



**ZABBIX** 5.0

# Certified Specialist Training

## Day 5

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# AGENDA

Zabbix server  
health



Configuration files  
&  
Administration



Graphs



Maps



Screens



Slideshows



Dashboards



Widgets



EXAM





# Zabbix server health

## Monitor your monitoring system.

⚡ Internal item keys:

- Syntax: `zabbix[<parameters>]`

⚡ Examples:

Item key	Description
<code>zabbix[boottime]</code>	Startup time of Zabbix server or Zabbix proxy process in seconds.
<code>zabbix[preprocessing_queue]</code>	Count of values enqueued in the preprocessing queue.
<code>zabbix[process,&lt;type&gt;,&lt;mode&gt;,&lt;state&gt;]</code>	Time a particular Zabbix process or a group of processes (identified by <type> and <mode>) spent in <state> in percentage. It is calculated for the last minute only.

⚡ Internal items are collected by Zabbix server daemon's "self-monitoring" subprocess.

⚡ Templates, available out-of-the-box:

- "Template App Zabbix Server"
- "Template App Zabbix Proxy"

⚡ On fresh installations "Zabbix server" host is created and monitored.

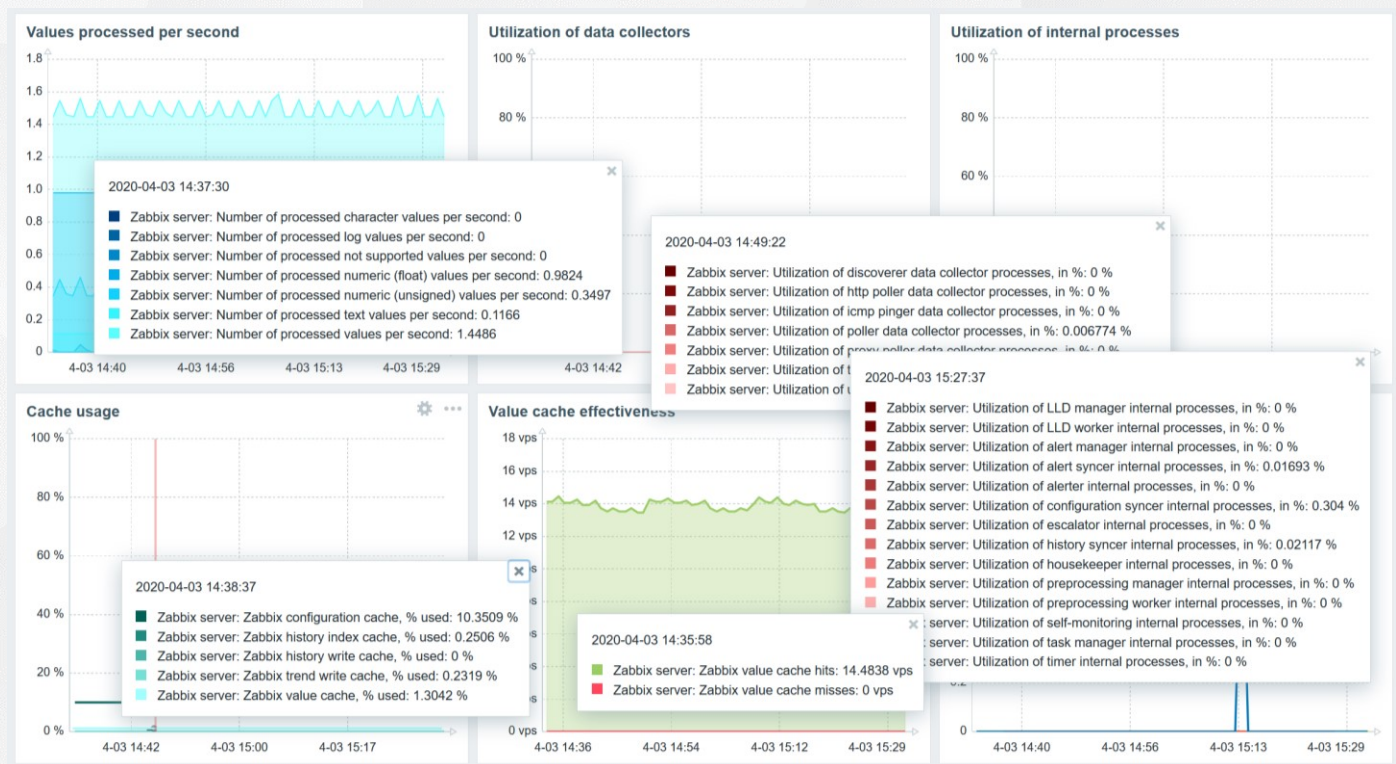


<https://www.zabbix.com/documentation/current/manual/config/items/itemtypes/internal>

## Zabbix components:

- 📶 Caches (configuration, value, vmware, etc.)
- 📶 Internal processes (configuration syncer, history syncer, self-monitoring, etc.)
- 📶 Data gathering processes (poller, trapper, icmp pinger, etc.)

## Monitoring > Dashboards > Zabbix server health





# Trainer's demo



# Configuration files



## Zabbix server configuration parameters:

📄 /etc/zabbix/zabbix\_server.conf

- [https://www.zabbix.com/documentation/current/manual/appendix/config/zabbix\\_server](https://www.zabbix.com/documentation/current/manual/appendix/config/zabbix_server)

## Zabbix agent daemon configuration parameters:

📄 /etc/zabbix/zabbix\_agentd.conf

- [https://www.zabbix.com/documentation/current/manual/appendix/config/zabbix\\_agentd](https://www.zabbix.com/documentation/current/manual/appendix/config/zabbix_agentd)



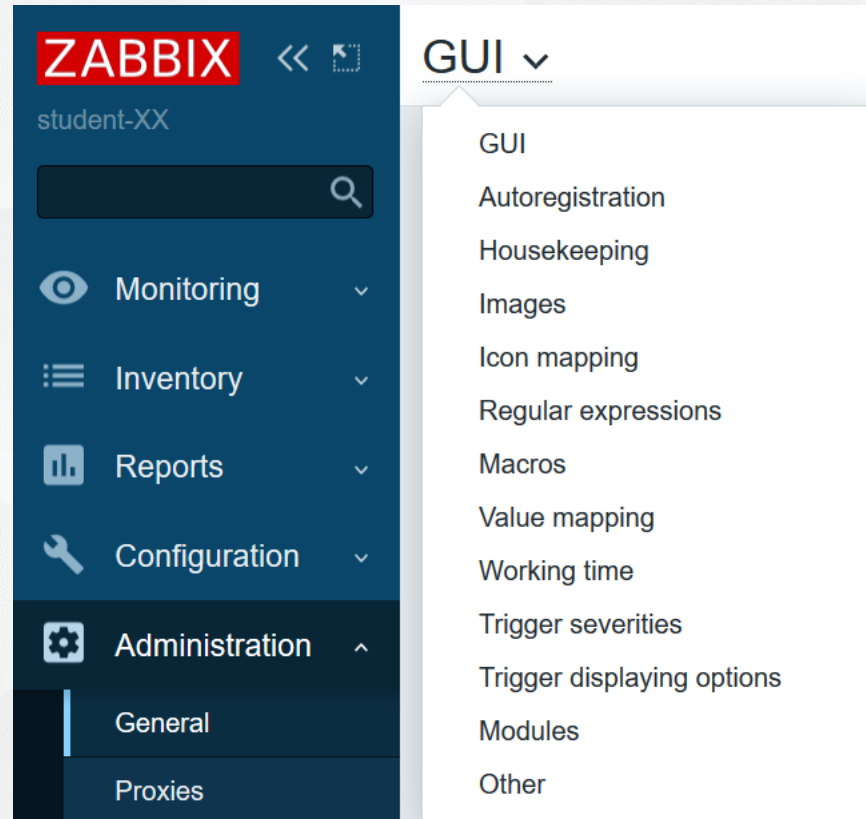
Server or agent must be restarted after configuration parameter changes.



# Zabbix administration General settings

## Administration > General

- ⚡ Global server settings, defaults and frontend customization
- ⚡ Available only to "Zabbix Super Administrators"



 [.../5.0/manual/web\\_interface/frontend\\_sections/administration](https://www.zabbix.com/manual/web_interface/frontend_sections/administration)

## Customization of several frontend-related defaults.

GUI ▾

Default theme

\* Limit for search and filter results

\* Max count of elements to show inside table cell

Show warning if Zabbix server is down

[Update](#)

⚡ Default theme for users who have not set a specific one in their profiles.

⚡ Limit for search and filter results:

- Maximum amount of elements (rows) to be displayed in web-interface lists.
- Example: set to 100 - only 100 elements (items, hosts, templates) will be displayed, and *bottom* of the page will show: `Displaying 1 to 50 of 100+ found`

⚡ Max number of elements to show inside a table cell.

Linked templates
1, 2, <a href="#">Element</a>

⚡ Show warning if Zabbix server is down.



Zabbix server is not running: the information displayed may not be current.

## Configure the encryption level for active agent autoregistration.

### ⚡ Encryption level (one or both):

- No encryption - unencrypted connections are allowed.
- PSK - TLS encrypted connections with a pre-shared key are allowed.
- PSK identity:
- pre-shared key identity string;
- available, if 'PSK' is selected;
- is transmitted unencrypted over the network to inform a receiver which PSK to use.

### ⚡ PSK:

- pre-shared key (an even number of hexadecimal characters);
- max length varies based on encryption library used.

The screenshot shows a configuration form with the following elements:

- Encryption level:** Two radio buttons are present. The first is labeled "No encryption" and is checked. The second is labeled "PSK" and is also checked.
- \* PSK identity:** A text input field containing the value "psk001".
- \* PSK:** A text input field containing the hexadecimal value "14b97461a7c1045b9a1c963065002c5473194952".
- Update:** A blue button located below the input fields.

The housekeeper is a periodical process, executed by Zabbix server.

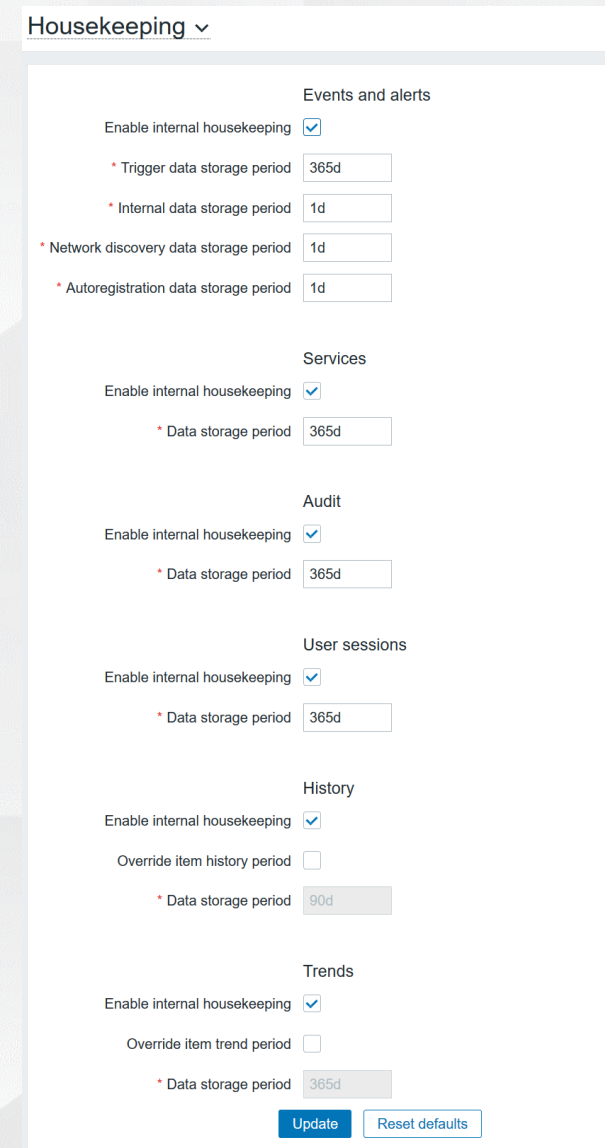
- ⚡ Removes outdated information
- ⚡ Information deleted by user

After removing an item/trigger:

- ⚡ Deletes generated problems
- ⚡ Removes historical data

Override item history/trends period:

- ⚡ Overrides values set for individual items
- ⚡ Won't affect items with "Do not keep history/trends"

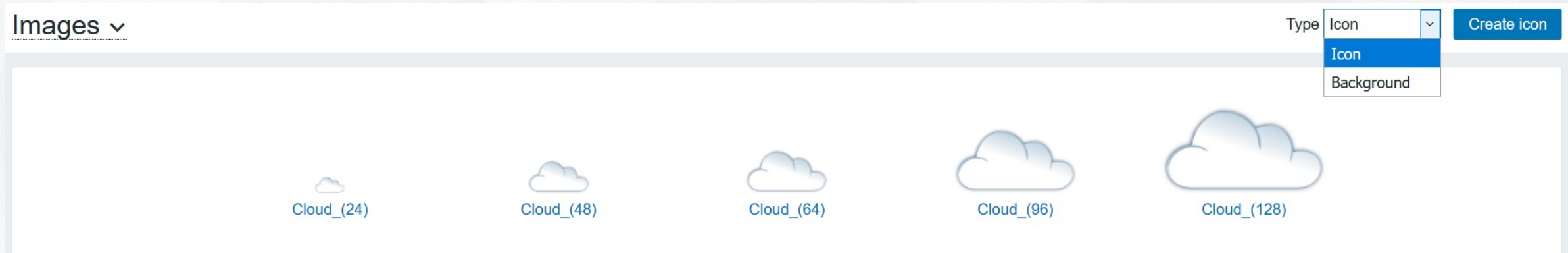


The screenshot shows the 'Housekeeping' configuration page in Zabbix. It is organized into several sections, each with an 'Enable internal housekeeping' checkbox and a 'Data storage period' input field. The 'Events and alerts' section has four items with storage periods of 365d, 1d, 1d, and 1d. The 'Services' section has one item with a 365d storage period. The 'Audit' section has one item with a 365d storage period. The 'User sessions' section has one item with a 365d storage period. The 'History' section has one item with a 90d storage period. The 'Trends' section has one item with a 365d storage period. At the bottom right, there are 'Update' and 'Reset defaults' buttons.

Section	Enable internal housekeeping	Data storage period
Events and alerts	<input checked="" type="checkbox"/>	365d
Events and alerts	<input checked="" type="checkbox"/>	1d
Events and alerts	<input checked="" type="checkbox"/>	1d
Events and alerts	<input checked="" type="checkbox"/>	1d
Services	<input checked="" type="checkbox"/>	365d
Audit	<input checked="" type="checkbox"/>	365d
User sessions	<input checked="" type="checkbox"/>	365d
History	<input checked="" type="checkbox"/>	90d
Trends	<input checked="" type="checkbox"/>	365d

Images are stored in the database.

- ⚡ The Type selector in the upper right corner allows you to switch between:
  - Icons (used to display network map elements)
  - Backgrounds (used as background images of network maps)



⚡ Adding an image:

- press [Create icon];
- browse for the icon file;
- name it;
- press [Add].

\* Name

\* Upload

⚠ Maximum image size is limited by: ZBX\_MAX\_IMAGE\_SIZE, which is 1024×1024 bytes or 1 MB.

Create mapping of certain hosts with certain icons.

- ⚡ Host inventory field information is used to create mapping.
- ⚡ Used in maps configuration to assign appropriate icons to matching hosts automatically.




Icon mapping ▾ Create icon map

Name	Icon map
<a href="#">Training icon mapping</a>	Type (Full details): Linux ⇒ Server_(96) Type (Full details): Switch ⇒ Switch_(96)

To create a new icon map, click on [Create icon map] in the upper right corner.

\* Name

\* Mappings

	Inventory field	Expression	Icon	Action
1:	Type (Full details) ▾	Linux	Server_(96) ▾	 <a href="#">Remove</a>
2:	Type (Full details) ▾	Switch	Switch_(96) ▾	 <a href="#">Remove</a>
<a href="#">Add</a>				
Default			Cloud_(24) ▾	



⚡ Perl Compatible Regular Expressions (PCRE) are supported

⚡ Expression can be used in several places by referring to its name prefixed with "@"

\* Name

Type

\* Key

**reference**

\* Name

Type

\* Key

**regex**

## Regular expressions ▾

[New regular expression](#)

<input type="checkbox"/> Name	Expressions
<input checked="" type="checkbox"/> Agent log regular expression	1 » failed to accept [Character string included]
<input type="checkbox"/> File systems for discovery	1 » ^(btrfs ext2 ext3 ext4 reiser xfs ffs ufs jfs fs2 vxfs hfs apfs refs ntfs fat32 zfs)\$ [Result is TRUE]
<input type="checkbox"/> Network interfaces for discovery	1 » ^Software Loopback Interface [Result is FALSE] 2 » ^(\n)?[Ll]oop[Bb]ack[0-9_]*\$ [Result is FALSE] 3 » ^NULL[0-9]*\$ [Result is FALSE] 4 » ^[Ll]o[0-9]*\$ [Result is FALSE] 5 » ^[Ss]ystem\$ [Result is FALSE] 6 » ^Nu[0-9]*\$ [Result is FALSE]
<input type="checkbox"/> Storage devices for SNMP discovery	1 » ^(Physical memory Virtual memory Memory buffers Cached memory Swap space)\$ [Result is FALSE]
<input type="checkbox"/> Windows service names for discovery	1 » ^(\MMCSS gupdate SysmonLog clr_optimization_v2.0.50727_32 clr_optimization_v4.0.30319_32)\$ [Result is FALSE]
<input type="checkbox"/> Windows service startup states for discovery	1 » ^(automatic automatic delayed)\$ [Result is TRUE]

1 selected

Press [New regular expression] button to add a new expression. Expressions tab allows to set name and add subexpressions.

