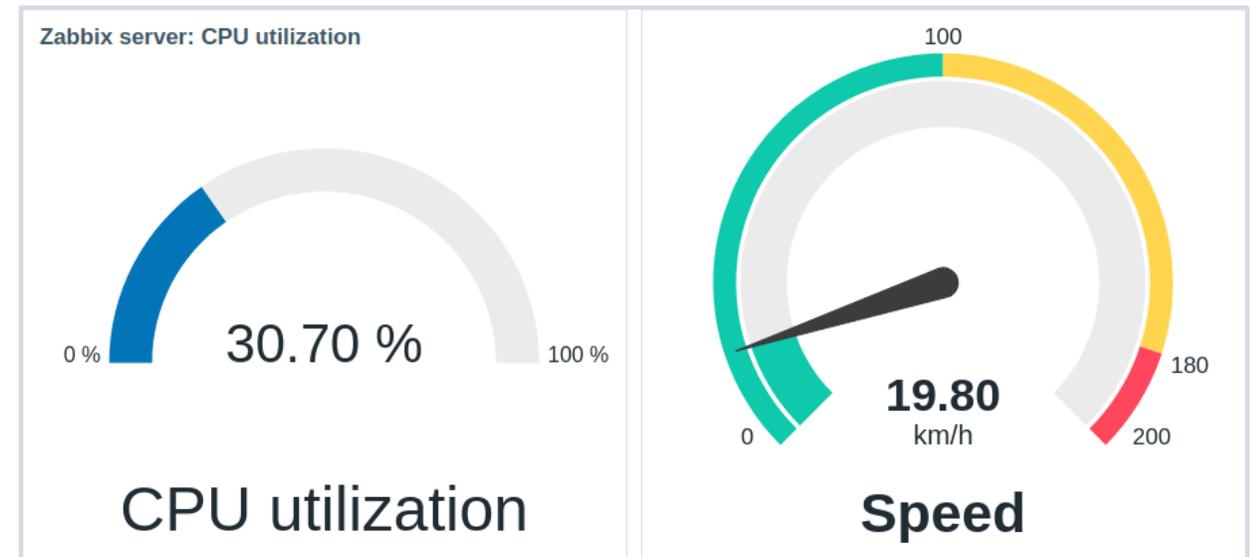
# Gauge

The gauge widget displays the value of a single item as a gauge.

When configured, the widget can consist of the following elements:

- › Item description
- › Item value
- › Item value units
- › Gauge scale
- › Gauge arc
- › Gauge needle

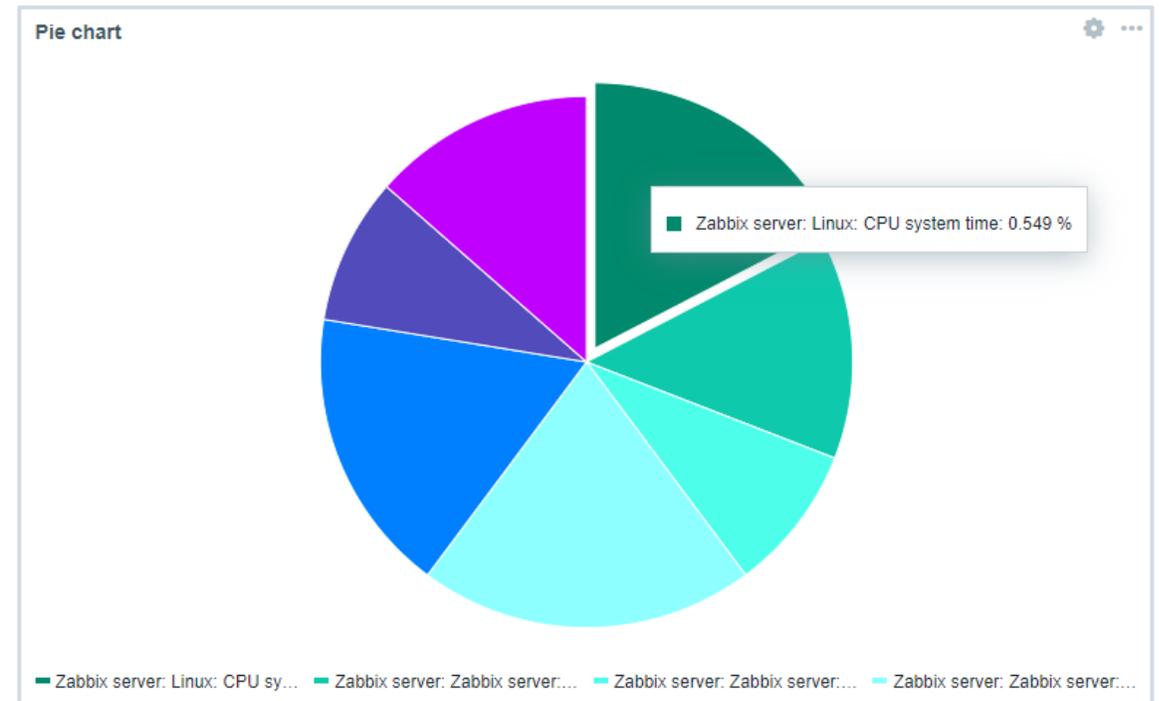
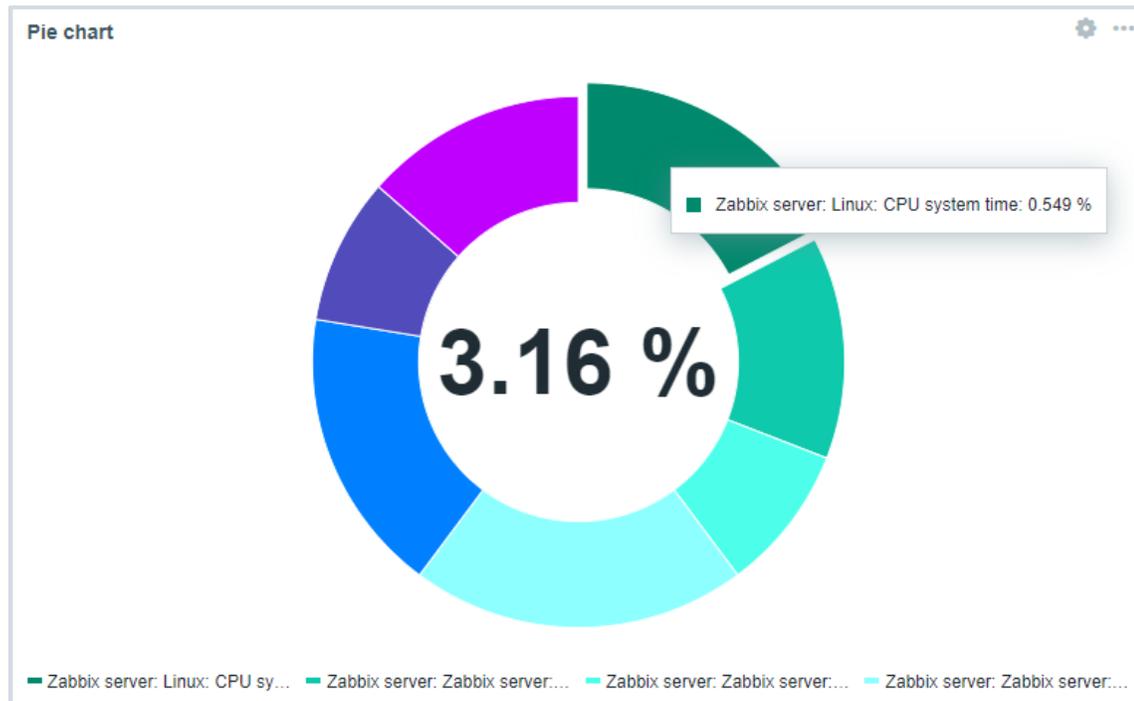
The widget can be visually fine-tuned using the advanced configuration options to create a wide variety of visual styles.



# Pie chart

The pie chart widget allows to display values of selected items as a pie or doughnut chart.

- ▶ On mouseover, the focused sector pops out and the legend for this sector is displayed. Clicking on the focused sector makes the pop-out effect permanent, until closed with "x".

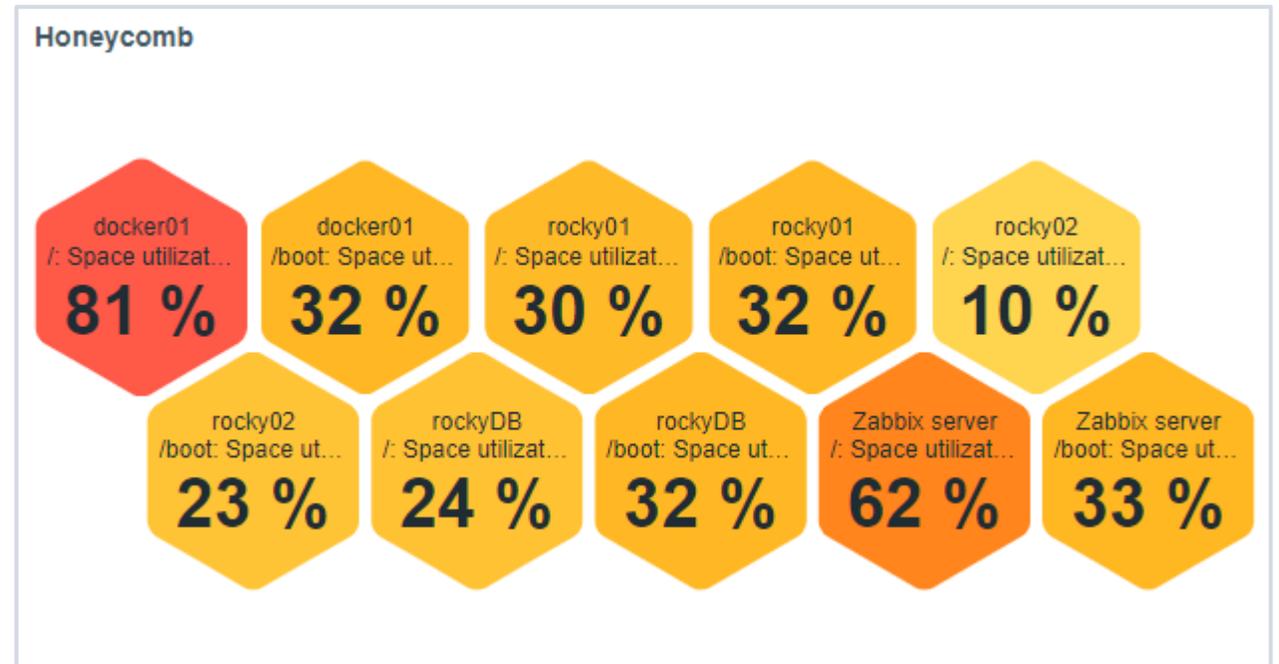


# Honeycomb

The gauge widget displays the value of a single item as a gauge.

- ▶ Host view
- ▶ Item view

Used for inter widget communication.



# Top Triggers

In the Top triggers widget, you can see the triggers with the highest number of problems.

- ▶ The maximum number of triggers that can be shown is 100. When viewing the widget on a dashboard, it is possible to select the time period for displaying the data.
- ▶ The information on top triggers is also available in the Reports → Top 100 triggers menu section.

Top triggers			
Host	Trigger	Severity	Number of problems
<a href="#">Zabbix server</a>	<a href="#">/: Disk space is low</a>	Warning	4
<a href="#">rocky02</a>	<a href="#">Linux: Zabbix agent is not available</a>	Average	1
<a href="#">docker01</a>	<a href="#">/: Disk space is low</a>	Warning	1
<a href="#">Zabbix server</a>	<a href="#">/boot: Disk space is low</a>	Warning	1
<a href="#">Zabbix server</a>	<a href="#">Linux: Number of installed packages has been changed</a>	Warning	1

# Inter Widget communication

## Communication framework for widgets

- ▶ Dashboard widgets can now connect and communicate with each other, making widgets and dashboards more dynamic.

▼ Advanced configuration

Override host  Select ▼

Apply Cancel

# Inter Widget communication

**How to check widget for inter widget communication capabilities?**

## Manifest.json

- ▶ Types of inter-widget communication.

```
"widget": {  
    "js_class": "CWidgetTopHosts",  
    "in": {  
        "hostids": {  
            "type": "_hostids"  
        },  
        "groupids": {  
            "type": "_hostgroupids"  
        }  
    },  
    "out": [  
        {  
            "type": "_hostid"  
        },  
        {  
            "type": "_hostids"  
        }  
    ]  
},
```

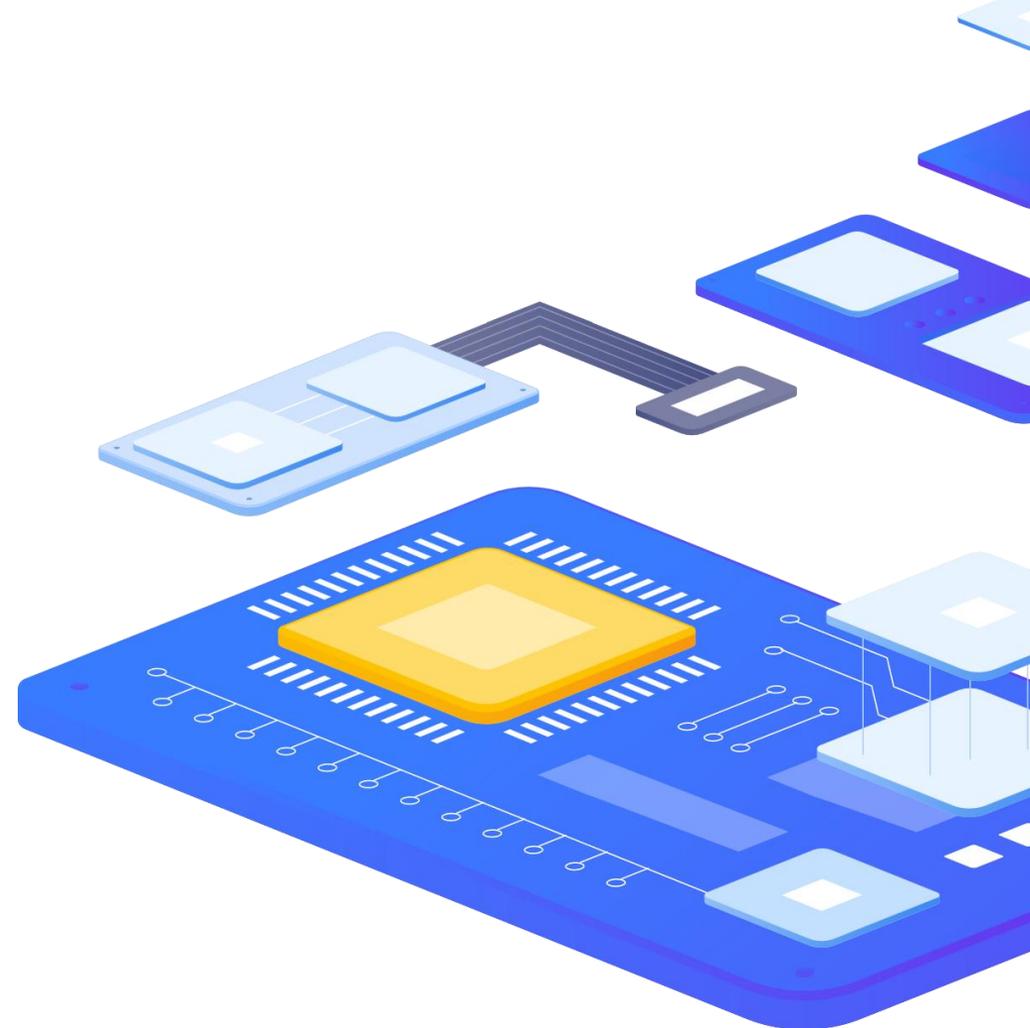
# Widgets 7.x

## 7.2

- ▶ Top items
- ▶ Host card
- ▶ Sparkline graphs in widgets

## 7.4

- ▶ Item card
- ▶ Item history - scrolling position will now be bottom
- ▶ Real-time widget editing



# Top items widget

Data overview widget has been converted to Top items widget

- ▶ Display item values in a table by using host and item filtering
- ▶ Top items widget allows for a fine-grained item selection using item patterns
- ▶ Configurable host and item ordering logic
- ▶ Configurable item ordering logic

## Data visualization with zabbix

# Top items widget

initMAX
Top Items
Edit dashboard

**Host navigator**

- ▼ Zabbix servers 3 1 1 1
- ▼ Server 1 1 1
- ▼ Disaster 1
- Zabbix server 1 1
- ▼ Warning 1
- Zabbix server 1 1
- ▼ Server 2 1
- ▼ Information 1
- Zabbix server 2 1
- ▼ Server 3 1
- ▼ Disaster 1
- Zabbix server 3 1
- ▼ Server 4 1
- ▼ Average 1
- Zabbix server 4 1
- ▼ Server 5 1
- ▶ Disaster 1