⚡ If several subexpressions are defined, Zabbix uses AND logical operator to calculate the result.

⚡ The Test tab allows to test expressions with any test string you provide.

Regular expressions ▾

Expressions Test

\* Name

\* Expressions

Expression type	Expression	Delimiter	Case sensitive	Action
Result is FALSE	<input type="text" value="^Software Loopback Interface"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">Remove</a>
Result is FALSE	<input type="text" value="^(In)?[Ll]oop[Bb]ack[0-9._]*\$"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">Remove</a>
Result is FALSE	<input type="text" value="^NULL[0-9.]*\$"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">Remove</a>
Result is FALSE	<input type="text" value="^[Ll]o[0-9.]*\$"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">Remove</a>
Result is FALSE	<input type="text" value="^[Ss]ystem\$"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">Remove</a>
Result is FALSE	<input type="text" value="^Nu[0-9.]*\$"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<a href="#">Remove</a>

[Add](#)

Test

Test string

Result	Expression type	Expression	Result
Result is FALSE	Result is FALSE	^Software Loopback Interface	TRUE
Result is FALSE	Result is FALSE	^(In)?[Ll]oop[Bb]ack[0-9._]*\$	FALSE
Result is FALSE	Result is FALSE	^NULL[0-9.]*\$	TRUE
Result is FALSE	Result is FALSE	^[Ll]o[0-9.]*\$	TRUE
Result is FALSE	Result is FALSE	^[Ss]ystem\$	TRUE
Result is FALSE	Result is FALSE	^Nu[0-9.]*\$	TRUE
Combined result			FALSE



[https://www.zabbix.com/documentation/5.0/manual/regular\\_expressions](https://www.zabbix.com/documentation/5.0/manual/regular_expressions)

This section allows to define system-wide macros.

⚡ Two types:

- Text - value visible to other users
- Secret - masked value

⚡ Adding a description is also supported.

Macros ▾

Macro	Value		Description	
<input type="text" value="{MYSQL.PASSWORD}"/>	<input type="text" value="....."/>	<input type="checkbox"/>	<input type="text" value="Default mysql password"/>	<a href="#">Remove</a>
<input type="text" value="{MYSQL.USERNAME}"/>	<input type="text" value="root"/>	<input type="checkbox"/>	<input type="text" value="Default mysql user"/>	<a href="#">Remove</a>
<input type="text" value="{PROBLEM}"/>	<input type="text" value="1"/>	<input type="checkbox"/>	<input type="text" value="Makes triggers go in problem state (OR), allows or prevents (AND)"/>	<a href="#">Remove</a>
<input type="text" value="{SNMP.COMMUNITY}"/>	<input type="text" value="public"/>	<input type="checkbox"/>	<input type="text" value="description"/>	<a href="#">Remove</a>
<input type="text" value="{TRAINING.SERVER}"/>	<input type="text" value="training.lan"/>	<input checked="" type="checkbox"/>	<input type="text" value="description"/>	<a href="#">Remove</a>

[Add](#)

Text  
 Secret text



<https://www.zabbix.com/documentation/5.0/manual/config/macros/usermacros>

## Manage value maps.

- ⚡ Used to present incoming data in a human-readable format.
- ⚡ Can be exported/imported.

### Value mapping ▾

[Create value map](#)
[Import](#)

<input type="checkbox"/> Name ▲	Value map	Used in items
<input type="checkbox"/> Alarm state	0 ⇒ Ok 1 ⇒ Alarm	Yes
<input type="checkbox"/> APC Battery Replacement Status	1 ⇒ unknown 2 ⇒ notInstalled 3 ⇒ ok	

\* Name

\* Mappings

Value	Mapped to	Action
<input type="text" value="0"/>	⇒ <input type="text" value="Ok"/>	<a href="#">Remove</a>
<input type="text" value="1"/>	⇒ <input type="text" value="Alarm"/>	<a href="#">Remove</a>

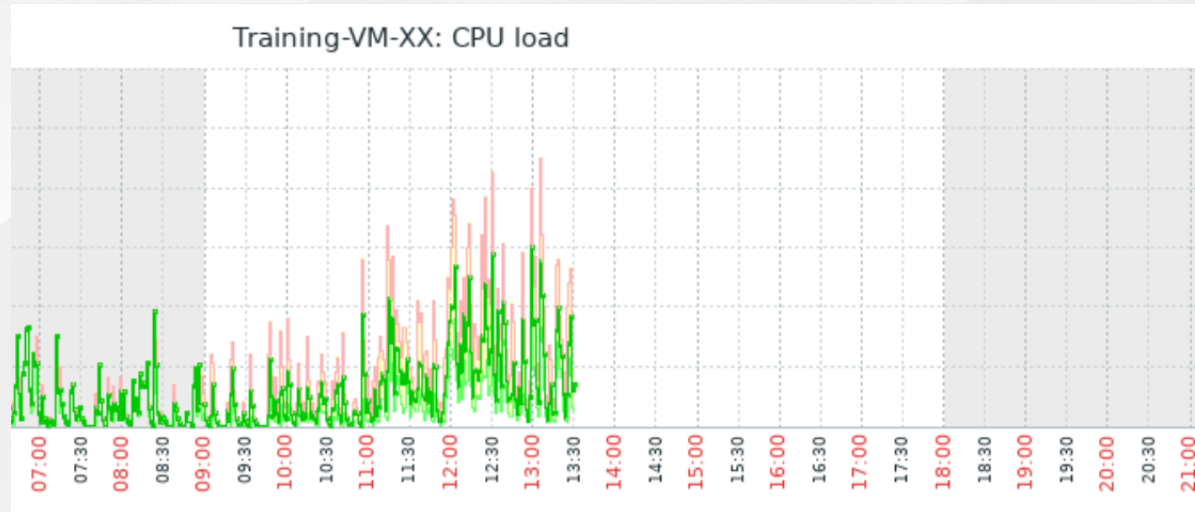
[Add](#)



<https://www.zabbix.com/documentation/5.0/manual/config/items/mapping>

System-wide parameter, which defines working time.

- ⚡ Working time - white background in graphs.
- ⚡ Non-working time – grey.



- ⚡ See Time period specification page for description of the time format.
- ⚡ Support of user macros.

Working time ▾

\* Working time

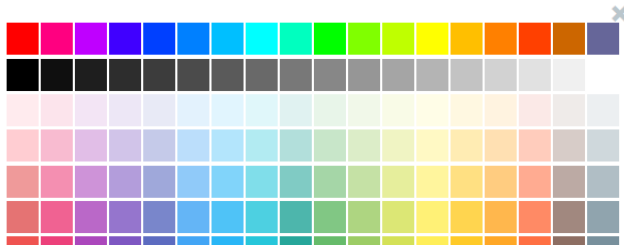
Customize trigger severity names and colors.

⚡ Paste a new color code or select a color from the palette.

Trigger severities ▾

* Not classified	<input type="text" value="Not classified"/>	<input type="text" value="97AAB3"/>
* Information	<input type="text" value="Information"/>	<input type="text" value="7499FF"/>
* Warning	<input type="text" value="Warning"/>	<input type="text" value="FFC859"/>
* Average	<input type="text" value="Average"/>	<input type="text" value="FFA059"/>
* High	<input type="text" value="High"/>	<input type="text" value="E97659"/>
* Disaster	<input type="text" value="Disaster"/>	<input type="text" value=""/>

Custom severity names affect all locales and require manual translation!

A color palette window is open, showing a grid of various colors. The palette includes a top row of primary and secondary colors, a middle row of grayscale and muted tones, and a bottom row of more vibrant and pastel shades. A small 'x' icon is visible in the top right corner of the palette window.

⚠ If frontend translations are used, custom severity names will override translated names.

ℹ <https://www.zabbix.com/documentation/5.0/manual/config/triggers/customseverities>

Customize how trigger status is displayed in the frontend.

- ⚡ Enable: "Use custom event status colors" option to make adjustments.
- ⚡ Different colors for acknowledged/unacknowledged problems.
- ⚡ Set custom time period for:
  - displaying OK triggers;
  - blinking upon trigger status change.
  - Time suffixes are supported in the period fields, e.g. 5m, 2h, 1d

#### Trigger displaying options ▾

Use custom event status colours

\* Unacknowledged PROBLEM events   blinking

\* Acknowledged PROBLEM events   blinking

\* Unacknowledged RESOLVED events   blinking

\* Acknowledged RESOLVED events   blinking

\* Display OK triggers for

\* On status change triggers blink for

Update

Reset defaults

! Maximum value is 86400 seconds (24 hours).

## Frontend modules:

- ⚡ view all registered modules;
- ⚡ available to Zabbix Super Admin user type only;
- ⚡ allow to enable or disable specific module;
- ⚡ new modules are added in the disabled status;
- ⚡ every module has its own configuration page.

Modules Update list

Filter

Name  Status **all** Enabled Disabled

Apply Reset

<input type="checkbox"/>	Name	Version	Author	Description	Status
<input type="checkbox"/>	<a href="#">Example module</a>	1.0	Some Author	Example module.	Disabled
<input type="checkbox"/>	<a href="#">Simple hosts page</a>	1.0		Custom hosts list page module.	Enabled

0 selected Enable Disable Displaying 2 of 2 found



## Additional frontend parameters:

### ⚡ Refresh unsupported items

- how often to check unsupported items

### ⚡ Group for discovered hosts – for:

- Network discovery
- Agent autoregistration

### ⚡ Default host inventory mode - affects:

- New hosts
- Host prototypes

### ⚡ User group for database down message:

- User group for sending alarm message or 'None'
- Notification consists of the following content
  - [MySQL | PostgreSQL | Oracle] database <DB Name> [on <DB Host>:<DB Port>] is not available: <error message depending on the type of DBMS (database)>

### ⚡ Log unmatched SNMP traps:

- Check to log SNMP traps to zabbix\_server.log if no corresponding SNMP interfaces have been found.

#### Other configuration parameters ▾

\* Refresh unsupported items

Group for discovered hosts  ▾

Default host inventory mode  Disabled  Manual  Automatic

User group for database down message  ▾

Log unmatched SNMP traps



# Zabbix administration

## Administration > Proxies

Listing of existing proxies with their details:

Proxies Create proxy

Filter

Name  Mode **Any** Active Passive

Apply Reset

<input type="checkbox"/> Name ▲	Mode	Encryption	Compression	Last seen (age)	Host count	Item count	Required performance (vps)	Hosts
<input type="checkbox"/> Riga office proxy	Active	NONE	ON	3s	2	52	0.74	linux01.training.lan, linux02.training.lan

Displaying 1 of 1 found

0 selected Enable hosts Disable hosts Delete

Mass editing options:

- Enable hosts - change the status of hosts monitored by the proxy to Monitored.
- Disable hosts - change the status of hosts monitored by the proxy to Not monitored.
- Delete - delete the proxies.



[.../5.0/manual/web\\_interface/frontend\\_sections/administration/proxies](#)

## Administration > Authentication

### Supported mechanisms:

Internal

LDAP

HTTP

- Any mechanism supported by the web server.

SAML 2.0 authentication

Authentication HTTP settings LDAP settings SAML settings

Default authentication Internal LDAP

Update

Authentication HTTP settings LDAP settings SAML settings

Enable HTTP authentication

Default login form Zabbix login form

Remove domain name

Case sensitive login

Update

Authentication HTTP settings LDAP settings SAML settings

Enable LDAP authentication

\* LDAP host ldap://za00.zabbix.com

\* Port 389

\* Base DN DC=zabbix,DC=com

\* Search attribute sAMAccountName

Bind DN CN=zabbix-ldap,OU=Users

Case sensitive login

Bind password .....

Test authentication [must be a valid LDAP user]

\* Login zabbix-ldap

password .....

Update Test

Authentication HTTP settings LDAP settings SAML settings

Enable SAML authentication

\* IdP entity ID https://webauth.airport.com/idp

\* SSO service URL https://idp.airport.com/idp/profile/SAML2/AssertConsumer

SLO service URL

\* Username attribute uid

\* SP entity ID https://intranet.jfk.airport.com/sp

SP name ID format urn:oasis:names:tc:SAML:2.0:nameid-format:email-address

Sign  Messages  Assertions  AuthN requests  Logout requests  Logout responses

Encrypt  Name ID  Assertions

Case sensitive login

Update

[.../5.0/manual/web\\_interface/frontend\\_sections/administration/authentication](http://zabbix.com/manual/web_interface/frontend_sections/administration/authentication)

By default, internal Zabbix authentication is used globally.

- ⚡ Usernames and passwords are stored in Zabbix database.
  - New users already have strong password encryption.
  - Users that upgrade to 5.0 need to reset passwords for all users, so that they can use the new encryption instead of md5

To change authentication type:

- ⚡ HTTP - navigate to the HTTP settings tab and enter authentication details.
- ⚡ LDAP - select LDAP as Default authentication and enter details in the LDAP settings tab.
- ⚡ SAML - navigate to the SAML settings tab and enter authentication details.

Different authentication types can be used at the same time.

- ⚡ For example, some users may use LDAP, others Internal authentication.

## User group list:

- ⚡ Shows user count
- ⚡ Shows individual members

## User group properties:

- ⚡ Members
- ⚡ All access rights are group-based
- ⚡ Special groups

<input type="checkbox"/>	Name ▲	#	Members	Frontend access	Debug mode	Status
<input type="checkbox"/>	Disabled	Users 1	guest	<a href="#">System default</a>	<a href="#">Disabled</a>	<a href="#">Disabled</a>
<input type="checkbox"/>	Enabled debug mode	Users		<a href="#">System default</a>	<a href="#">Enabled</a>	<a href="#">Enabled</a>
<input type="checkbox"/>	Guests	Users 2	guest, john.smith (John Smith)	<a href="#">Internal</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>
<input type="checkbox"/>	No access to the frontend	Users		<a href="#">Disabled</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>
<input type="checkbox"/>	Production (Read)	Users 1	john.smith (John Smith)	<a href="#">System default</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>
<input type="checkbox"/>	Production (RW)	Users 1	meggy.wilson (Meggy Wilson)	<a href="#">System default</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>
<input checked="" type="checkbox"/>	Testers	Users 1	john.smith (John Smith)	<a href="#">System default</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>
<input type="checkbox"/>	Users	Users 1	robert.johnson (Robert Johnson)	<a href="#">System default</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>
<input type="checkbox"/>	Zabbix administrators	Users 1	Admin (Zabbix Administrator)	<a href="#">System default</a>	<a href="#">Disabled</a>	<a href="#">Enabled</a>

1 selected   [Enable](#)   [Disable](#)   [Enable debug mode](#)   [Disable debug mode](#)   [Delete](#)

[.../5.0/manual/web\\_interface/frontend\\_sections/administration/user\\_groups](http://zabbix.com/manual/web_interface/frontend_sections/administration/user_groups)

## Administration > User groups:

- ⚡ Group users for organizational purposes
- ⚡ Assign permissions
- ⚡ Control frontend access
- ⚡ Switch debug mode on/off

### User groups

User group Permissions Tag filter

\* Group name

Users    
type here to search

Frontend access  ▾

Enabled

Debug mode

Select host groups and set access levels.

⚡ "Include subgroups" option allows to access nested groups

User group Permissions Tag filter

Permissions	Host group	Permissions
	All groups	None
	Production	Read-write Read Deny None
	Training (including subgroups)	Read-write Read Deny None
	Training/Templates	Read-write Read Deny None

Templates ✕  
type here to search

Select Read-write Read Deny None

Include subgroups

[Add](#)

Update Delete Cancel

! Permissions can be assigned on the user-group level only!



## The Tag filter tab.

⚡ Tag-based permissions to allow user groups see problems filtered by tags.