**Top items**

Hosts	Interface virbr0: Bits sent	Interface virbr0: Bits recei...	Interface ens192: Bits rec...	Interface ens192: Bits sent
Zabbix server	0.00 bps	0.00 bps	11.69 Kbps	291.51 Kbps

**Top items**

Items	Zabbix server
Interface ens192: Bits sent	291.51 Kbps
Interface ens192: Bits received	11.69 Kbps
Interface virbr0: Bits received	0.00 bps
Interface virbr0: Bits sent	0.00 bps

# Top items widget

### Edit widget ✕

Type  Show header

Name

Refresh interval

Host groups  Select

Hosts  Select

Host tags

[Remove](#)

[Add](#)

Layout

Show problems

\* Items

Patterns	Actions
<input type="text" value="*"/>	<a href="#">Edit</a> <a href="#">Remove</a>

[Add](#)

[Advanced configuration](#)

# Top items widget

### Update column

\* Item patterns    
patterns

Item tags

[Add](#)

Base color

Display value as

Display

Sparkline

Width   Color

Fill

Time period

\* From

\* To

History data

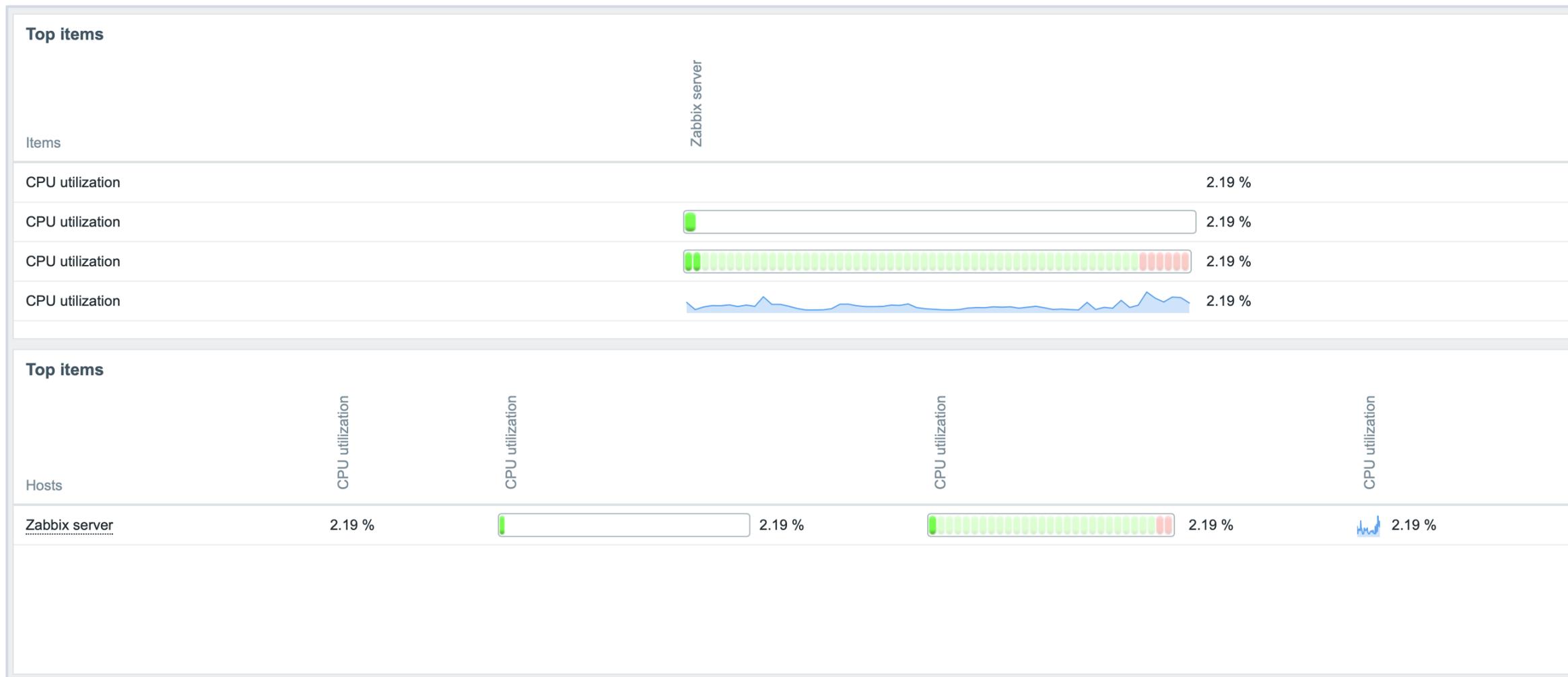
Thresholds   
[Add](#)

Decimal places

[Advanced configuration](#)

## Data visualization with zabbix

# Top items widget



# Sparkline chart

Sparkline charts – quick and simple way to visualize your data

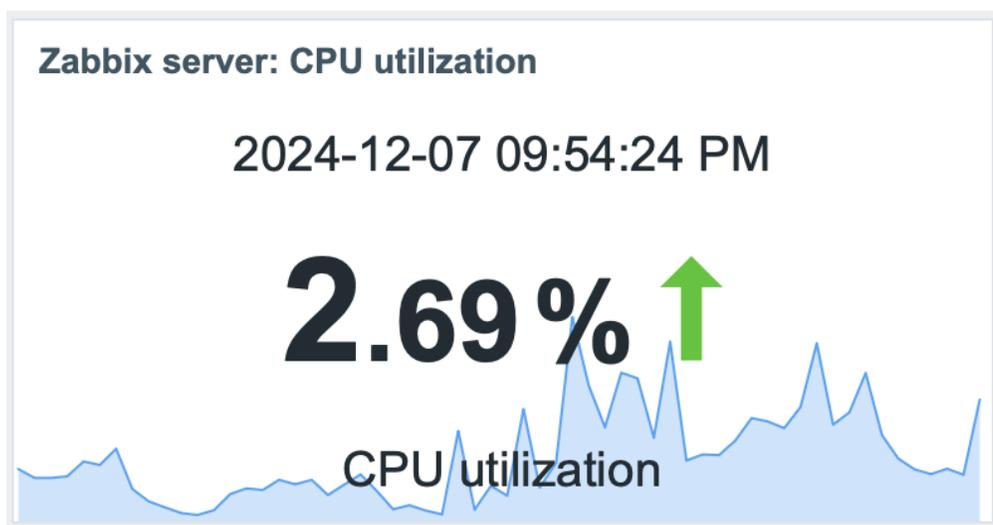
- ▶ Displayed in existing widgets
- ▶ Provides additional context for your data
- ▶ Not a full-fledged analytical solution

Sparkline charts can be enabled in **Item value** , **Top hosts** and **Top items widgets**

## Data visualization with zabbix

# Sparkline chart

Host name	CPU utilization - As is	CPU utilization - Bar	CPU utilization - Indicators	CPU utilization - Sparkline
Zabbix server	2.52 %	<input type="text" value="2.52 %"/>	<input type="text" value="2.52 %"/>	 2.52 %
Zabbix server 2	2.52 %	<input type="text" value="2.52 %"/>	<input type="text" value="2.52 %"/>	 2.52 %
Zabbix server 3	2.49 %	<input type="text" value="2.49 %"/>	<input type="text" value="2.49 %"/>	 2.49 %
Zabbix server 4	2.52 %	<input type="text" value="2.52 %"/>	<input type="text" value="2.52 %"/>	 2.52 %
Zabbix server 5	2.52 %	<input type="text" value="2.52 %"/>	<input type="text" value="2.52 %"/>	 2.52 %



Display item value as  Numeric  Text  Binary

Display  As is  Bar  Indicators  Sparkline

Sparkline

Width   Color

Fill

Time period  Dashboard  Widget  Custom

History data  Auto  History  Trends

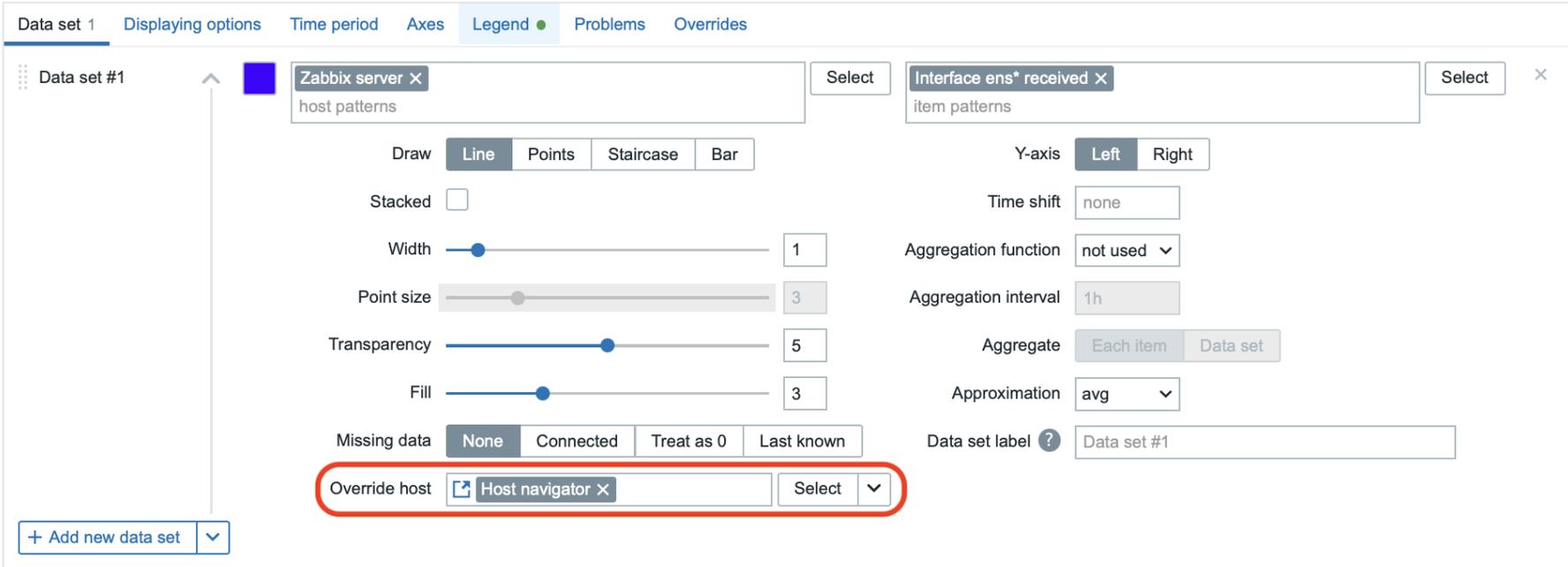
Thresholds   
[Add](#)

Decimal places

# Host Override in the Graph Widget

This functionality allows you to connect the Graph widget with:

- ▶ Host Navigator
- ▶ Honeycomb Widget
- ▶ Item Navigator



The screenshot displays the configuration interface for a Zabbix Graph widget, specifically the 'Overrides' tab. The interface includes several tabs: 'Data set #1', 'Displaying options', 'Time period', 'Axes', 'Legend', 'Problems', and 'Overrides'. The 'Overrides' tab is active, showing two data series configurations. The first series is 'Zabbix server' (host patterns) and the second is 'Interface ens\* received' (item patterns). The 'Zabbix server' series is configured with 'Line' drawing, 'Left' Y-axis, and various styling options. The 'Interface ens\* received' series is configured with 'Line' drawing, 'Left' Y-axis, and various styling options. The 'Override host' field is highlighted with a red border and contains the value 'Host navigator', indicating that the graph data is being overridden by the Host Navigator widget.

# Host Override in the Graph Widget

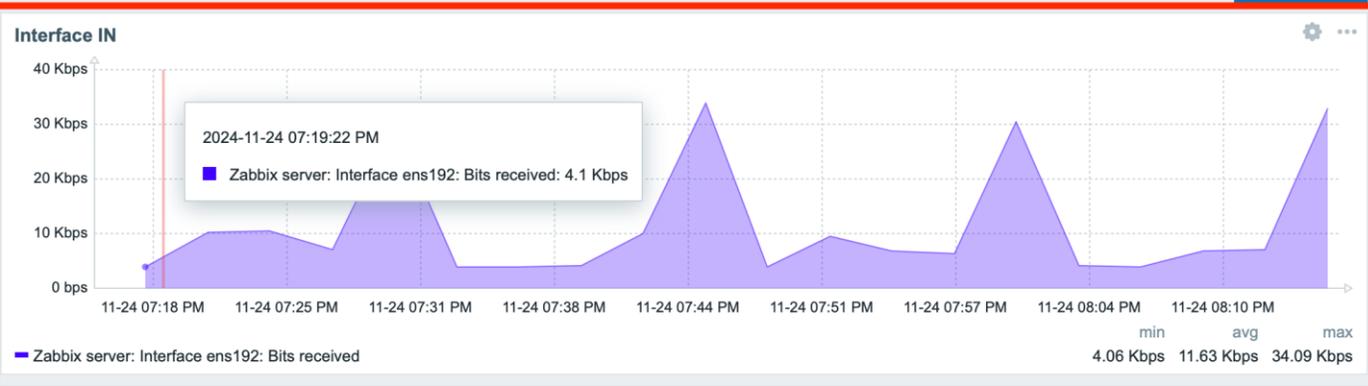
initMAX << >>
Graphs - host override
Edit dashboard

All dashboards / Graphs - host override

**Host navigator**

- ▼ Zabbix servers 2 1 1 1
  - ▼ Server 1 1
  - ▼ Warning 1
  - Zabbix server 1
  - ▼ Server 2 1
  - ▼ Information 1
  - Zabbix server 2 1
  - ▼ Server 3 1
  - ▼ Disaster 1
  - Zabbix server 3 1
  - ▼ Server 4 1
  - ▼ Average 1
  - Zabbix server 4 1
  - ▼ Server 5 1
  - ▼ Disaster 1
  - Zabbix server 5 1

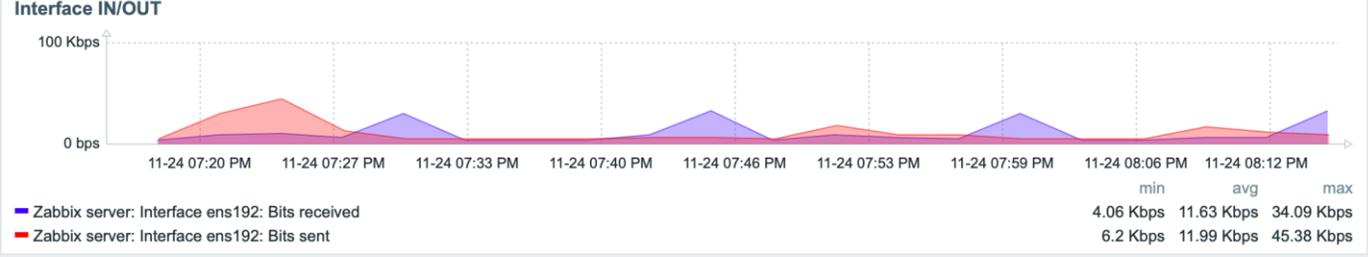
**Interface IN**



2024-11-24 07:19:22 PM  
Zabbix server: Interface ens192: Bits received: 4.1 Kbps

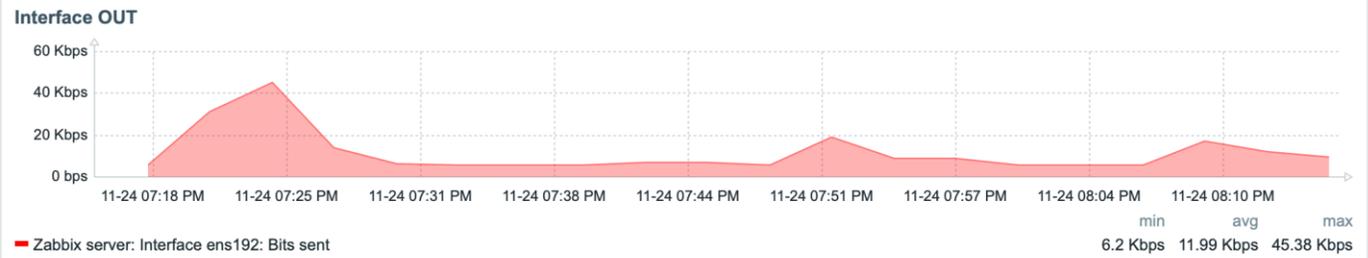
min avg max  
4.06 Kbps 11.63 Kbps 34.09 Kbps