User group Permissions **Tag filter**

Permissions	Host group	Tags	Action
	Production	Environment: Prod	<a href="#">Remove</a>
	Testing/Templates	Environment: Test	<a href="#">Remove</a>
	Zabbix servers	Location: Riga	<a href="#">Remove</a>

type here to search  tag

Include subgroups

[Add](#)

## Special groups:

### ⚡ Guests

- For limited users (no access to anything by default)

### ⚡ Disabled:

- Deny access to frontend and API

### ⚡ Enable debug mode:

- Diagnose performance problems with frontend pages

### ⚡ No access to the frontend:

- API access works even if frontend access is denied

## Recommended settings if using external authentication:

### ⚡ create user group "Internal users";

- set Frontend access to Internal

### ⚡ have at least one Super Admin with internal authentication.

* Group name	<input type="text" value="Internal users"/>
Users	<input type="text" value="Admin (Zabbix Administrator) ✕"/> <small>type here to search</small>
Frontend access	<input type="text" value="Internal"/> ▾

## Major details:

- ⚡ Is online/last access
- ⚡ Login blocking:
  - After unsuccessful logins
  - Super Admin can unblock

## Access details:

- ⚡ Frontend access
- ⚡ Debug mode
- ⚡ Status

**Users** User group  ▼ Create user

---

Filter ⌵

Alias

Name

Surname

User type Any Zabbix User Zabbix Admin Zabbix Super Admin

Apply
Reset

	Alias ▲	Name	Surname	User type	Groups	Is online?	Login	Frontend access	Debug mode	Status
<input type="checkbox"/>	john.smith	John	Smith	Zabbix Admin	<a href="#">Guests</a> , <a href="#">Production (Read)</a> , <a href="#">Testers</a>	No	Ok	Internal	Disabled	Enabled
<input checked="" type="checkbox"/>	meggy.wilson	Meggy	Wilson	Zabbix Admin	<a href="#">Production (RW)</a>	No	Ok	System default	Disabled	Enabled

Displaying 2 of 2 found

1 selected
Unblock
Delete



Blocking settings can be changed in `/usr/share/zabbix/include/defines.inc.php` file

## Details:

- Alias/username, name, surname
- Password reset
- Group membership
- Frontend language and theme
- Auto-login and logout
- Refresh
- Rows per page
- URL after login
- Media

The screenshot shows the 'User' tab of the Zabbix administration interface. The form contains the following fields and controls:

- Alias:** Text input field containing 'meggy.wilson'.
- Name:** Text input field containing 'Meggy'.
- Surname:** Text input field containing 'Wilson'.
- Groups:** A dropdown menu showing 'Production (RW)' with a close button (x) and a search input field below it containing 'type here to search'. A 'Select' button is to the right.
- Password:** A button labeled 'Change password'.
- Language:** A dropdown menu showing 'English (en\_GB)'.
- Theme:** A dropdown menu showing 'System default'.
- Auto-login:** An unchecked checkbox.
- Auto-logout:** An unchecked checkbox with a time input field set to '15m'.
- Refresh:** A text input field containing '30s'.
- Rows per page:** A text input field containing '50'.
- URL (after login):** An empty text input field.

At the bottom of the form are three buttons: 'Update' (highlighted in blue), 'Delete', and 'Cancel'.

Users can set some of these in their profiles.



[https://www.zabbix.com/documentation/5.0/manual/config/users\\_and\\_usergroups/user](https://www.zabbix.com/documentation/5.0/manual/config/users_and_usergroups/user)

⚡ The Media tab contains a list of all media defined for the user.

Media	Type	Send to	When active	Use if severity	Status	Action
	Email	meggy.willson@zabbix.com	1-5,08:00-18:00	N I W A H D	Enabled	Edit Remove
	MS Teams	meggy.willson	1-7,00:00-24:00	N I W A H D	Enabled	Edit Remove
	SMS	+37123456789	1-7,00:00-24:00	N I W A H D	Enabled	Edit Remove

[Add](#)

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

⚡ The Permissions tab contains information about the user type and host groups the user has access to.

User type:

Host group	Permissions
All groups	None
Production	Read-write
Training (including subgroups)	Read
Training/Templates	Deny

Permissions can be assigned for user groups only.

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

## ⚡ Zabbix User:

- Has access to the Monitoring, Inventory and Reports menus.
- No access to any resources by default.
- Any permissions to host groups must be explicitly assigned.

## ⚡ Zabbix Admin:

- Has access to the Monitoring, Inventory, Reports and Configuration menus.
- Has no access to any host groups by default.
- Any permissions to host groups must be explicitly given.

## ⚡ Super Admin:

### ⚡ Has access to everything.

- Can't revoke access by denying specific host groups.

Permissions	User type		
	Zabbix user	Zabbix admin	Zabbix super admin
Read-Write	Read only	Full	Full
Read only	Read only	Read only	Full
Deny	None	None	Full



Read-Write overrides Read only.



[https://www.zabbix.com/documentation/5.0/manual/config/users\\_and\\_usergroups/permissions](https://www.zabbix.com/documentation/5.0/manual/config/users_and_usergroups/permissions)

Available in (click on a host name – the menu will pop-up):

Monitoring > Hosts

Problems

Dashboard

Maps

Overview

The screenshot shows the 'SCRIPTS' menu in the Zabbix web interface. The menu items are: Detect operating system, Ping, Traceroute, Zabbix, Reload server cache, and Zabbix Agent version. The 'Zabbix' item is selected, and the 'Reload server cache' option is highlighted. A terminal window titled 'Zabbix/Reload server cache' is open, showing the command `zabbix_server -R config_cache_reload` and the output `zabbix_server [12708]: command sent successfully`. A 'Cancel' button is visible in the terminal window.

Exit code is checked.

<input type="checkbox"/> Name ▲	Type	Execute on	Commands	User group	Host group	Host access
<input type="checkbox"/> Detect operating system	Script	Server (proxy)	<code>sudo /usr/bin/nmap -O {HOST.CONN}</code>	Zabbix administrators	All	Read
<input type="checkbox"/> Ping	Script	Server (proxy)	<code>ping -c 3 {HOST.CONN}; case \$? in [01]) true;; *) false;; esac</code>	All	All	Read
<input type="checkbox"/> Traceroute	Script	Server (proxy)	<code>/bin/traceroute {HOST.CONN}</code>	All	All	Read
<input type="checkbox"/> Zabbix/Reload server cache	Script	Server	<code>zabbix_server -R config_cache_reload</code>	Zabbix administrators	Zabbix servers	Write
<input type="checkbox"/> Zabbix/Zabbix Agent version	Script	Agent	<code>zabbix_agentd -V   head -n1</code>	Zabbix administrators	Zabbix servers	Write

0 selected

Displaying 5 of 5 found



[.../5.0/manual/web\\_interface/frontend\\_sections/administration/scripts](http://zabbix.com/manual/web_interface/frontend_sections/administration/scripts)

## Scripts

\* Name

Type  IPMI  Script

Execute on  Zabbix agent  Zabbix server (proxy)  Zabbix server

\* Commands

Description

User group

Host group

Required host permissions  Read  Write

Enable confirmation

Confirmation text

**Execution confirmation** ✕

Really???



Parameter	Definition
Name	Unique name of the script (<submenu/submenu.../>script).
Type	Script or IPMI command.
Execute on	Script will be executed on Zabbix server, proxy or agent.
Commands	All commands to be executed within the script. Some macros are supported.
User/host group	User/host group that the script is available.
Required host permission	Permission level for the host group (Read or Write).
Enable confirmation	Display a confirmation message before executing the script.
Confirmation text	Custom confirmation text for the confirmation popup.

## Reports > Audit

- ⚡ Track log in/log out of users.
- ⚡ View records of changes made in the frontend.
  - Time
  - IP address of connected user
  - Username
  - Action
  - ID
  - Description
  - Details

### Audit log

Zoom out
Last 3 hours 
Filter

From

To

[Apply](#)

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

Time	User	IP	Resource	Action	ID	Description	Details
2020-04-30 17:48:34	john.smith	85.254.75.78	User	Logout	0		
2020-04-30 17:48:29	john.smith	85.254.75.78	Host	Update	10338	linux01.training.lan	hosts.description: => Dummy linux server
2020-04-30 17:48:03	john.smith	85.254.75.78	User	Login	0		
2020-04-30 17:47:42	meggy.wilson	85.254.75.78	User	Logout	0		
2020-04-30 17:46:20	meggy.wilson	85.254.75.78	Host	Add	10340	Jira	



[.../5.0/manual/web\\_interface/frontend\\_sections/reports/audit](https://www.zabbix.com/manual/web_interface/frontend_sections/reports/audit)

## Reports > Action Log

⚡ Displays details of executed operations within actions.

- Notifications (emails, sms, etc.)
- Remote commands and scripts

### Action log

< Zoom out >
Last 1 hour 🕒
Filter 🗑

Recipient  Select

Apply Reset

Time	Action	Type	Recipient	Message	Status	Info
2020-04-30 18:07:07	Report problems to Zabbix administrators	mail.training.lan	john.smith (John Smith) <i>john.smith@training.lan</i>	<b>Subject:</b> Problem: SSH service is down on Training-VM-XX  <b>Message:</b> Problem started at 18:07:04 on 2020.04.30 Problem name: SSH service is down on Training-VM-XX Host: Training-VM-XX Severity: Average Operational data: Up (1) Original problem ID: 1212	Sent	
2020-04-30 18:06:19	Report problems to Zabbix administrators	mail.training.lan	john.smith (John Smith) <i>john.smith@training.lan</i>	<b>Subject:</b> Problem: CPU Load is very high on Training-VM-XX	Sent	



[.../5.0/manual/web\\_interface/frontend\\_sections/reports/action\\_log](#)

## The Queue:

- ⚡ is for expected arrival of values (nothing received);
- ⚡ shows amount of items per type;
- ⚡ displays only items with update intervals;
- ⚡ is retrieved directly from Zabbix server using JSON protocol (available only if Zabbix server is running).

Queue overview ▾

Items	5 seconds	10 seconds	30 seconds	1 minute	5 minutes	More than 10 minutes
Zabbix agent	0	0	0	0	0	0
Zabbix agent (active)	0	0	0	0	0	5
Simple check	0	0	0	0	0	0
SNMP agent	0	0	0	0	0	0
Zabbix internal	0	0	0	0	0	0
Zabbix aggregate	0	0	0	0	0	0
External check	0	0	0	0	0	0
Database monitor	0	0	0	0	0	0
HTTP agent	0	0	0	0	0	0
IPMI agent	0	0	0	0	0	0
SSH agent	0	0	0	0	0	0
TELNET agent	0	0	0	0	0	0
JMX agent	0	0	0	0	0	0
Calculated	0	0	0	0	0	0



<https://www.zabbix.com/documentation/5.0/manual/config/items/queue>

## Per proxy information:

### Queue overview by proxy ▾

Proxy	5 seconds	10 seconds	30 seconds	1 minute	5 minutes	More than 10 minutes
New York proxy	0	16	19	11	0	0
Riga office proxy	0	0	0	0	0	0
Tokyo proxy	0	17	5	0	0	0
Server	0	0	0	0	0	5
						Total: 4

## Queue details provide opportunity to view delayed items:

### Queue details ▾

Scheduled check	Delayed by	Host	Name	Proxy
2020-04-30 14:25:10	3h 46m 45s	Training-VM-XX Active checks	Interface eth0: Outgoing traffic" (bytes per second)	
2020-04-30 14:25:10	3h 46m 45s	Training-VM-XX Active checks	Interface eth0: Outgoing traffic" (bits per second)	
2020-04-30 14:25:10	3h 46m 45s	Training-VM-XX Active checks	Interface eth0: Incoming traffic" (bytes per second)	
2020-04-30 14:25:10	3h 46m 45s	Training-VM-XX Active checks	Interface eth0: Incoming traffic" (bits per second)	
2020-04-30 14:25:10	3h 46m 45s	Training-VM-XX Active checks	CPU load	
				Displaying 5 of 5 found

Should have received data N seconds/minutes ago, but did not.

The queue is retrieved directly from Zabbix server.

Possible reasons:

- ⚡ Zabbix proxy/agent is down or misconfigured.
- ⚡ Check is slow/timed out.
- ⚡ Performance issue (Zabbix server, proxy or DB).

Queue overview ▾

Items	5 seconds	10 seconds	30 seconds	1 minute	5 minutes	More than 10 minutes
Zabbix agent	0	0	0	0	0	562498
Zabbix agent (active)	0	0	0	0	0	0
Simple check	0	0	0	0	0	30
SNMPv1 agent	0	0	0	0	0	254198
SNMPv2 agent	0	0	0	0	0	0
SNMPv3 agent	0	0	0	0	0	0
Zabbix internal	0	0	0	0	0	10
Zabbix aggregate	0	0	0	0	0	0
External check	0	0	0	0	0	78

! Use special internal item `zabbix[queue,<from>,<to>]` monitor the queue in Zabbix

# PRACTICAL SETUP

1. Create a frontend script:
  - Name: Zabbix/Zabbix configuration cache reload
  - Commands: `zabbix_server -R config_cache_reload`
2. Give proper permissions to Zabbix Administrators to allow them run the script.
3. Limit script execution to Zabbix server host group only.
4. Make sure your script works.

 Advanced task: Configure server for the "[Detect operating system](#)" script to work



Q&A





# Visualisation



# Graphs

## Graphs:

- ⚡ Create visual representation of what is going on – instead of viewing just numbers
- ⚡ Grasp the data flow at a glance
- ⚡ Correlate problems
- ⚡ Trace when something has started
- ⚡ Make a presentation of future issues (when something might become a problem)
- ⚡ An easy way to look deep into history and compare data.

## Zabbix provides users with:

- ⚡ Built-in simple graphs of single item data.
- ⚡ The possibility to create complex customized graphs.
- ⚡ Quick access to a comparison of several items through the ad-hoc graphs.
- ⚡ Modern customizable vector graphs.

## Time period selector:

- ⚡ Allows to select common required periods with a single mouse click.
- ⚡ The From/To fields display the selected period in either:
  - Absolute time syntax in the format: yyyy-MM-dd hh:mm:ss
  - Relative time syntax - can contain mathematical operations (- or +)
    - One: now-1d, now-1w, now-1y
    - Or several: now-1d-2h+5m, now-1M-12h+30m

The screenshot displays the Zabbix time period selector interface. It features two input fields: 'From' containing 'now-15m' and 'To' containing 'now'. A calendar is open, showing the month of May 2020, with the 5th highlighted. A dropdown menu is visible, listing various time range options such as 'Last 15 minutes', 'Last 30 minutes', 'Last 1 hour', 'Last 3 hours', 'Last 6 hours', 'Last 12 hours', and 'Last 1 day'. The 'Last 15 minutes' option is currently selected.



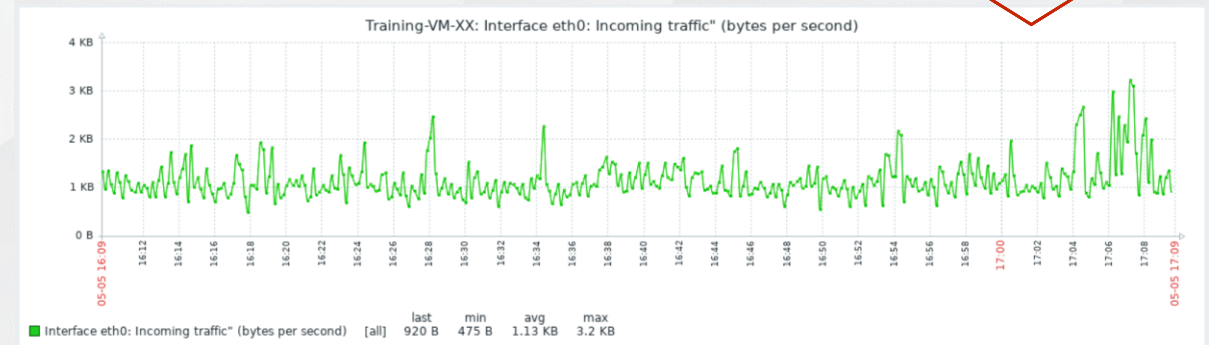
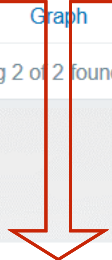
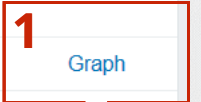
[https://www.zabbix.com/documentation/current/...#time\\_period\\_selector](https://www.zabbix.com/documentation/current/...#time_period_selector)

## Monitoring &gt; Latest data

- Simple graphs provide an easy and fast way to visualize item data.
- Simply click on the Graph link for the respective item to open the graph.
- Zoom in using the mouse.