**Interface IN/OUT**



min avg max  
4.06 Kbps 11.63 Kbps 34.09 Kbps  
6.2 Kbps 11.99 Kbps 45.38 Kbps

**Interface OUT**

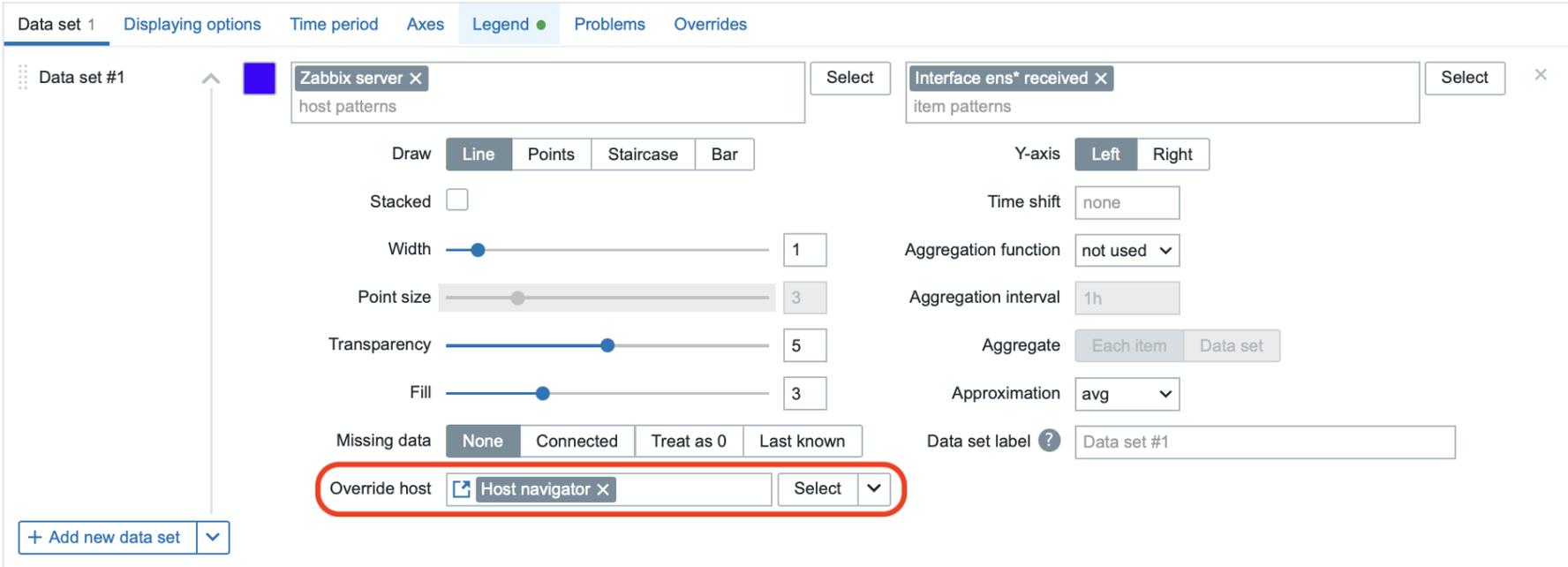


min avg max  
6.2 Kbps 11.99 Kbps 45.38 Kbps

# Host Override in the Graph Widget

This functionality allows you to connect the Graph widget with:

- ▶ Host Navigator
- ▶ Honeycomb Widget
- ▶ Item Navigator



The screenshot displays the configuration interface for a Zabbix Graph widget, specifically the 'Overrides' tab. The interface includes several sections for configuring data sets and their display options. The 'Override host' field is highlighted with a red border, indicating its importance in the context of the article. The 'Override host' field is currently set to 'Host navigator'.

Configuration details visible in the image:

- Data set #1** (selected)
- Displaying options** (selected)
- Legend** (selected)
- Host patterns:** Zabbix server (selected)
- Item patterns:** Interface ens\* received (selected)
- Draw:** Line (selected)
- Y-axis:** Left (selected)
- Width:** 1
- Point size:** 3
- Transparency:** 5
- Fill:** 3
- Missing data:** None (selected)
- Time shift:** none
- Aggregation function:** not used
- Aggregation interval:** 1h
- Aggregate:** Each item (selected)
- Approximation:** avg
- Data set label:** Data set #1
- Override host:** Host navigator (selected)

# Host Override in the Graph Widget

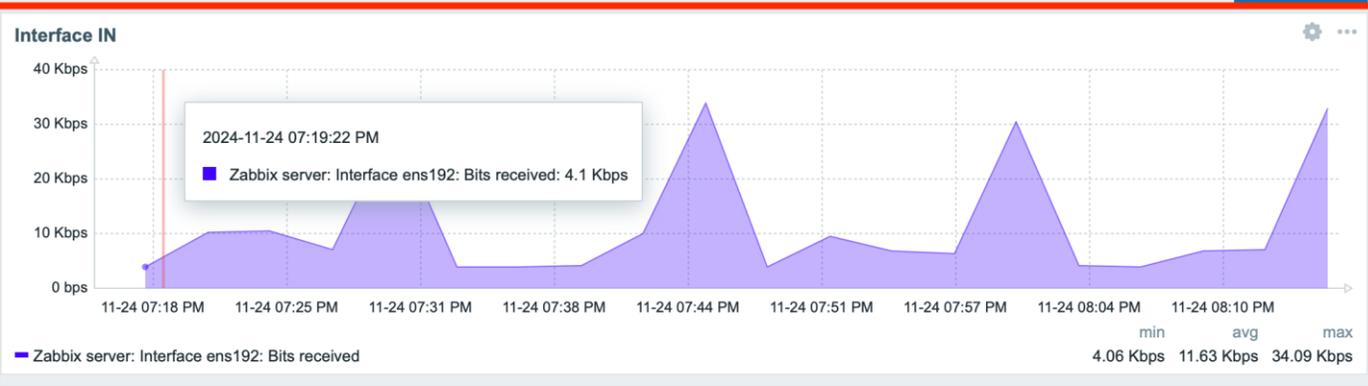
initMAX << >>
Graphs - host override
Edit dashboard

All dashboards / Graphs - host override

**Host navigator**

- ▼ Zabbix servers 2 1 1 1
  - ▼ Server 1 1
  - ▼ Warning 1
  - Zabbix server 1
  - ▼ Server 2 1
  - ▼ Information 1
  - Zabbix server 2 1
  - ▼ Server 3 1
  - ▼ Disaster 1
  - Zabbix server 3 1
  - ▼ Server 4 1
  - ▼ Average 1
  - Zabbix server 4 1
  - ▼ Server 5 1
  - ▼ Disaster 1
  - Zabbix server 5 1

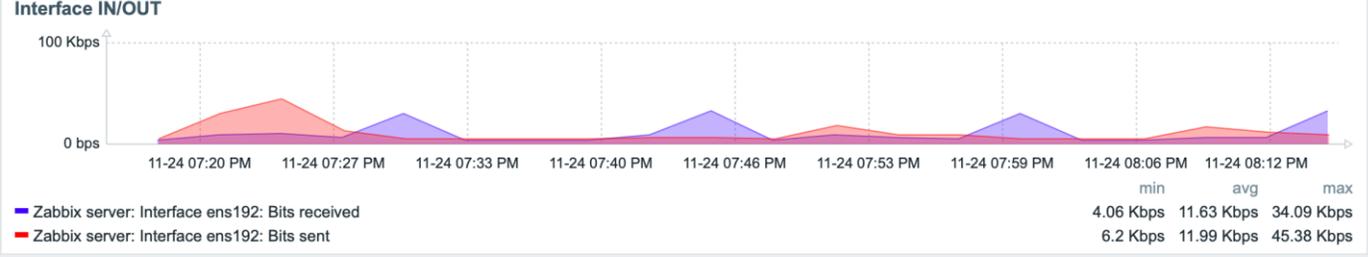
**Interface IN**



2024-11-24 07:19:22 PM  
Zabbix server: Interface ens192: Bits received: 4.1 Kbps

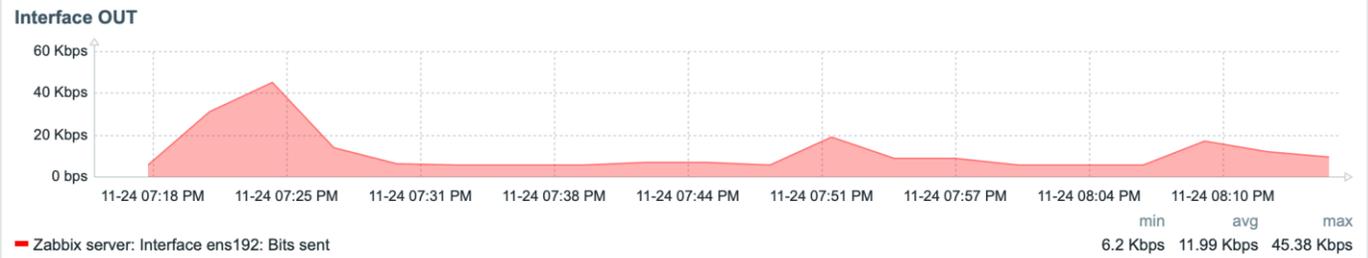
min avg max  
4.06 Kbps 11.63 Kbps 34.09 Kbps