<input type="checkbox"/> Host	Name ▲	Last check	Last value	Change
▼ Training-VM-XX	<b>Network</b> (2 Items)			
<input type="checkbox"/>	Interface eth0: Incoming traffic	2020-06-13 16:31:16	270 B	-80 B
<input type="checkbox"/>	Interface eth0: Outgoing traffic	2020-06-13 16:31:17	452 B	-1.35 KB

Displaying 2 of 2 found



Select several items and switch between:

Stacked

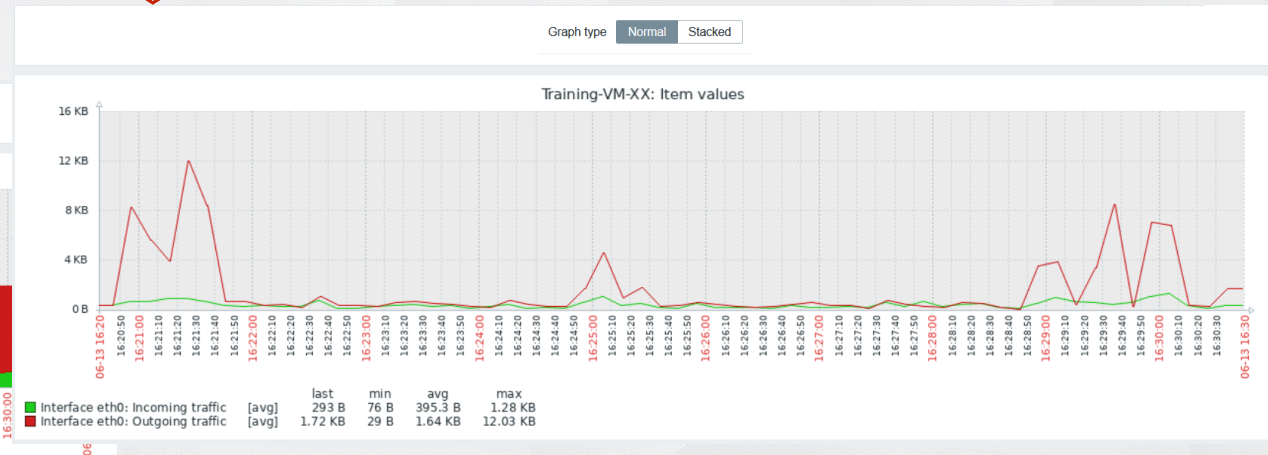
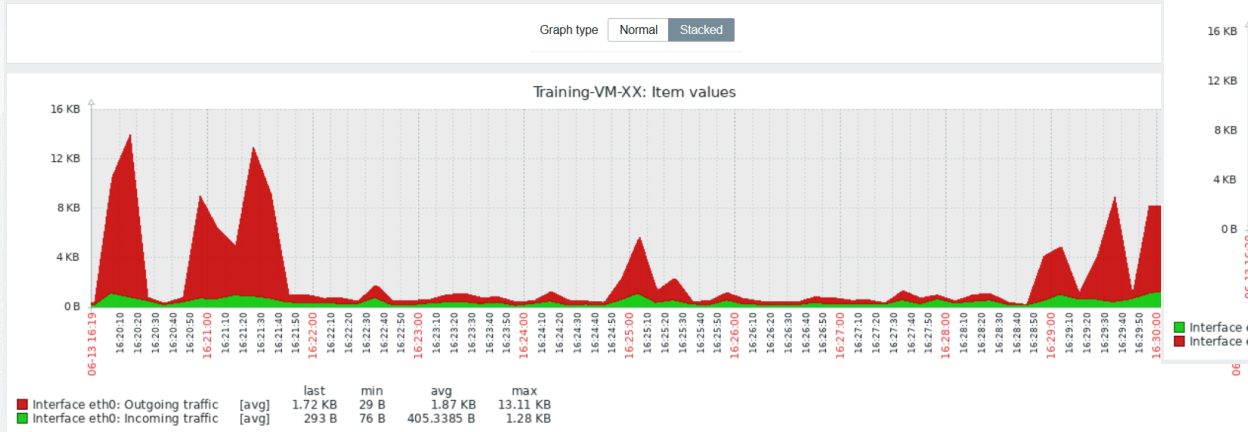
Normal

<input type="checkbox"/> Host	Name ▲	Last check
▼ Training-VM-XX	Network (2 Items)	
<input checked="" type="checkbox"/>	Interface eth0: Incoming traffic	2020-06-13 16:32:16
<input checked="" type="checkbox"/>	Interface eth0: Outgoing traffic	2020-06-13 16:32:17

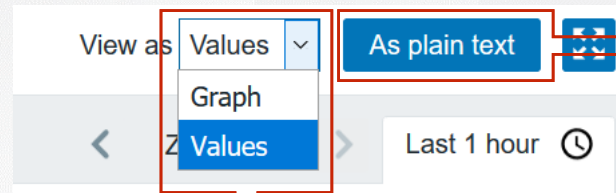
2 selected

Display stacked graph

Display graph



Switch "View as" to values to get raw data for the selected time frame.



Training-VM-trainer: Interface eth0: Incoming traffic

```

2020-05-20 23:59:51 1590008391 1641
2020-05-20 23:59:41 1590008381 1908
2020-05-20 23:59:31 1590008371 1488
2020-05-20 23:59:21 1590008361 1641
2020-05-20 23:59:11 1590008351 1546
2020-05-20 23:59:01 1590008341 1356
2020-05-20 23:58:51 1590008331 1627
2020-05-20 23:58:41 1590008321 1537
2020-05-20 23:58:31 1590008311 1279
2020-05-20 23:58:21 1590008301 2129
2020-05-20 23:58:11 1590008291 2070
2020-05-20 23:58:01 1590008281 1411
  
```

Timestamp	Interface eth0: Incoming traffic" (bytes per second)	Interface eth0: Outgoing traffic" (
2020-05-05 17:59:08		850
2020-05-05 17:59:07	852	
2020-05-05 17:58:58		635
2020-05-05 17:58:57	1035	
2020-05-05 17:58:48		1854



# Custom graphs



## Custom graphs:

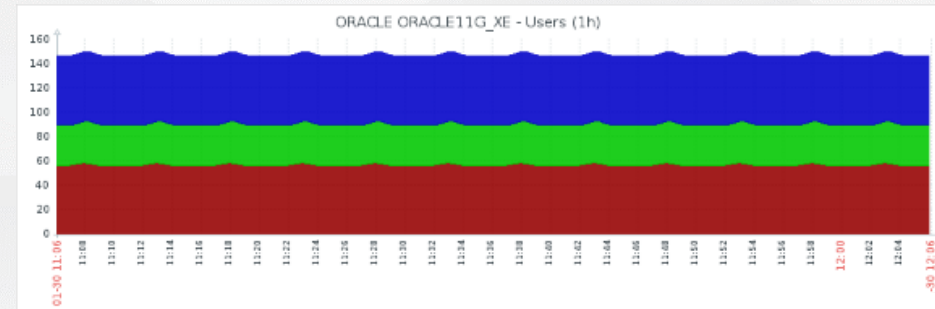
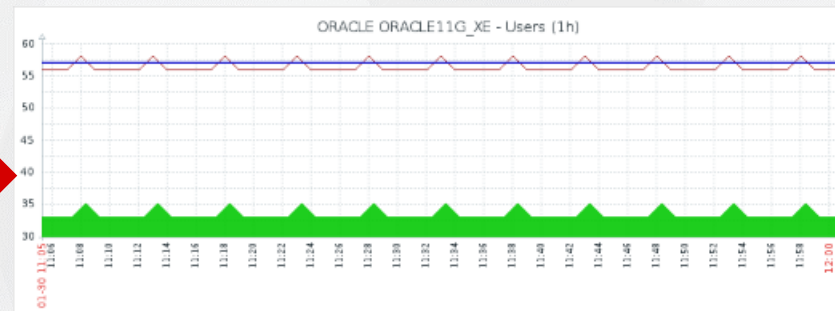
- ⚡ are configured manually;
- ⚡ may belong to a host or a template;
- ⚡ multiple items in a single graph;
- ⚡ customized look;
- ⚡ different graph types:
  - Normal
  - Stacked
  - Pie
  - Exploded pie

Draw style

Line

Filled region

Bold line



<https://www.zabbix.com/documentation/5.0/manual/config/visualisation/graphs/custom>

## The Graph tab:

- ⚡ Name and dimensions
- ⚡ 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

Graph
Preview

\* Name

\* Width

\* Height

Graph type

Show legend

Show working time

Show triggers

Percentile line (left)

Percentile line (right)

Y axis MIN value

Y axis MAX value

	Name	Function	Draw style	Y axis side	Colour	Action
⋮	1: My host: Outgoing network traffic on eth0	avg	Filled region	Left	<span style="background-color: #00C800; border: 1px solid #ccc; padding: 2px;">00C800</span>	<a href="#">Remove</a>
⋮	2: My host: Incoming network traffic on eth0	avg	Bold line	Left	<span style="background-color: #C80000; border: 1px solid #ccc; padding: 2px;">C80000</span>	<a href="#">Remove</a>

[Add](#)

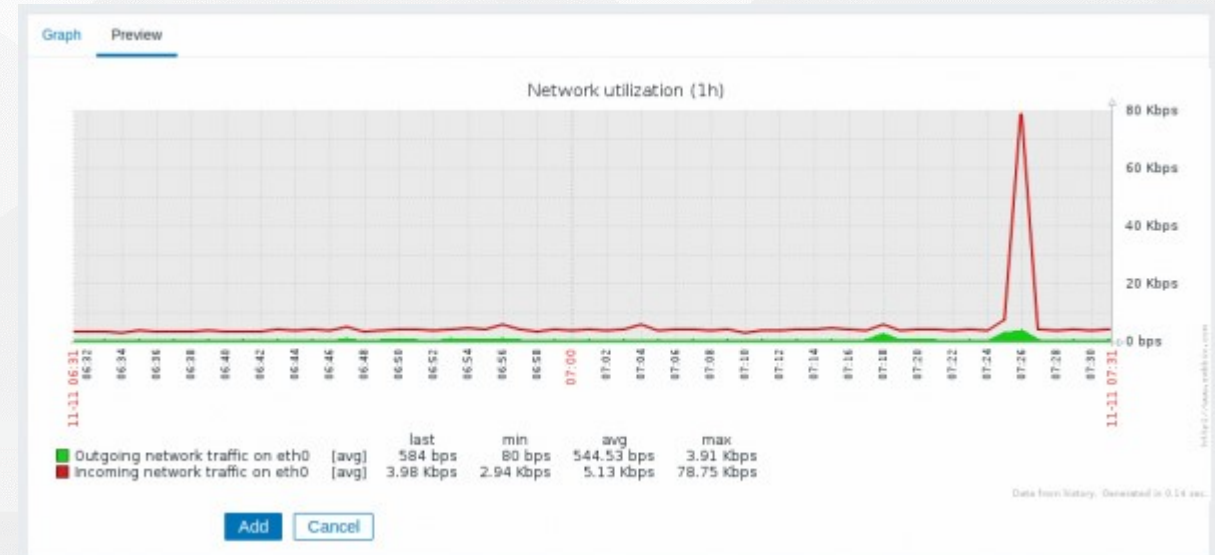
Add
Cancel

## The Preview tab:

- ⚡ Allow to preview what you are creating
- ⚡ Will not show any data for template items

## For items with triggers:

- ⚡ A dashed line shows the trigger's threshold level; the name of a trigger is shown in the legend.
- ⚡ Three triggers is the hard-coded limit.
- ⚡ If graph height is set to less than 120 pixels, triggers will not be shown in the legend.

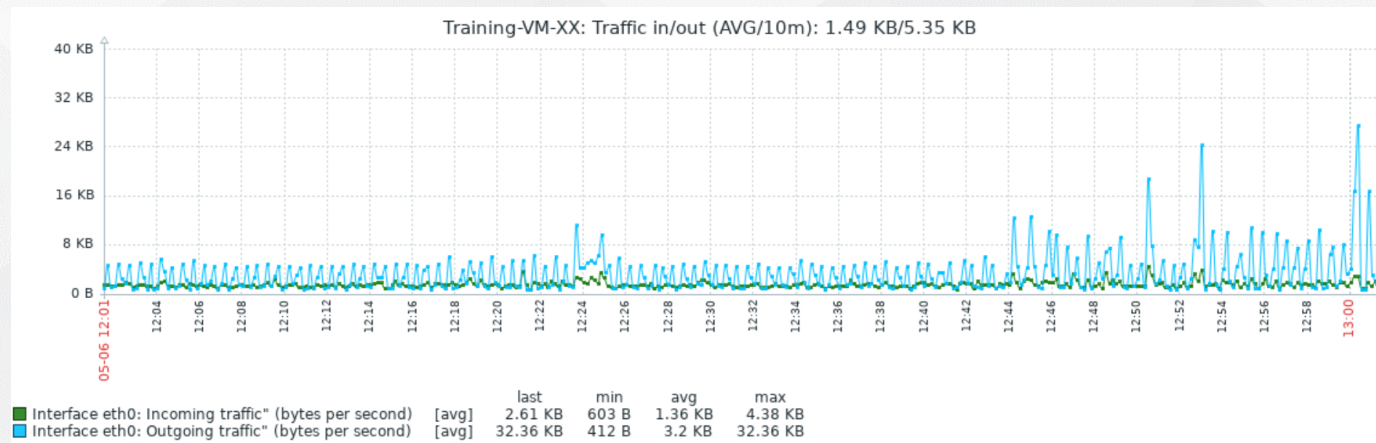


Item values can be referenced in the name by using simple macros.

- ⚡ Simple syntax: {host:key.func(param)}
  - Support only avg(), last(), max() and min() functions with seconds as a parameter.
- ⚡ {HOST.HOST<1-9>} macros referencing the first, second, etc. host in the graph.
  - Example {{HOST.HOST1}:key.func(param)}
- ⚡ Value mapping is supported as well.

Examples:

- CPU Load: {{HOST.HOST}:system.cpu.load.last()}}
- Traffic in/out: {{HOST.HOST}:net.if.in[eth0].avg(10m)}/{{HOST.HOST}:net.if.out[eth0].avg(10m)}}



## Monitoring > Hosts > Graphs

Name ▲	Interface	Availability	Tags	Problems	Status	Latest data	Problems	Graphs	Screens	Web
Apache Node1	192.168.7.105: 10050	ZBX SNMP JMX IPMI	Service: Zabbix Type: Web Engine		Enabled	Latest data	Problems	<b>Graphs 4</b>	Screens 1	Web
build-host.zabbix.lan	127.0.0.1: 10050	ZBX SNMP JMX IPMI			Enabled	Latest data	Problems	Graphs	Screens	Web

### Graphs

View as

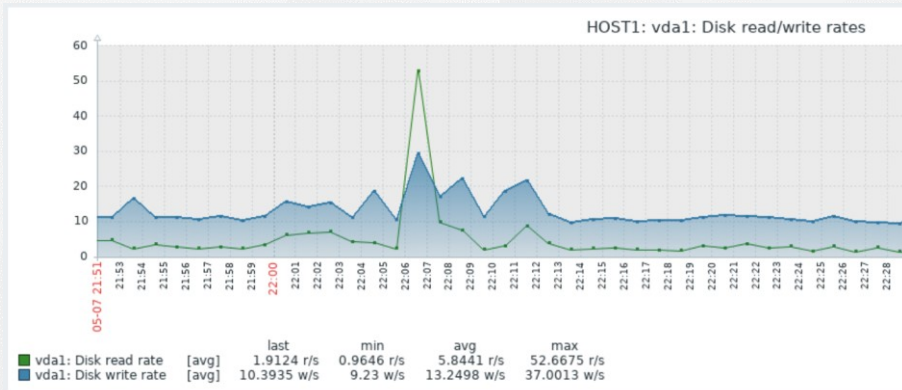
◀ Zoom out ▶

Host:

Search type:

Graphs:

📶 Two options for viewing: "Graph"(default) and "Values"



Timestamp	vda1: Disk read rate	vda1: Disk write rate
2020-05-07 22:52:39	9.0965	10.8758
2020-05-07 22:51:39	1.9124	10.3935
2020-05-07 22:50:39	6.1518	9.8096
2020-05-07 22:49:39	27.5268	30.1476
2020-05-07 22:48:39	25.0061	25.6877

# PRACTICAL SETUP

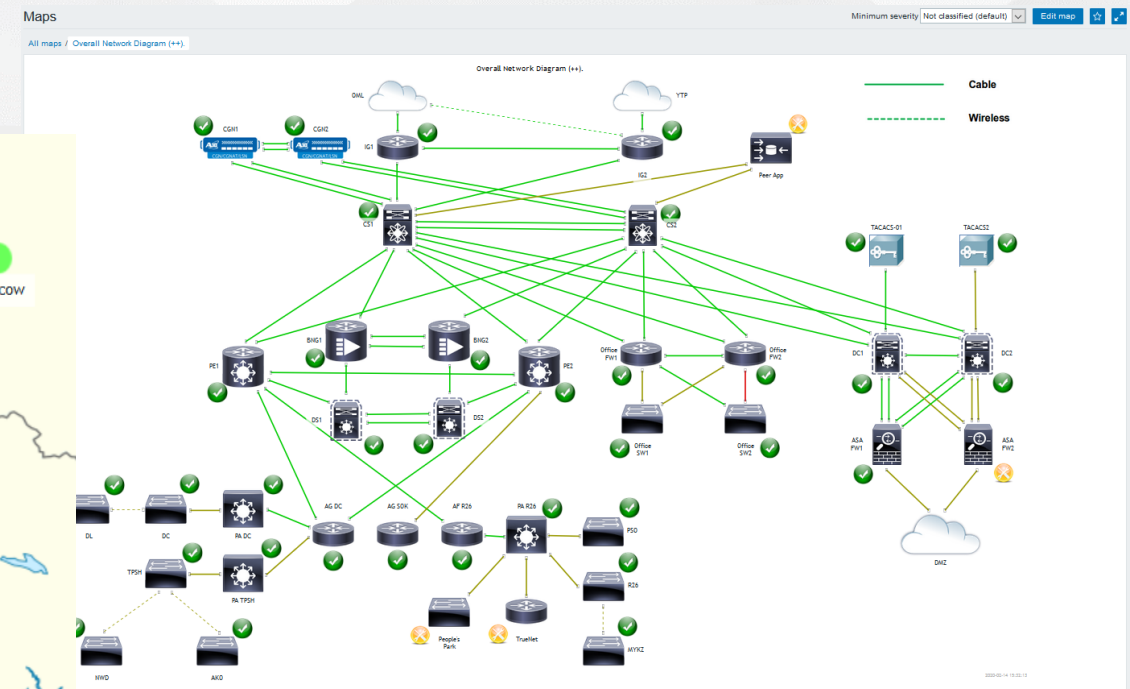
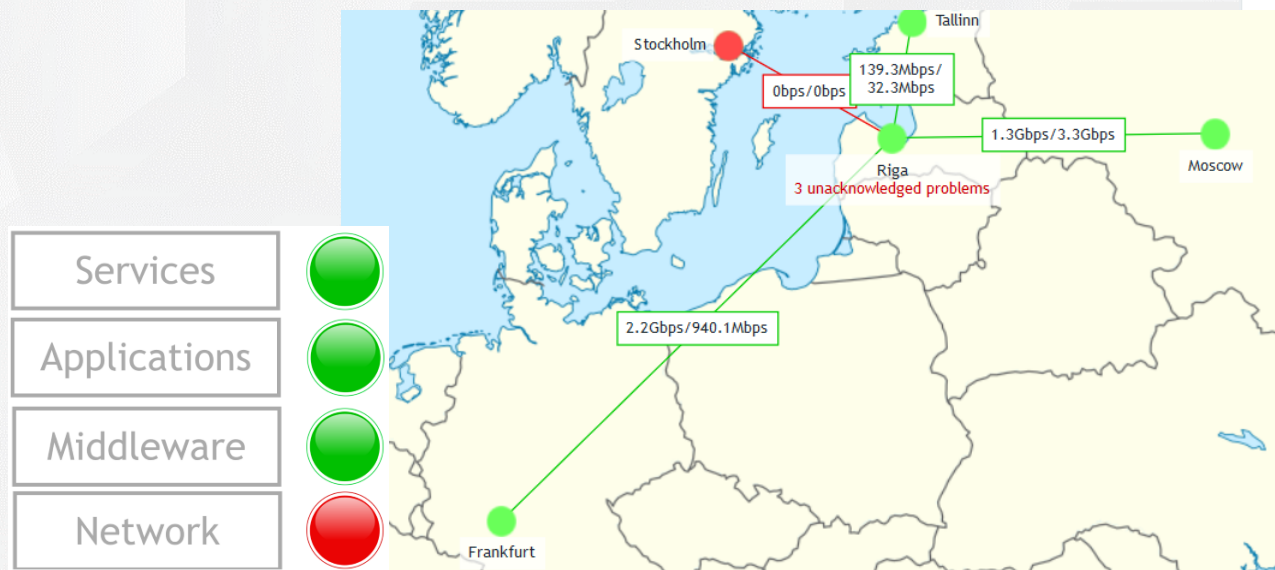
1. In "Template Basic" create a new graph.
  - 1) Add items:
    - 📶 Network related
    - 📶 CPU load
  - 2) Show values in graph names; use last() and avg() functions.
2. Configure the graph:
  - 1) Network statistics should be displayed on the left axis
  - 2) CPU load should be displayed on the right axis

 Advanced task: Display Network traffic in/out values on the graph name



# Maps

- ⚡ Graphical representation of real-time data (e.g. load, bandwidth, connectivity, etc.).
- ⚡ If an event occurs, icon status or link color on the map is changed automatically.
- ⚡ Access to scripts, as well as links to other pages.
- ⚡ Possible to create multi-level hierarchy.
- ⚡ Based on the vector graphics (SVG).



<https://www.zabbix.com/documentation/5.0/manual/config/visualisation/maps/map>



## Monitoring > Maps:

- ~ View all or find specific ones
- ~ Create new ones
- ~ Import/export
- ~ Delete

Maps

[Create map](#)
[Import](#)

Filter

Name

[Apply](#)
[Reset](#)

<input type="checkbox"/> Name ▲	Width	Height	Actions
<input checked="" type="checkbox"/> Network (+)	800	600	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/> Overall Network Diagram (++)	1553	957	<a href="#">Properties</a> <a href="#">Constructor</a>

Displaying 2 of 2 found

1 selected
[Export](#)
[Delete](#)

Press the [Create map] button.

Map properties:

- ⚡ Owner
- ⚡ Name, dimensions
- ⚡ Background image
- ⚡ Icon
  - Automatic mapping
  - Highlighting
  - Behavior
  - Label type and location
- ⚡ Minimum trigger severity
- ⚡ Display of suppressed problems
- ⚡ URLs for map elements

### Network maps

Map [Sharing](#)

\* Owner

\* Name

\* Width

\* Height

Background image

Automatic icon mapping  [show icon mappings](#)

Icon highlight

Mark elements on trigger status change

Display problems

Advanced labels

Map element label type

Map element label location

Problem display

Minimum severity

Show suppressed problems

URLs

Name	URL	Element	Action
<input type="text"/>	<input type="text"/>	Host	<input type="button" value="Remove"/>

[Add](#)

Make it public or set permissions for other users or groups.

- ⚡ Setting to "Public" automatically enables "Read-only" sharing for all users.
- ⚡ "Private" allows to set individual (user or user group) sharing settings.

Map Sharing

Type  Private  Public

List of user group shares	User groups	Permissions	Action
	Production (Read)	<input checked="" type="radio"/> Read-only <input type="radio"/> Read-write	<a href="#">Remove</a>
<a href="#">Add</a>			

List of user shares	Users	Permissions	Action
	meggy.wilson (Meggy Wilson)	<input type="radio"/> Read-only <input checked="" type="radio"/> Read-write	<a href="#">Remove</a>
<a href="#">Add</a>			

**Permissions for User groups**

**Permissions for individual users**

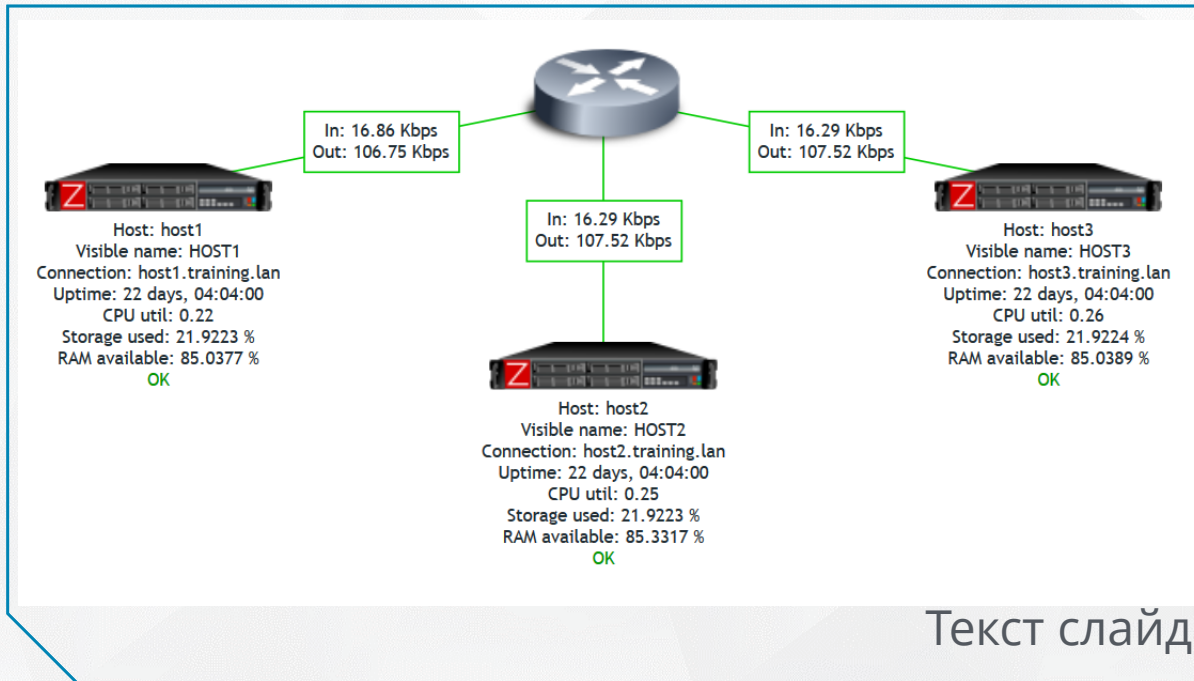
All users in Zabbix (including non-admin users) can create network maps.

- ⚡ Owner - creator of the map (can be changed).
- ⚡ Can be made public or private:
  - Public maps are visible to all users.
  - Private maps are visible only to their owner and the users/user groups the map is shared with.

Lack of read permission for a user to an element:

- ⚡ Greyed out icon and hidden textual information.
- ⚡ Trigger label is visible even if the user has no permissions to the trigger.

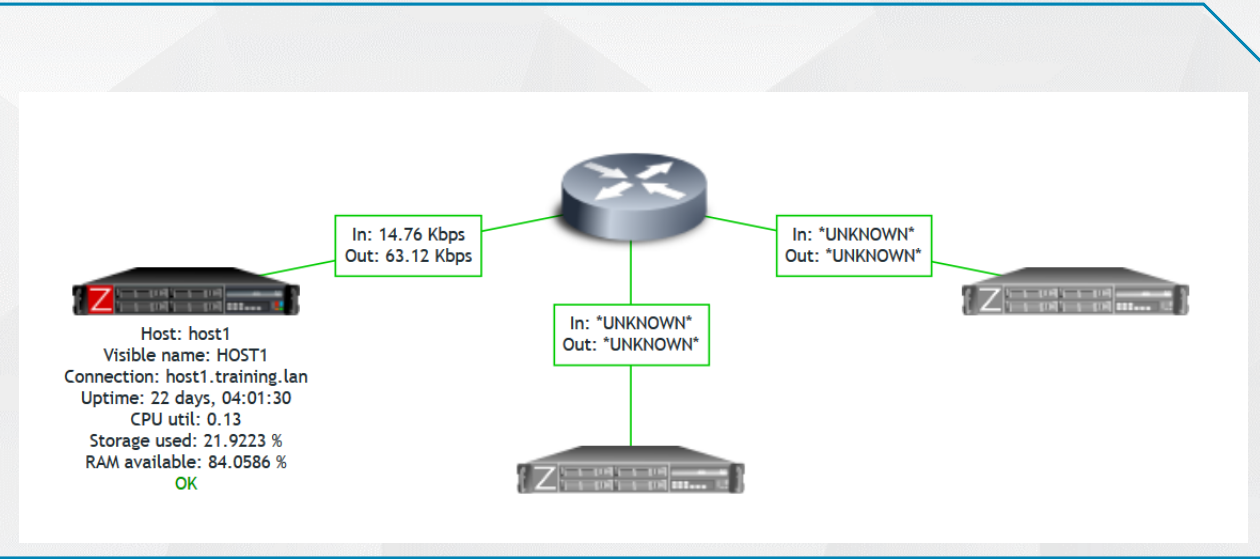
To add an element to the map, a user must also have at least read permission.



Map sharing set to "Public"  
user1 has at least read-only permissions on all hosts

Текст слайда

Map sharing set to "Public"  
user2 has read permission for host1  
no permissions for host2  
host3



Another way to create a new map is to clone and then edit an existing one. Use buttons in the map configuration form:

⚡ Clone:

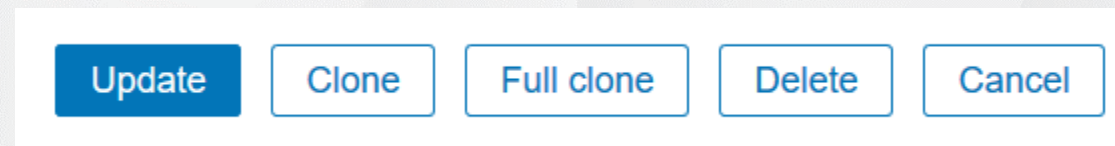
- Will retain general layout attributes of the original map
- No elements

⚡ Full clone retains:

- General layout attributes
- All elements of the original map

Go to Monitoring > Maps > {existing map} properties

⚡ Scroll down and press one of the clone buttons:



When all map properties are set, proceed to the constructor:

**Network maps**



Map element: [Add](#) / [Remove](#) Shape: [Add](#) / [Remove](#) Link: [Add](#) / [Remove](#) Expand macros:  Grid:  Shown /  On

Y X:	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
50																	
100																	

## Basic controls:

- ⚡ Add/Remove
  - Elements (host, host group, image, map, trigger)
    - Each type has its own set of properties.
  - Shape (rectangle, ellipse, line)
    - Customize the background/border.
    - Add text and customize the look, layout, size.
  - Link (select two elements)
    - Customize the look and the label.
    - Can change color based on triggers.

## Expand macros: on/off

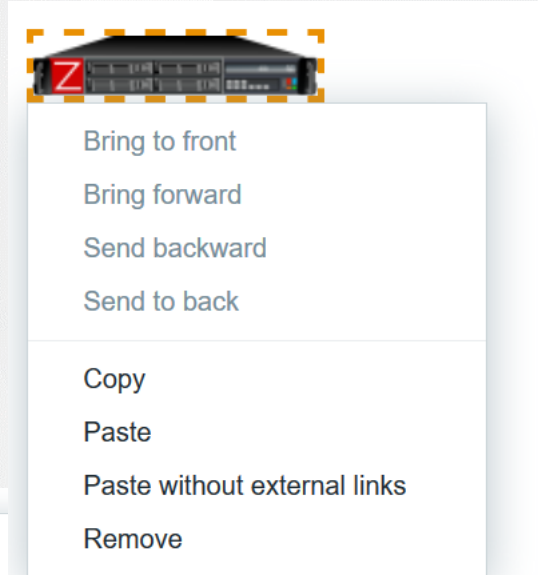
 <p>Host with macros: Zabbix server 127.0.0.1 20 days, 22:40:47 0.28</p>	 <p>Host with macros: {HOST.NAME} {HOST.CONN} {{HOST.HOST}:system.uptime.last()} {{HOST.HOST}:system.cpu.load[all,avg5].last()}}</p>
---	---

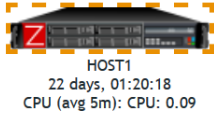
Right click on a single element to open a menu with options:

- ⚡ change the order of elements (shapes);
- ⚡ Copy/Paste/Remove.

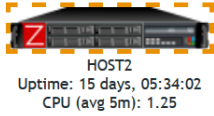
Select multiple elements:

- CTRL + Mouse click;
- by mouse rectangularly.
- ⚡ To perform mass update of:
  - Label (content, location)
  - Icons (depending on state)
- ⚡ To create a link.





HOST1  
22 days, 01:20:18  
CPU (avg 5m): CPU: 0.09



HOST2  
Uptime: 15 days, 05:34:02  
CPU (avg 5m): 1.25

**Mass update elements**

Selected elements	Type	Name
	Host	Training-VM-XX Active checks
	Host	Zabbix server

Label

Label location Default

Automatic icon selection

Icon (default) 1\_Traffic\_Light\_black-RED

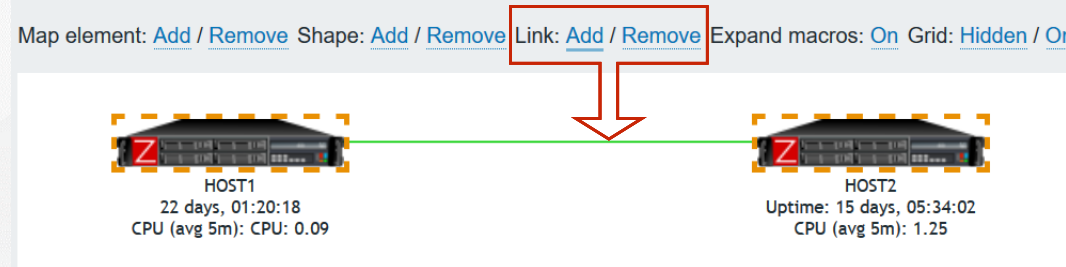
Icon (problem) Default

Icon (maintenance) Default

Icon (disabled) Default



To add or remove a link, select multiple hosts and click Link: [ Add ].



In the "Mass update elements" popup window find links section and hit [ Edit ].

Links	From	To	Link indicators	Action
	HOST1	HOST2		<a href="#">Edit</a>

Modify:

📡 Label:

- add static text;
- use macros to show real-time information.