**Interface IN/OUT**



min avg max  
4.06 Kbps 11.63 Kbps 34.09 Kbps  
6.2 Kbps 11.99 Kbps 45.38 Kbps

**Interface OUT**



min avg max  
6.2 Kbps 11.99 Kbps 45.38 Kbps

# Host card widget

With Host card widget you can display information about a particular host

- ▶ **Direct host link:** The ability to view detailed host information such as monitoring status, availability, templates, inventory, and more
- ▶ **External widgets:** Integration with widgets like Honeycomb or Host navigator for easy navigation between hosts
- ▶ **Inventory and tags:** Configurable inventory fields (e.g., contact details) and the display of tags for better organization and clarity



# Host card widget

### Edit widget ✕

Type Host card ▼ Show header

Name

Refresh interval Default (1 minute) ▼

\* Host  Host navigator ✕ Select ▼

Show suppressed problems

Show

Name	
1: <span>Monitoring</span> <span>▼</span>	<a href="#">Remove</a>
2: <span>Availability</span> <span>▼</span>	<a href="#">Remove</a>
3: <span>Monitored by</span> <span>▼</span>	<a href="#">Remove</a>
4: <span>Host groups</span> <span>▼</span>	<a href="#">Remove</a>
5: <span>Description</span> <span>▼</span>	<a href="#">Remove</a>
6: <span>Templates</span> <span>▼</span>	<a href="#">Remove</a>
7: <span>Inventory</span> <span>▼</span>	<a href="#">Remove</a>
8: <span>Tags</span> <span>▼</span>	<a href="#">Remove</a>

[Add](#)

Inventory fields Contact ✕ Contract number ✕ Select

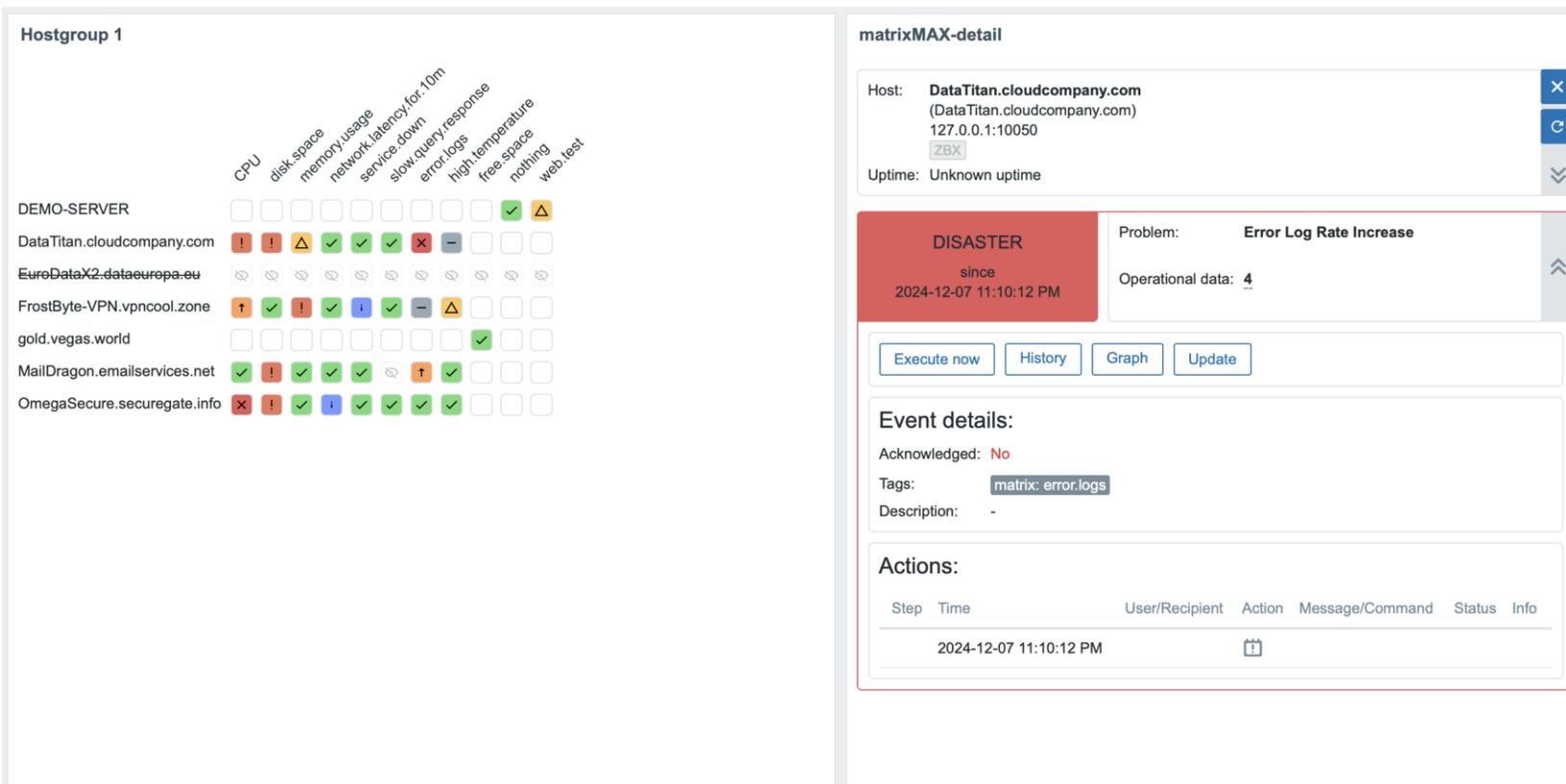
Apply Cancel

Data visualization with zabbix

# Host card widget

We already have this widget, it is called matrixMAX

► **Link:** <https://www.initmax.com/eshop/>



The screenshot displays two Zabbix widgets. The left widget, titled "Hostgroup 1", shows a grid of host cards for various servers. The right widget, titled "matrixMAX-detail", provides a detailed view of a specific event for the host "DataTitan.cloudcompany.com".

**Hostgroup 1**

Host	CPU	disk_space	memory_usage	network_latency/for.10m	service_down	slow_query.response	error.logs	high.temperature	free.space	nothing	web.test
DEMO-SERVER	○	○	○	○	○	○	○	○	○	○	○
DataTitan.cloudcompany.com	!	!	△	✓	✓	×	—	○	○	○	○
EuroDataX2.dataeuropa.eu	○	○	○	○	○	○	○	○	○	○	○
FrostByte-VPN.vpncool.zone	↑	✓	!	✓	!	—	△	○	○	○	○
gold.vegas.world	○	○	○	○	○	○	○	○	○	○	○
MailDragon.emailservices.net	✓	!	✓	✓	○	↑	✓	○	○	○	○
OmegaSecure.securegate.info	×	!	✓	!	✓	✓	✓	○	○	○	○

**matrixMAX-detail**

Host: **DataTitan.cloudcompany.com**  
(DataTitan.cloudcompany.com)  
127.0.0.1:10050  
ZBX

Uptime: Unknown uptime

**DISASTER**  
since 2024-12-07 11:10:12 PM

Problem: **Error Log Rate Increase**  
Operational data: 4

Execute now History Graph Update

**Event details:**  
Acknowledged: No  
Tags: matrix: error.logs  
Description: -

**Actions:**

Step	Time	User/Recipient	Action	Message/Command	Status	Info
	2024-12-07 11:10:12 PM					

# Maximum Number of Rows in Widgets

The maximum number of rows that can be displayed in widgets on a dashboard has been increased from 100 to 1000. This change applies to the following widgets:

- ▶ Action Log
- ▶ Item History
- ▶ Problems
- ▶ Top Hosts
- ▶ Top Triggers

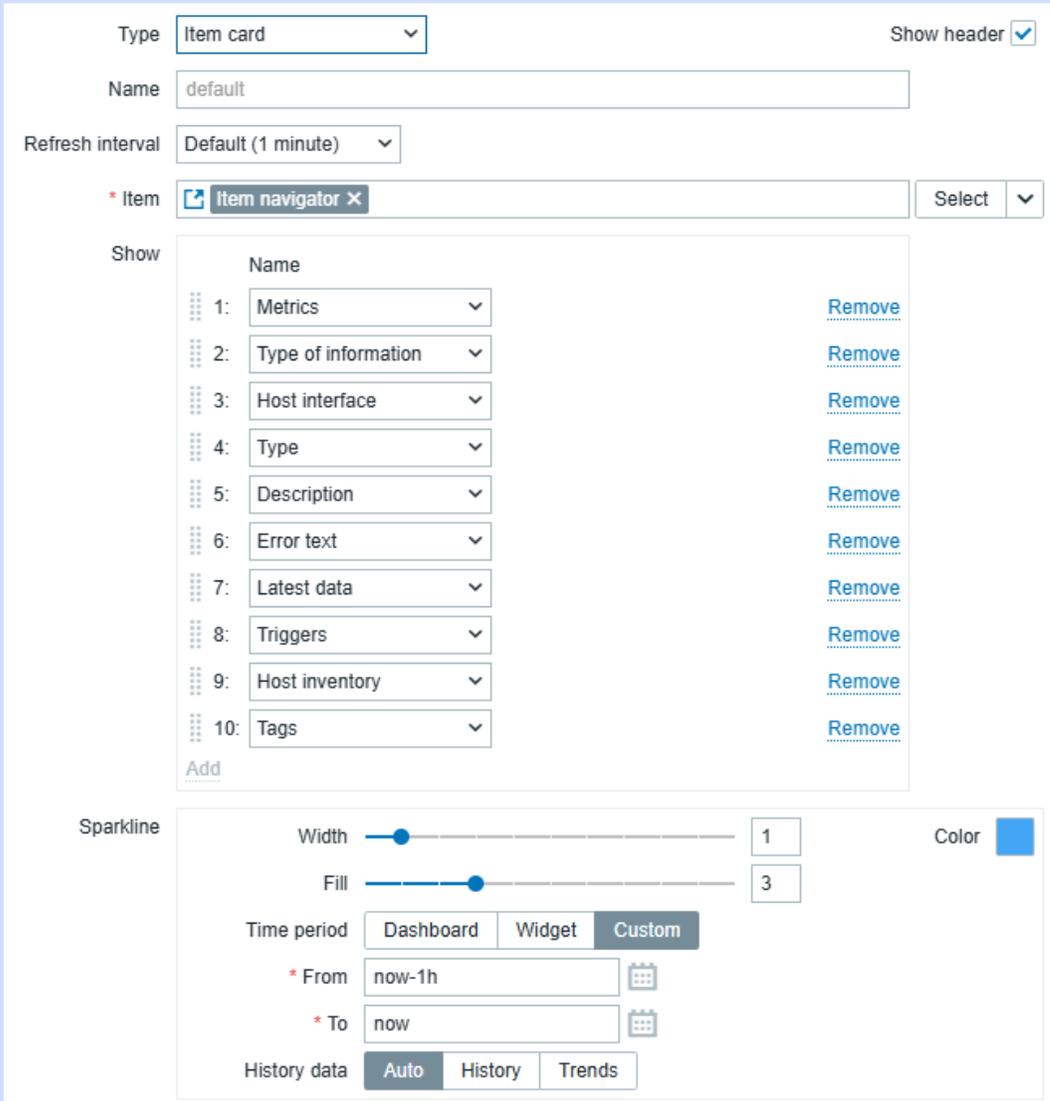
# Widgets – 7.4

- ▶ Item card
- ▶ Item history - scrolling position will now be bottom
- ▶ Real-time widget editing

# Item card widget

With Host card widget you can display information about a particular host

- ▶ **Direct item link:** The ability to view detailed host information
- ▶ **External widgets:** Integration with other widgets
- ▶ **Detail informations and executing checks**



The screenshot shows the configuration interface for the 'Item card' widget in Zabbix. The 'Type' is set to 'Item card' and 'Show header' is checked. The 'Name' is 'default' and the 'Refresh interval' is 'Default (1 minute)'. The 'Item' is 'Item navigator'. The 'Show' section lists 10 items with their names and 'Remove' links: 1: Metrics, 2: Type of information, 3: Host interface, 4: Type, 5: Description, 6: Error text, 7: Latest data, 8: Triggers, 9: Host inventory, 10: Tags. The 'Sparkline' section includes a 'Width' slider (set to 1), a 'Fill' slider (set to 3), a 'Color' selector (blue), and 'Time period' tabs (Dashboard, Widget, Custom). The 'From' and 'To' time range fields are set to 'now-1h' and 'now' respectively. The 'History data' section has 'Auto', 'History', and 'Trends' tabs.

# Item card widget

## Item Card

- ▶ The Item card widget has been added to dashboard widgets, offering a convenient way to view comprehensive information about a single item at a glance.

### Item card

[Load average \(5m avg\)](#)  
[Zabbix server](#) > [Linux by Zabbix agent](#)

Calculated as the system CPU load divided by the number of CPU cores.

Last check	Last value	Graph
15s	0.7094	

Type: Zabbix agent

Host interface: 127.0.0.1:10050

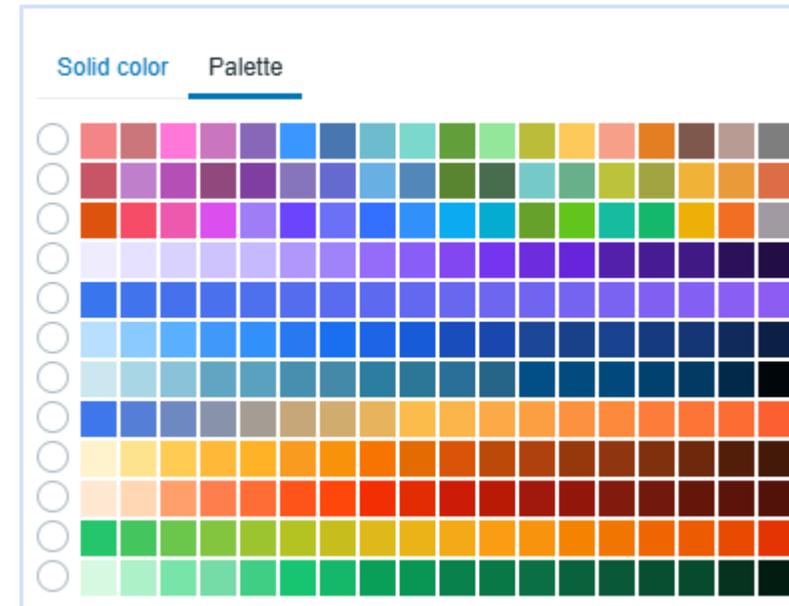
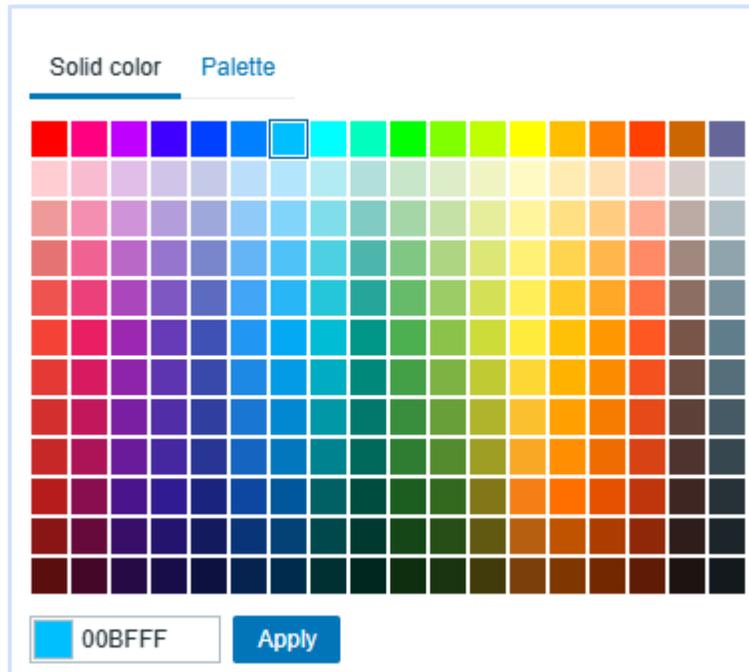
Interval	History	Trends
1m	7d	365d

Triggers 1: [Load average is too high](#)