📡 Line type and color (if no open problems).

📡 Add triggers and set the line type/color

- To override links color on problem event.

Label: In: {host1:net.if.in["eth0"].avg(5m)}  
Out: {host1:net.if.out["eth0"].avg(5m)}

Type (OK): Line

Colour (OK): 00CC00

Link indicators	Trigger	Type	Colour	Action
	Zabbix server: High CPU utilization (over 90% for 5m)	Line	DD0000	<a href="#">Remove</a>

[Add](#)

When all map properties are set, proceed to the constructor:

## Network maps

Map element: [Add](#) / [Remove](#) Shape: [Add](#) / [Remove](#) Link: [Add](#) / [Remove](#) Expand macros: [On](#) Grid: [Shown](#) / [On](#) 50x50 [Align map elements](#) [Update](#)

Shape1 heading using macro to display maps name:  
Training map: Main

Shape2: Map elements

### Map element

Type: Host

Label: `Host with macros:  
{HOST.NAME}  
{HOST.CONN}  
{{HOST.HOST}:system.uptime.last()}  
{{HOST.HOST}:system.cpu.load[all,avg5].last()}}`

Label location: Default

\* Host: Zabbix server Select

Application:  Select

Automatic icon selection:

Icons:

- Default: Zabbix\_server\_3D\_(128)
- Problem: Default
- Maintenance: Default
- Disabled: Default

Coordinates X: 61 Y: 311

Name	URL	Action
Apache status	http://{HOST.CONN}/server-status	<a href="#">Remove</a>

[Add](#)

[Apply](#) [Remove](#) [Close](#)

## Maps

Minimum severity Not classified (default) Edit map

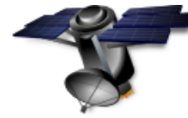
All maps / Training map: Main

Shape1 heading using macro to display maps name:  
Training map: Main

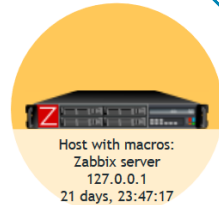
Shape2: Map elements



Map - Link to another map  
OK



Just an image



Host with macros:  
Zabbix server  
127.0.0.1  
21 days, 23:47:17  
0.14  
High swap space usage ( less than 50% free)



Host group  
Training/Servers  
CPU Load is very high on Training-VM-XX  
2 problems



Trigger:  
All triggers for Zabbix Server  
High swap space usage ( less than 50% free)

If a trigger  
fires, the icon  
changes.

Link to another map also showing  
state of all elements.

Can use static text combined  
with {MACROS} in the label.  
Shows real-time data  
and most recent triggers.

Represents the state of the whole  
Host group: Training/servers  
and shows most recent problem.

2020-05-07 17:00:46

## Map elements:

- ⚡ Host – the icon represents status of all triggers of the host
- ⚡ Map – the icon represents status of all elements of a map
- ⚡ Trigger – the icon represents status of one or more triggers
- ⚡ Host group - the icon represents status of all triggers of all hosts belonging to the selected group or host group elements
- ⚡ Image - an icon that is not linked to any resource.

Animated gif images are supported.



## Macro: {host:key.function(parameter)}

- ⚡ Displays values from items for an element (e.g. a link or a host).
- ⚡ For host elements, {HOST.HOST} macro unifies labels (makes a map dynamic).
  - {{HOST.HOST}:key.function(parameter)}
- ⚡ The avg, last, min and max trigger functions are supported, with seconds as a parameter.

### Map element

Type

Label

```
Host: {HOST.HOST}
Visible name: {HOST.NAME}
Connection: {HOST.CONN}
Uptime: {host1:system.uptime.last()}
CPU util: {{HOST.HOST}:system.cpu.load[all,avg5].last()}
Net in/out: {{HOST.HOST}:net.if.in["eth0"].last()} / {{HOST.HOST}:net.if.out["eth0"].last()}
Storage used: {{HOST.HOST}:vfs.fs.size[/,pused].last()}
RAM available: {{HOST.HOST}:vm.memory.size[pavailable].last()}
```



```
Host: host1
Visible name: HOST1
Connection: 127.0.0.1
Uptime: 22 days, 03:24:30
CPU util: 0.11
Net in/out: 9.74 Kbps / 9.31 Kbps
Storage used: 21.9214 %
RAM available: 85.0515 %
```

Display problems

Expand single problem

Number of problems

Number of problems and expand most critical one

Expand single problem



HOST1

High swap space usage ( less than 50% free)

Number of problems



HOST1

1 problem

Number of problems and expand most critical one



HOST1

Load average is too high (per CPU load over 1.5 for 5m)  
6 problems

Problem display

- All
- All
- Separated
- Unacknowledged only

All



HOST1

6 problems

Separated



HOST1

6 problems  
4 unacknowledged problems

Unacknowledged only



HOST1

4 unacknowledged problems

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

Use a Map element or custom URLs to link an icon to another map.

## 1. Add "Map element"

Type: Map

Label: Submap

Label location: Default

\* Map: Training map: 5 Three hosts with links

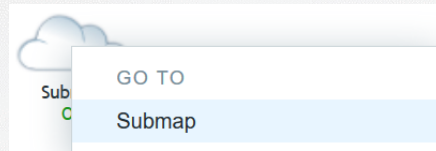
## 1. On any element create URL:

Image element for Submap

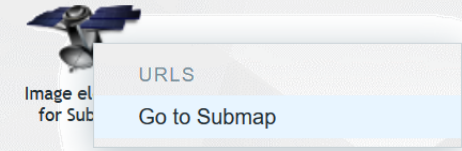
URLs	Name	URL
	Submap	zabbix.php?action=map.view&sysmapid=7

[Add](#)

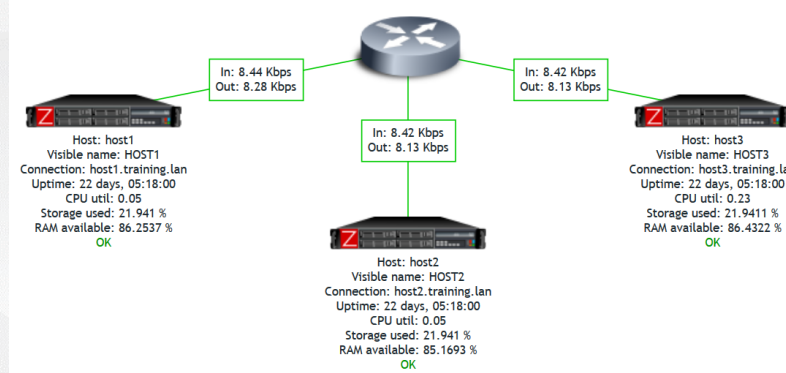
## 2. Left click on element in map view



## 2. Left click on element in map view



## 3.





### ⚡ Links:

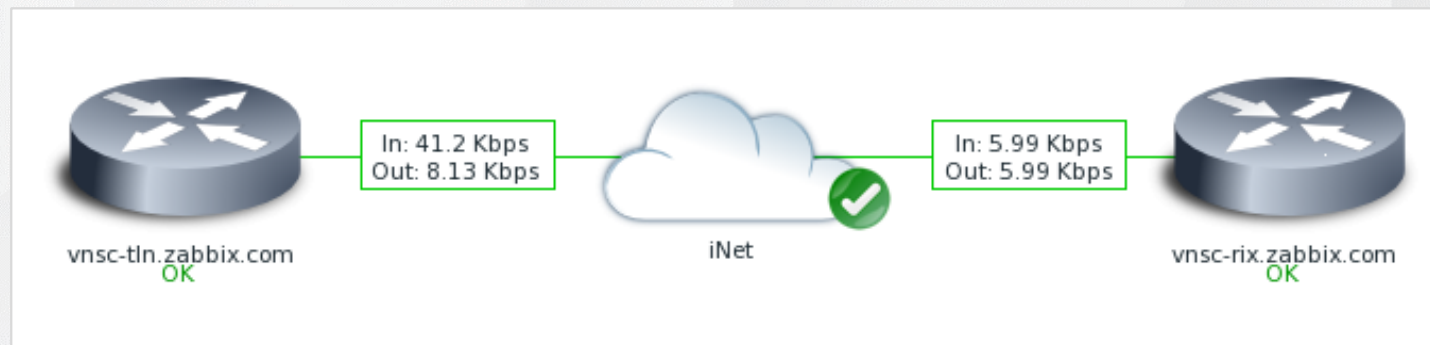
- Set the same background color – links appear only when a problem is active!
- Straight lines (by default) - route by using invisible icons or shapes.

### ⚡ Use macros in the URLs: {HOST.CONN}, {HOST.IP}, {HOST.DNS}

### ⚡ Use icon mappings to assign icons to matching hosts automatically.

### ⚡ Selecting elements:

- hold down Ctrl to select elements;
- multiple elements - by dragging a rectangle;
- to change attributes in one go (mass-update mode);
- to move and copy-paste; ordering for shapes and lines.



# PRACTICAL SETUP

- 1) Upload some images.
- 2) Create icon mapping.
- 3) Create two new maps:
  - ❗ Name: "Training.lan"
    - Add the Training resource server, your VM and the trainer's VM
    - Format labels to show useful information about hosts.
    - Add links between hosts with labels showing network stats.
    - Add CPU triggers to links.
    - Use a custom icon or a custom background image.
    - Add useful information to a host and link label (CPU load, In/Out traffic).
    - Element: a host group (will be linked to the "Training servers" map).
  - ❗ Name: "Training servers"
    - Use icon mapping.
    - Host information name/connection settings.
    - CPU and network stats.
- 4) Fire a trigger to mark an element and see how the links will change.

 **Advanced task: Add a transparent image and make curved links.**



# Screens

A screen allows to group information from various sources for a quick overview.

- Works like a table.
- Drag-and-drop editing.
- Refreshes elements in the background.
- Two types:
  - Host-level screens:
    - Can be generated automatically by LLD.
    - Monitoring > Hosts > [ host ] > Screens
  - Global screens:
    - Can contain information from multiple hosts
- Support Import/Export.

Many different elements:

- Simple, custom and graph prototypes
- Item values
- Maps
- Active problems
- Other screens
- Custom URLs
- Overview page
- ...more

 Deprecated, will be removed at some point - use Dashboards instead.

## Monitoring > Screens:

📶 A simple list with search and few control options.

Screens ▾
Create screen
Import

Filter

Apply
Reset

<input type="checkbox"/> Name ▲	Dimension (cols x rows)	Actions
<input type="checkbox"/> Linux Servers	2 x 2	<a href="#">Properties</a> <a href="#">Constructor</a>
<input checked="" type="checkbox"/> MySQL	2 x 5	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/> Oracle	4 x 2	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/> Printers	2 x 2	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/> Websites	2 x 3	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/> Zabbix server	6 x 6	<a href="#">Properties</a> <a href="#">Constructor</a>
<input type="checkbox"/> ZCU	3 x 4	<a href="#">Properties</a> <a href="#">Constructor</a>

Displaying 7 of 7 found

1 selected
Export
Delete

## Properties:

- ⚡ Owner and Name
- ⚡ Dimensions (table style)
- ⚡ Can be cloned

The screenshot shows the 'Screen' configuration page with the 'Sharing' tab selected. The 'Owner' is set to 'Admin (Zabbix Administrator)' with a 'Select' button. The 'Name' is 'MySQL'. The 'Columns' are set to 2 and 'Rows' to 5. At the bottom, there are buttons for 'Update', 'Clone', 'Full clone', 'Delete', and 'Cancel'.

## Sharing:

- ⚡ Private/Public
- ⚡ User/User Group
- ⚡ Permissions:
  - Read-only
  - Read-write

The screenshot shows the 'Screen' configuration page with the 'Sharing' tab selected. The 'Type' is set to 'Private'. Below, there are two sections: 'List of user group shares' and 'List of user shares'. The 'List of user group shares' section shows a table with columns for 'User groups', 'Permissions', and 'Action'. The 'List of user shares' section shows a table with columns for 'Users', 'Permissions', and 'Action'. At the bottom, there are 'Add' and 'Cancel' buttons.

User groups	Permissions	Action
Testers	Read-only Read-write	<a href="#">Remove</a>
<a href="#">Add</a>		

Users	Permissions	Action
meggy.wilson (Meggy Wilson)	Read-only Read-write	<a href="#">Remove</a>
<a href="#">Add</a>		

## Constructor starts with an empty table:

- Click on [+] / [-] to add/remove row or column.
- Then, click [Change] in any cell to add elements.
- Added elements will show real-time data.

+ Change

+ Change

	last	min	avg	ma
Interface eth0: Bits received [avg]	11.9 Kbps	8.66 Kbps	10.6 Kbps	16.49
Interface eth0: Bits sent [avg]	17.02 Kbps	8.84 Kbps	12.79 Kbps	27.58
Interface eth0: Outbound packets with errors [avg]	0	0	0	0
Interface eth0: Inbound packets with errors [avg]	0	0	0	0
Interface eth0: Outbound packets discarded [avg]	0	0	0	0
Interface eth0: Inbound packets discarded [avg]	0	0	0	0

+ Change

**History of events**

Time	Recovery time	Host	Description	Value	Severity
2020-05-06 19:48:17	2020-05-06 20:07:17	Zabbix server	High memory utilization (>90% for 5m)	RESOLVED	Average
2020-05-06 19:01:17	2020-05-06 19:07:17	Zabbix server	High memory utilization (>90% for 5m)	RESOLVED	Average
2020-05-06 18:28:17	2020-05-06 18:33:17	Zabbix server	High memory utilization (>90% for 5m)	RESOLVED	Average
2020-05-06 16:22:17	2020-05-06 18:07:17	Zabbix server	High memory utilization (>90% for 5m)	RESOLVED	Average
2020-05-06 15:31:17	2020-05-06 16:07:17	Zabbix server	High memory utilization (>90% for 5m)	RESOLVED	Average

Updated: 14:09:43

+ Change

+ Change

Resource Graph

- \* Graph
- Action log
- Clock
- Width
- Data overview
- Graph Graph
- Graph prototype
- History of events
- Host group issues
- Host info
- Host issues
- Map
- Plain text
- \* Column span
- \* Row span
- Dynamic item
- Problems by severity
- Simple graph
- Simple graph prototype
- System information
- Trigger info
- Trigger overview
- URL

+ Change

- Action log - history of recent actions.
- Clock - analog clock displaying current server or local time.
- Data overview - latest data for a group of hosts.
- Graph – a single custom graph.
- Graph prototype – a custom graph from a low-level discovery rule.
- History of events – the latest events.
- Host group issues - status of triggers filtered by a host group.
- Host info – high-level host related information.
- Host issues - status of triggers filtered by a host.
- Map
- Plain text
- Simple graph prototype – a simple graph based on item generated by low-level discovery.
- System information - high-level information about Zabbix server.
- Problems by severity
- Trigger info – high-level trigger related information.
- Trigger overview - status of triggers for a host group.
- URL - include content from the specified resource.

 <https://www.zabbix.com/documentation/5.0/manual/config/visualisation/screens/elements>



The host screen can be added on a host or a template.  
 Access to host screens is provided from multiple locations:

## Monitoring > hosts

Name	Interface	Availability	Tags	Problems	Status	Latest data	Problems	Graphs	Screens	Web
MySQL Host	127.0.0.1: 10050	ZBX   SNMP   JMX   IPMI		1	Enabled	Latest data	Problems 1	Graphs 19	Screens 3	Web
MySQL server 01	192.168.7.101: 10050	ZBX   SNMP   JMX   IPMI			Enabled	Latest data	Problems	Graphs 35	Screens 1	Web
MySQL server 02	192.168.7.105: 10050	ZBX   SNMP   JMX   IPMI		1	Enabled	Latest data	Problems 1	Graphs 6	Screens 1	Web

Displaying 3 of 3 found

## Inventory > Hosts > [host]

Host name: MySQL Host

Agent interfaces

IP address	DNS name	Connect to	Port	Default
127.0.0.1		IP   DNS	10050	<input checked="" type="radio"/>

OS: Linux demo2.zabbix.lan 3.10.0-514.26.2.el7.x86\_64 #1 SMP Tue Jul 4 15:04:05 UTC 2017 x86\_64

Monitoring: [Web](#) [Latest data](#) [Problems](#) [Graphs](#) [Screens](#)

## Problems/Dashboards - anywhere, where Host's name is clickable.

Time	Severity	Recovery time	Status	Info	Host	Problem	Operational data
2020-04-29 14:07:22	Warning		PROBLEM		Zabbix server	High average usage (less than 50% free)	Free: 19.5309 %, total: 1 GB

0 selected [Mass update](#)

- HOST
- Inventory
- Latest data
- Problems
- Graphs
- Screens

Dynamic screens can be used to show information from various hosts.

- Hosts must be using the same Template > Graphs.
- When adding elements, enable **Dynamic item** to make the host lookup field available.

Change

Resource Graph

\* Graph Zabbix server: CPU utilization ✕

Width 500

Height 100

Horizontal align Left Centre Right

Vertical align Top Middle Bottom

\* Column span 1

\* Row span 1

1 Dynamic item

Add
Cancel

2 Host Zabbix server ✕ Select

Edit screen
☆
↕

Zoom out Last 1 hour

3

	last	min	avg	max	
CPU utilization	[avg] 11.4223 %	4.8433 %	6.2618 %	12.3484 %	

	last	min	avg	ma
Interface eth0: Bits received	[avg] 10.18 Kbps	8.66 Kbps	10.74 Kbps	16.49
Interface eth0: Bits sent	[avg] 10.53 Kbps	8.84 Kbps	12.67 Kbps	26.6
Interface eth0: Outbound packets with errors	[avg] 0	0	0	0
Interface eth0: Inbound packets with errors	[avg] 0	0	0	0
Interface eth0: Outbound packets discarded	[avg] 0	0	0	0
Interface eth0: Inbound packets discarded	[avg] 0	0	0	0

⚡ Time range options, zoom in with the mouse.

⚡ Clicking on a graph, opens it in full view.

Screens ▾ Host  Select Edit screen ☆ ⌵

All screens / MySQL Zoom out ▶ Last 1 hour 🕒

### MySQL server 01: MySQL - Query Cache Memory

	last	min	avg	max
Qcache_free_blocks	[avg] 0	0	0	0
Qcache_free_memory	[avg] 0 B	0 B	0 B	0 B
Qcache_total_blocks	[avg] 0	0	0	0
query_cache_size	[avg] 0 B	0 B	0 B	0 B

### MySQL server 01: MySQL - Binary Log Cache Usage

	last	min	avg	max
binlog_cache_size	[avg] 32 KB	32 KB	32 KB	32 KB
binlog_stmt_cache_size	[avg] 32 KB	32 KB	32 KB	32 KB
Binlog_cache_disk_use	[avg] 0	0	0	0
Binlog_cache_use	[avg] 3	2	8.6667	38
Binlog_stmt_cache_disk_use	[avg] 0	0	0	0

### MySQL server 01: MySQL - Connections

	last	min	avg	max
max_connections	[avg] 151	151	151	151
Max_used_connections	[avg] 75	75	75	75
Aborted_clients	[avg] 0	0	0	0
Aborted_connects	[avg] 0	0	0	0
Threads_connected	[avg] 54	54	54	54
Connections	[avg] 0	0	0	0

### MySQL server 01: MySQL - InnoDB Adaptive hash index

	last	min	avg	max
InnoDB_hash_index_cells_total	[avg] 553.23 K	553.23 K	553.23 K	553.23 K
InnoDB_hash_index_cells_used	[avg] 0	0	0	0

### MySQL server 01: MySQL - InnoDB buffer pool reads/writes

	last	min	avg	max
InnoDB_buffer_pool_reads	[avg] 3	0	12.1667	56
InnoDB_buffer_pool_read_ahead	[avg] 3.78 M	3.78 M	3.78 M	3.78 M
InnoDB_buffer_pool_read_ahead_evicted	[avg] 0	0	0	0
InnoDB_buffer_pool_read_ahead_rnd	[avg] 0	0	0	0
InnoDB_buffer_pool_read_requests	[avg] 51.79 K	48.02 K	51.23 K	59.62 K
InnoDB_buffer_pool_write_requests	[avg] 311	216	899	4.08 K
InnoDB_buffer_pool_wait_free	[avg] 4	4	4	4

### MySQL server 01: MySQL - InnoDB buffer pool Efficiency

	last	min	avg	max
InnoDB_buffer_pool_reads	[max] 3	0	12.1667	56
InnoDB_buffer_pool_read_requests	[avg] 51.79 K	48.02 K	51.23 K	59.62 K



# Slideshows

## Monitoring &gt; Screens &gt; Slide shows:

- 📶 Cycles through many screens
- 📶 Any ordering
- 📶 Multiplier refresh in monitoring

## Screens ▾

Screens

Slide shows

## Slide shows ▾

Create slide show

Filter ▾

Name

Apply

Reset

<input type="checkbox"/> Name ▲	Delay	Number of slides
<input type="checkbox"/> Training slideshow	30s	2

0 selected

Delete

## Slide

## Sharing

\* Owner Admin (Zabbix Administrator) ✕ 

\* Name Training slideshow

\* Default delay 30s

\* Slides

Screen

Delay

Action

⋮

1: Training Servers

[Remove](#)

⋮

2: Zabbix server

[Remove](#)[Add](#)<https://www.zabbix.com/documentation/5.0/manual/config/visualisation/slides>

Same as for dashboards, maps, screens – the slide shows can be private or public.

- ⚡ Public ones can be accessed by all users.
- ⚡ Private ones can be accessed by its owner (creator) and all users the entity has been shared with.
- ⚡ Permissions are respected.

The screenshot shows the 'Slide Sharing' dialog box in Zabbix. It has two tabs: 'Slide' and 'Sharing', with 'Sharing' selected. At the top, there are two buttons for 'Type': 'Private' (selected) and 'Public'. Below this, there are two sections: 'List of user group shares' and 'List of user shares'. Each section contains a table with columns for 'User groups' or 'Users', 'Permissions', and 'Action'. In the 'List of user group shares' section, 'Production (Read)' is listed with 'Read-only' selected and 'Read-write' as an option, and a 'Remove' link. In the 'List of user shares' section, 'meggy.wilson (Meggy Wilson)' is listed with 'Read-only' and 'Read-write' as options, and a 'Remove' link. At the bottom, there are 'Add' and 'Cancel' buttons.

List of user group shares	
User groups	Permissions
Production (Read)	<input checked="" type="radio"/> Read-only <input type="radio"/> Read-write
<a href="#">Add</a>	<a href="#">Remove</a>

List of user shares	
Users	Permissions
meggy.wilson (Meggy Wilson)	<input type="radio"/> Read-only <input checked="" type="radio"/> Read-write
<a href="#">Add</a>	<a href="#">Remove</a>



# Dashboards

Monitoring > Dashboard section is designed to display summaries of all-important information.

- ⚡ Any user can create a dashboard and share with others.
- ⚡ Block-based structure
- ⚡ 24-column grid

Based on widgets:

- ⚡ each widget type has own set of properties;
- ⚡ set refresh intervals;
- ⚡ control header visibility;
- ⚡ smart placement;
- ⚡ can be dragged, dropped, rearranged and resized.



[.../5.0/manual/web\\_interface/frontend\\_sections/monitoring/dashboard](.../5.0/manual/web_interface/frontend_sections/monitoring/dashboard)



Logging in or Monitoring > Dashboard will open most recently used dashboard:

**ZABBIX** Zabbix production env

Pasadena Dashboard

All dashboards / Pasadena Dashboard

Monitoring Dashboard Problems Hosts Overview Latest data Screens Maps Discovery Services Inventory Reports Configuration Administration Support Share Help User settings Sign out

Problems by severity

Host group	Disaster	High	Average	Warning	Information	Not classified
Europe Data center	1	5	8	1		
New York Data center		23	5	4		
Oracle servers		1	1	1		
SNMP devices		21	2	5		

Data center overview map

Temperature: 75°F, Humidity: 33%, Power: 720W

Temperature: 75°F, Humidity: 30%, Power: 760W

Zabbix Server Network interfaces

Disk reads / writes

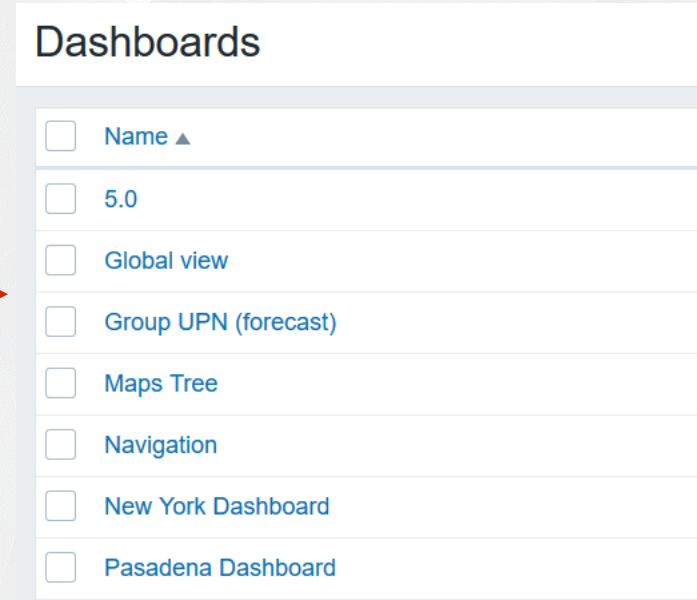
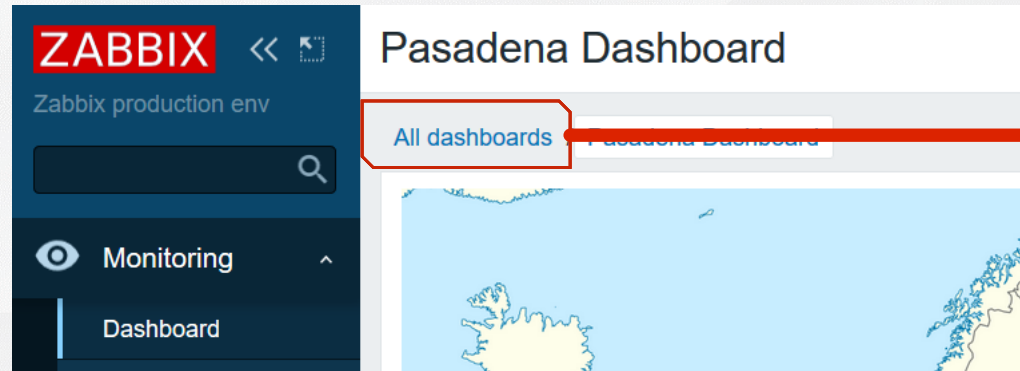
Windows CPU utilization

CPU Load on Zabbix Server

Internal Processes Busy

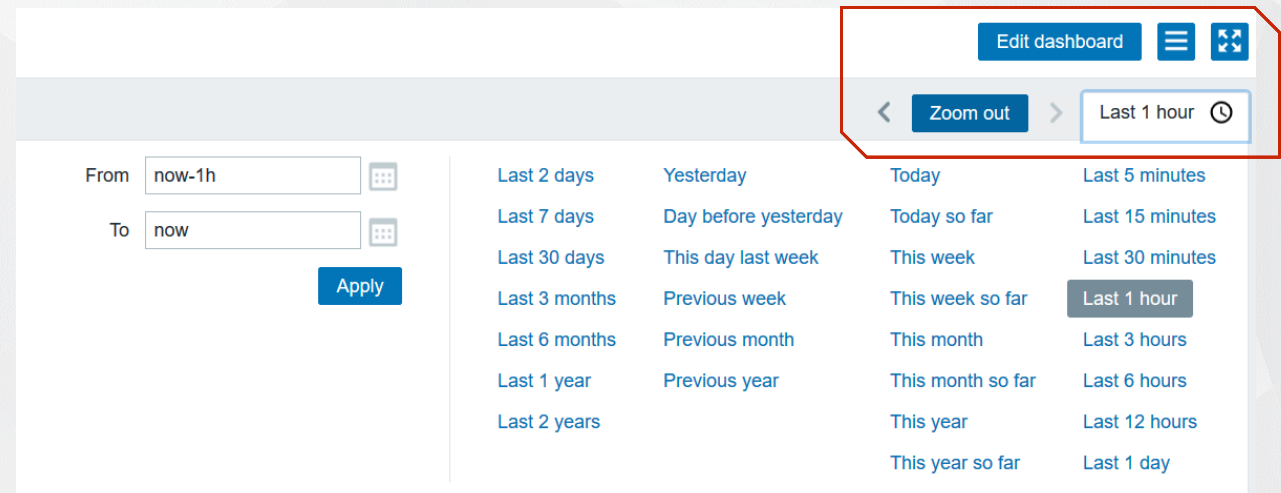
To access all configured dashboards:

⚡ Click on the All dashboards link below the section title



The controls are on the right:

- ⚡ Switch to editing mode
- ⚡ Actions (Share, New, Clone, Delete)
- ⚡ Kiosk mode (full screen)
- ⚡ Time selector



Permissions to dashboards for Users are limited in the following way:

- ⚡ See and clone a dashboard - if they have at least READ.
- ⚡ Edit and delete a dashboard - only if they have READ/WRITE.
- ⚡ The owner can be changed.

Click on [Actions] > Sharing

New dashboard

[All dashboards](#) / [New dashboard](#)

## Dashboard sharing

Type  Private  Public

List of user group shares

User groups

Permissions

Action

Production (Read)

Read-only

Read-write

[Remove](#)

[Add](#)

List of user shares

Users

Permissions

Action

meggy.wilson (Meggy Wilson)

Read-only

Read-write

[Remove](#)

[Add](#)

Permissions for User groups

Permissions for individual users

## Super Admin Vs User

Dashboard sharing

Type **Private** Public

List of user group shares

User groups	Permissions	Action
<a href="#">Add</a>		

List of user shares

Users	Permissions	Action
User1	<b>Read-only</b> Read-write	<a href="#">Remove</a>
<a href="#">Add</a>		

[Update](#) [Cancel](#)

**User1 permissions for Dashboard**

### Super Admin user:

HOST1 CPU and Network

HOST2 CPU and Network

Problems for HOST1 and HOST2

Time	Recovery time	Status	Info	Host	Problem • Severity	Duration	Ack	Actions
14:00:33		PROBLEM		HOST1	High swap space usage ( less than 50% free)	7m 13s	No	<a href="#">3</a>
14:00:02		PROBLEM		HOST2	High swap space usage ( less than 50% free)	7m 44s	No	<a href="#">3</a>

### User1: Read-only permission for HOST1

**HOST2: No permissions = no data**

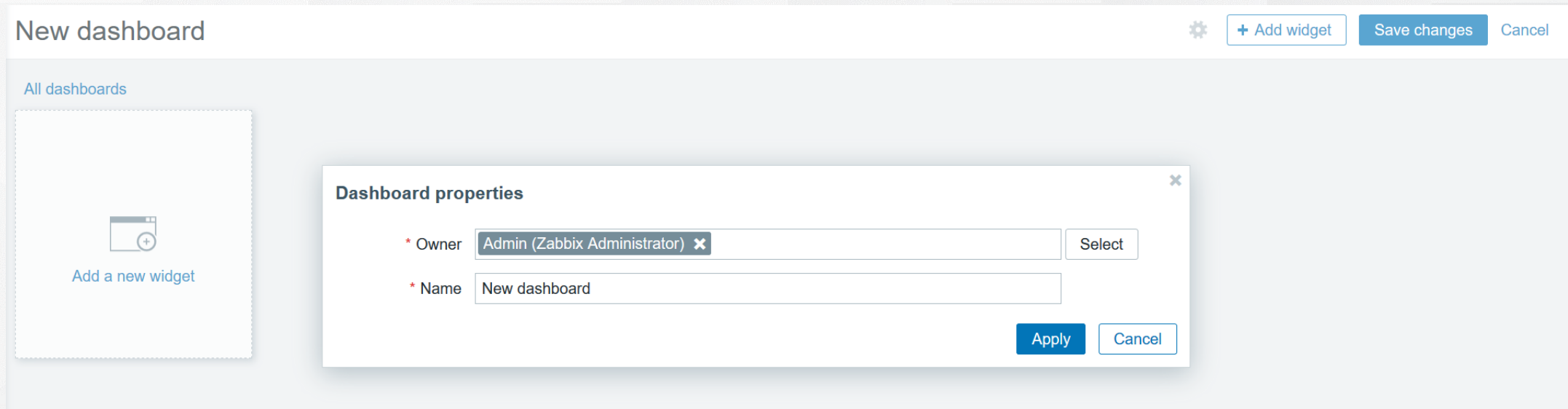
HOST1 CPU and Network

HOST2 CPU and Network

Problems for HOST1 and HOST2

Time	Recovery time	Status	Info	Host	Problem • Severity	Duration	Ack	Actions
14:00:33		PROBLEM		HOST1	High swap space usage ( less than 50% free)	6m 13s	No	

In the "All dashboards" view, click on the [Create dashboard] button.