`class: os` `component: cpu` `target: linux`

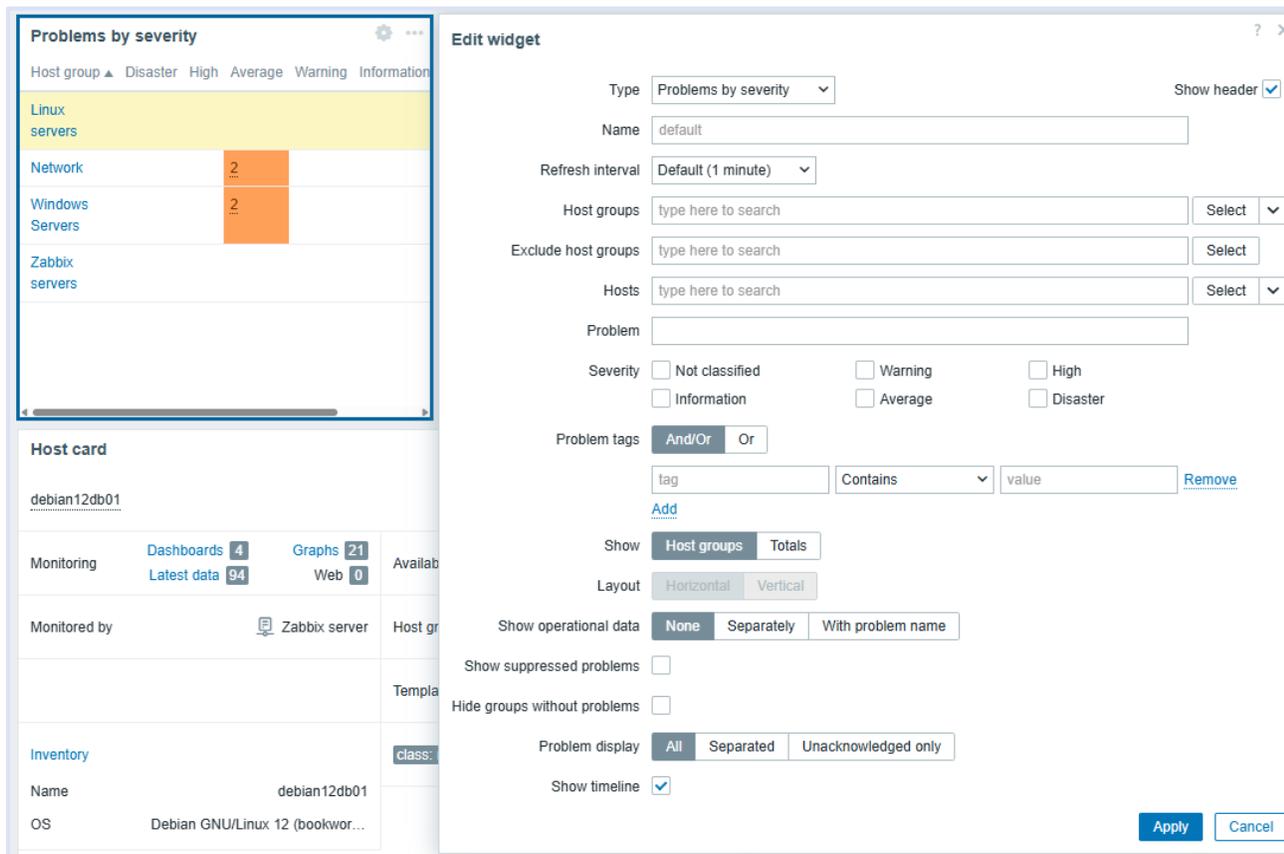
# Enhanced color picker with palette support

- ▶ The color picker in [graph](#) and [pie chart](#) widgets has been redesigned for improved usability. In addition to solid colors and hex input, you can now switch to a *Palette* tab and pick from predefined color rows—each series gets its own distinct hue for clearer differentiation. The picker also offers full keyboard navigation and live validation.



# Real-time widget editing

- ▶ While editing widgets, you can now preview widget configuration changes in real time. Additionally, widget configuration forms are now draggable, allowing you to reposition them as needed.



The screenshot displays the Zabbix web interface. On the left, a 'Problems by severity' widget is shown, displaying a table of problems for different host groups. Below it, a 'Host card' for 'debian12db01' is visible, showing monitoring statistics and inventory details.

On the right, the 'Edit widget' configuration panel is open, showing the following settings:

- Type: Problems by severity
- Show header:
- Name: default
- Refresh interval: Default (1 minute)
- Host groups: type here to search (Select)
- Exclude host groups: type here to search (Select)
- Hosts: type here to search (Select)
- Problem: (empty text field)
- Severity:  Not classified,  Warning,  High,  Information,  Average,  Disaster
- Problem tags: And/Or Or
- tag: (empty text field) Contains (dropdown) value: (empty text field) Remove
- Add
- Show: Host groups Totals
- Layout: Horizontal Vertical
- Show operational data: None Separately With problem name
- Show suppressed problems:
- Hide groups without problems:
- Problem display: All Separated Unacknowledged only
- Show timeline:

Buttons for 'Apply' and 'Cancel' are located at the bottom right of the configuration panel.

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## Custom Frontend Extensions



# Custom Widgets and Modules

It is possible to enhance Zabbix frontend functionality by adding third-party modules or by developing your own modules without the need to change the source code of Zabbix.

Note that the module code will run with the same privileges as Zabbix source code. This means:

- ▶ third-party modules can be harmful. You must trust the modules you are installing.
- ▶ Errors in a third-party module code may crash the frontend. If this happens, just remove the module code from the frontend. As soon as you reload Zabbix frontend, you'll see a note saying that some modules are absent. Go to [Module administration](#) (in *Administration* → *General* → *Modules*) and click *Scan directory* again to remove non-existent modules from the database.

Data visualization with zabbix

# Widgets - installation

## Installation

Wiki guide:

› <https://www.initmax.com/wiki/headermax/>

```
cd /usr/share/zabbix/ui/modules/  
git clone https://git.initmax.cz/initMAX-Public/Zabbix-UI-Widgets-headerMAX.git  
chown -R nginx:nginx ./Zabbix-UI-Widgets-headerMAX*
```

Data visualization with zabbix

# Modules - installation

## Installation

› <https://git.initmax.cz/initMAX-Public/>

## Examples:

› <https://www.initmax.cz/zabbix/zabbix.php?action=dashboard.view&dashboardid=128>

```
cd /usr/share/zabbix/ui/modules/  
git clone https://git.initmax.cz/initMAX-Public/Zabbix-UI-Modules-uxMAX.git  
chown -R nginx:nginx ./Zabbix-UI-Modules-uxMAX *
```

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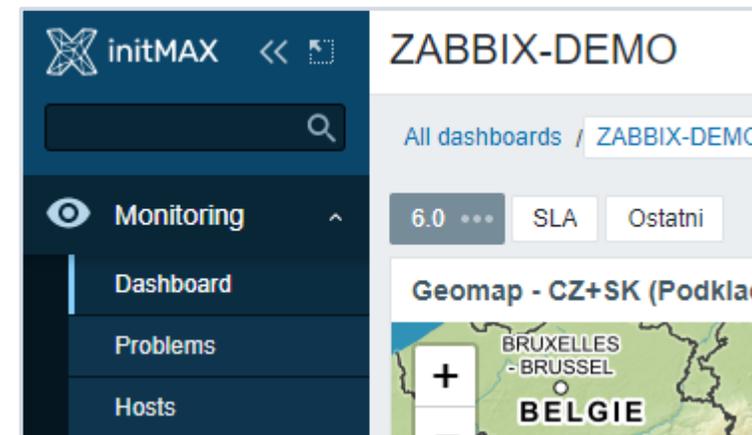
Rebranding



# Rebranding

## Customize your Zabbix instance to represent your organization.

- ▶ Replace the existing Zabbix branding and Help page URL with your own organization branding and a custom website URL.
- ▶ The rebranding feature does not violate the Zabbix license agreement - you're free to replace the Zabbix branding at your leisure!
- ▶ <https://www.initmax.com/wiki/zabbix-rebranding/>



```
local/conf/brand.conf.php
```

```
<?php
return [
    'BRAND_LOGO' => './images/custom_logo.png',
    'BRAND_LOGO_SIDEBAR' => './images/custom_logo_sidebar.png',
    'BRAND_LOGO_SIDEBAR_COMPACT' => './images/custom_logo_sidebar_compact.png',
    'BRAND_FOOTER' => ',© initMAX',
    'BRAND_HELP_URL' => 'https://www.initmax.cz/help/'
];
```

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Demonstration





Questions?



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