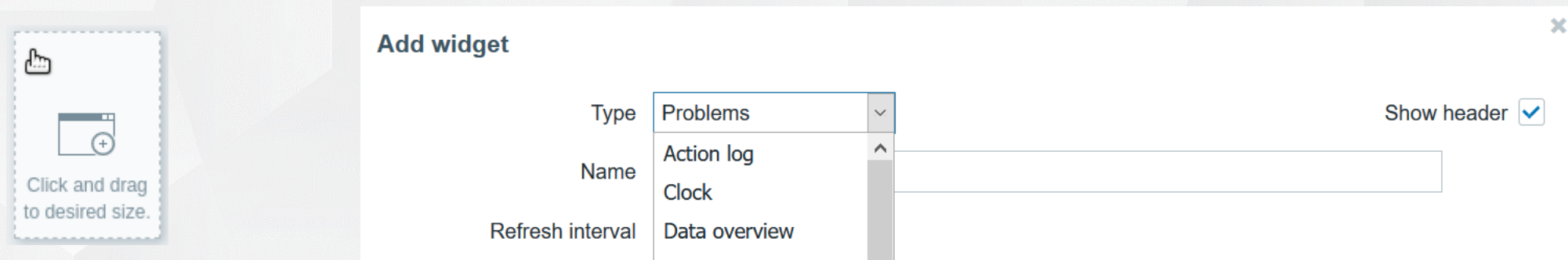


The screenshot shows the 'New dashboard' interface. At the top right, there are buttons for '+ Add widget', 'Save changes', and 'Cancel'. On the left, there is a dashed box labeled 'All dashboards' containing a 'Add a new widget' button. A 'Dashboard properties' dialog is open in the center, with the following fields:

- \* Owner: Admin (Zabbix Administrator) [Select]
- \* Name: New dashboard

Buttons for 'Apply' and 'Cancel' are at the bottom right of the dialog.

Add widgets by clicking [Add widget] button or selecting a region on the screen.



The screenshot shows the 'Add widget' dialog. On the left, there is a dashed box with a hand icon and the text 'Click and drag to desired size.' The dialog contains a list of widget types:

Type	Problems	▼	Show header <input checked="" type="checkbox"/>
Name	Action log	▲	
	Clock		
Refresh interval	Data overview		

There are many widgets to manipulate your data for optimal visualization:

- Maps
- Graphs and graph prototypes
- Screens
- Problems
- System status
- Action log
- Host status & availability
- Discovery status
- Web monitoring
- Map navigation tree
- URL
- And more...

**Add widget** ✕

Type	URL <span style="float: right;">▼</span>	Show header <input checked="" type="checkbox"/>
Name	<input type="text"/>	
Refresh interval	<input type="text"/>	
* URL	<input type="text"/>	
Dynamic item	<input type="text"/>	

	<ul style="list-style-type: none"> <li>Action log</li> <li>Clock</li> <li>Data overview</li> <li>Discovery status</li> <li>Favourite graphs</li> <li>Favourite maps</li> <li>Favourite screens</li> <li>Graph</li> <li>Graph (classic)</li> <li>Graph prototype</li> <li>Host availability</li> <li>Map</li> <li>Map navigation tree</li> <li>Plain text</li> <li>Problem hosts</li> <li>Problems</li> <li>Problems by severity</li> <li>System information</li> <li>Trigger overview</li> <li style="background-color: #007bff; color: white;">URL</li> </ul>	
--	--	--

[https://www.zabbix.com/manual/web\\_interface/frontend\\_sections/monitoring/dashboard/widgets](https://www.zabbix.com/manual/web_interface/frontend_sections/monitoring/dashboard/widgets)

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

### Add widget

Type: Problems  Show header

Name:

Refresh interval: Default (1 minute)

Show: Recent problems Problems History

Host groups:  Select

Exclude host groups:  Select

Hosts:  Select

Problem:

Severity:  Not classified  Warning  High  
 Information  Average  Disaster

Tags: And/Or Or

Contains Equals  Remove

[Add](#)

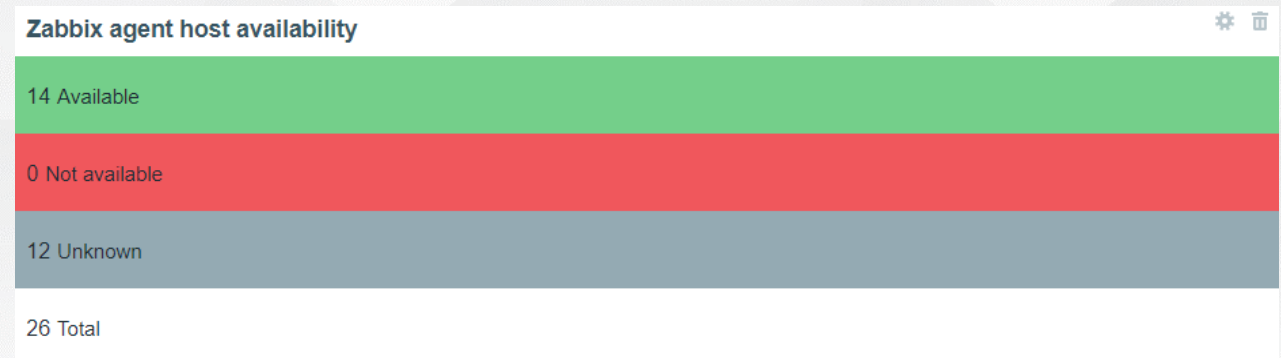
Show tags: None 1 2 3

Tag name: Full Shortened None

Tag display priority:

Show operational data: None Separately With problem name

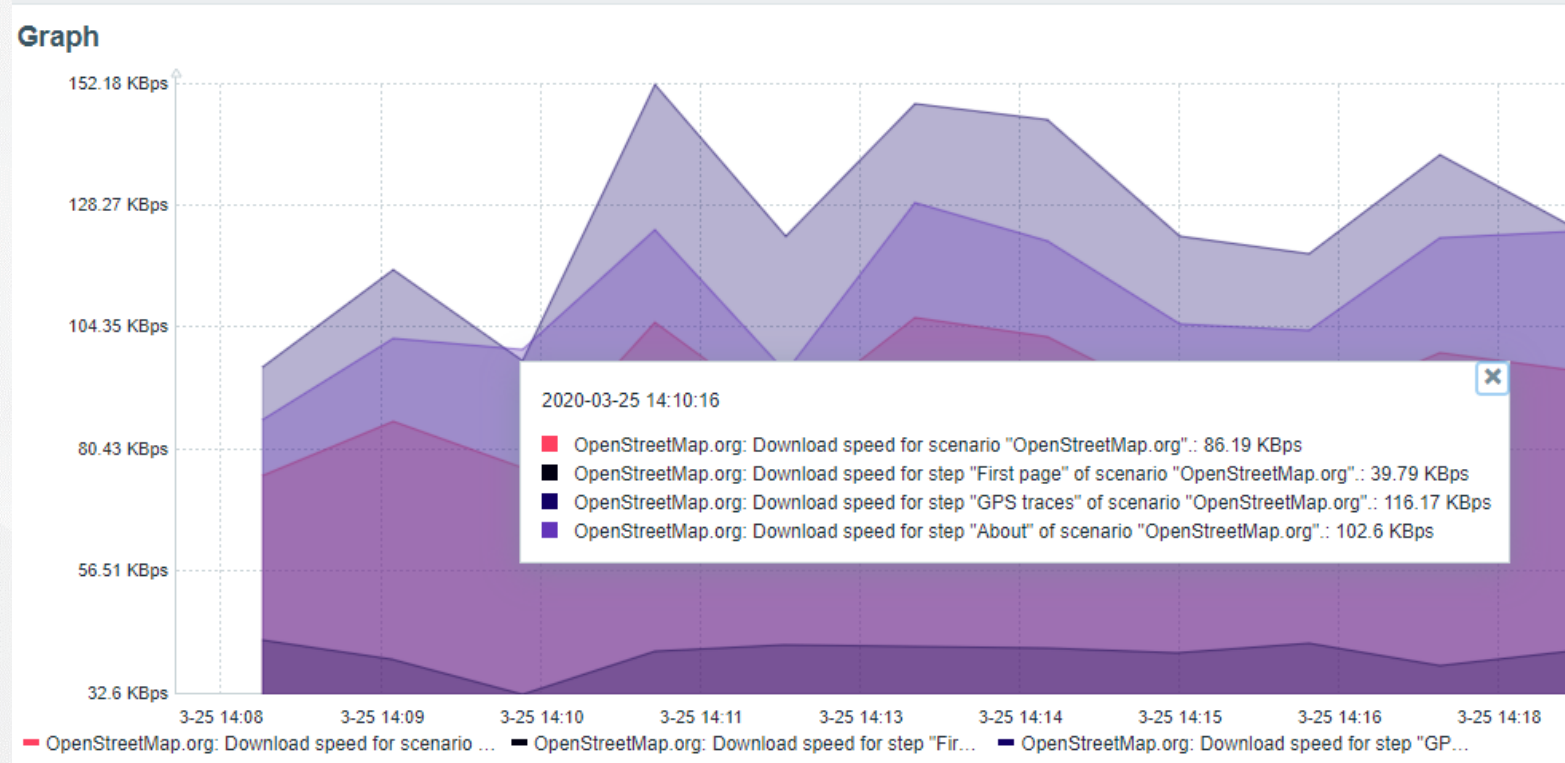
Add Cancel



### System information

Parameter	Value	Details
Zabbix server is running	Yes	localhost:10051
Number of hosts (enabled/disabled/templates)	163	16 / 0 / 147
Number of items (enabled/disabled/not supported)	541	519 / 6 / 16
Number of triggers (enabled/disabled [problem/ok])	192	191 / 1 [11 / 180]
Number of users (online)	8	2
Required server performance, new values per second	6.17	

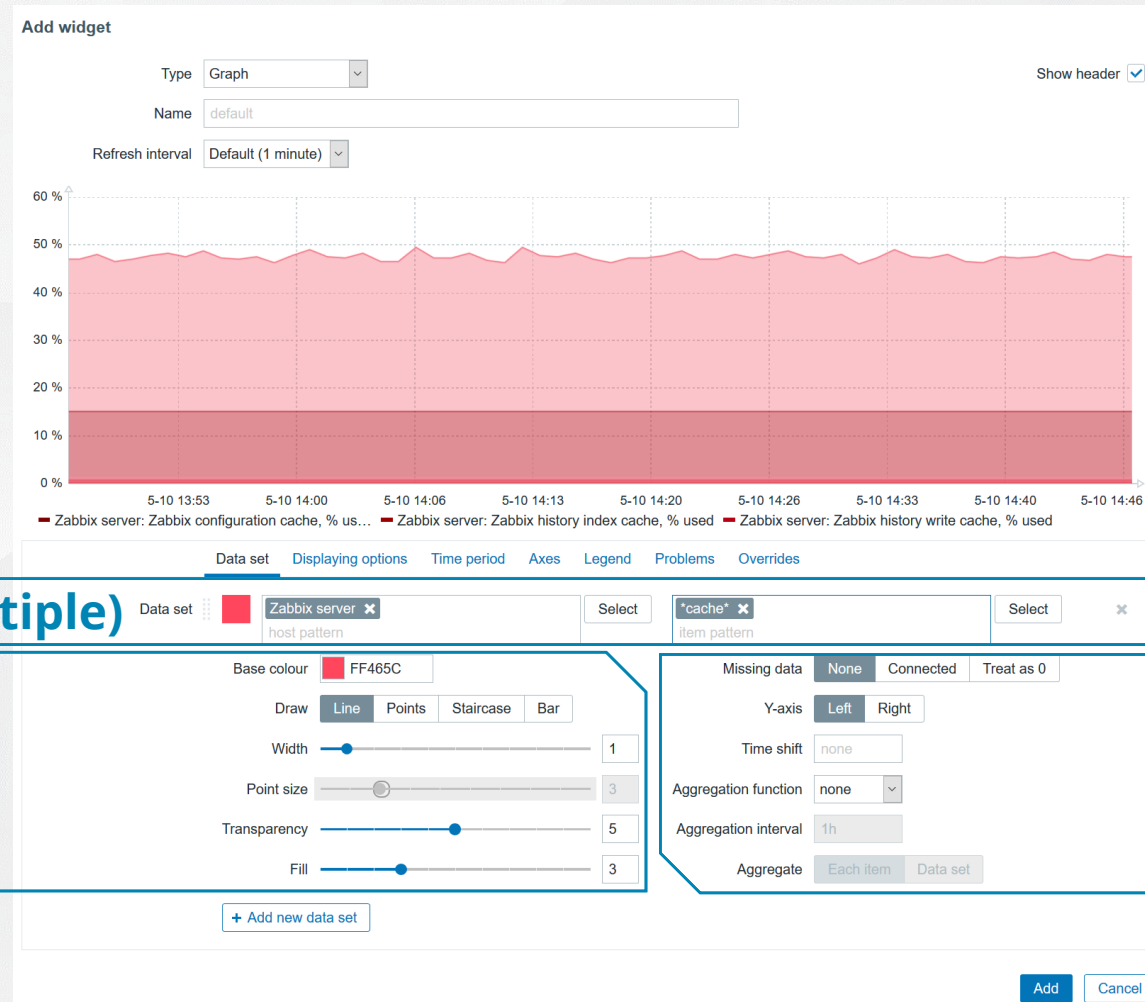
The Graph widget provides a modern and versatile way of visualizing data using a vector image drawing technique.



The legacy graph widget has been renamed to Graph (classic).



- ⚡ Uses vector graphics format.
- ⚡ Displaying of values is based on "Data sets", combination of hosts and items.



**Host + item (single or multiple)**

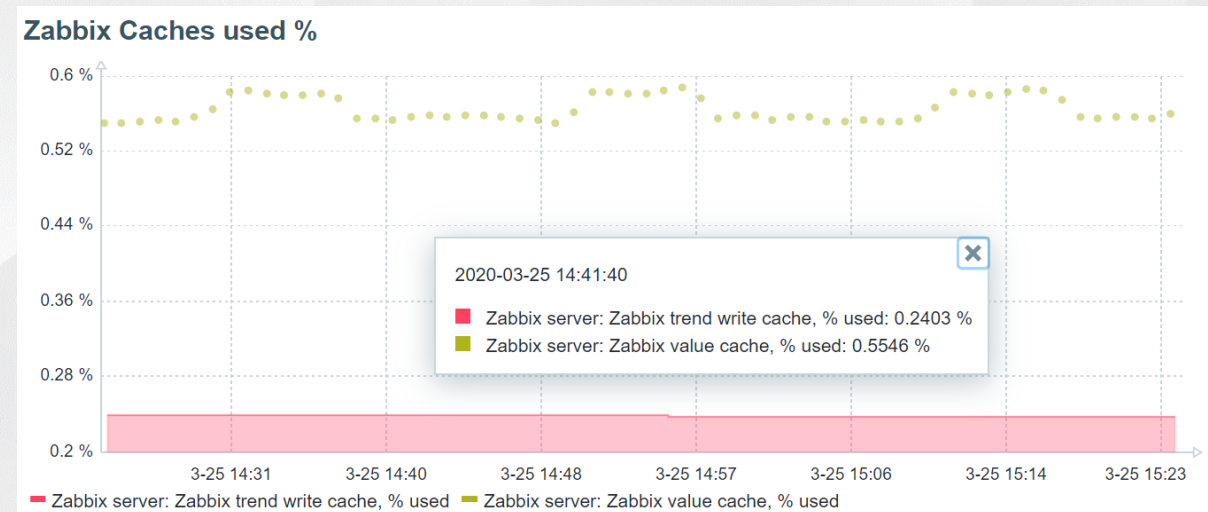
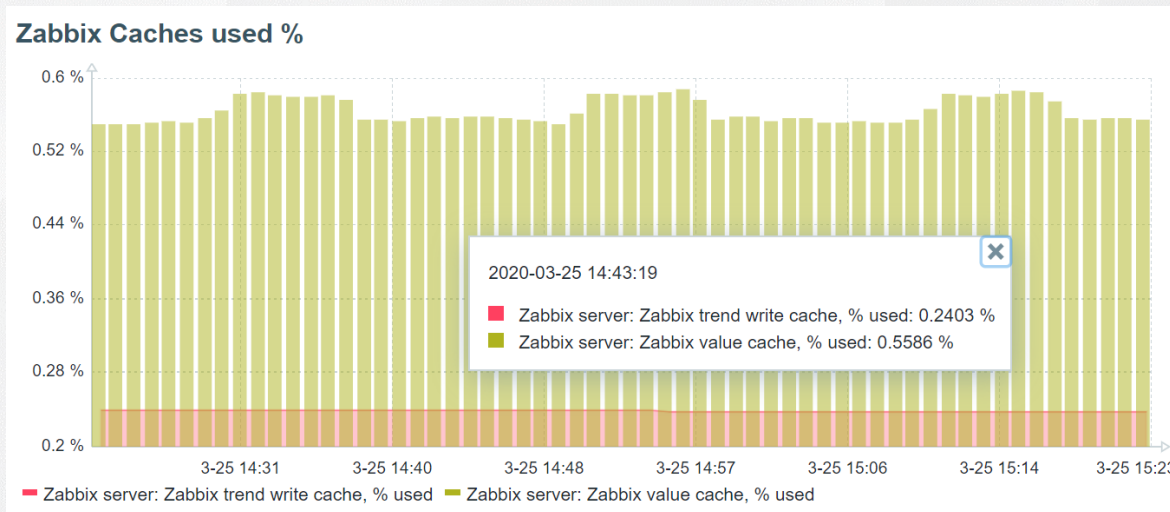
**Wildcards are supported**

**Customize graph type and look**

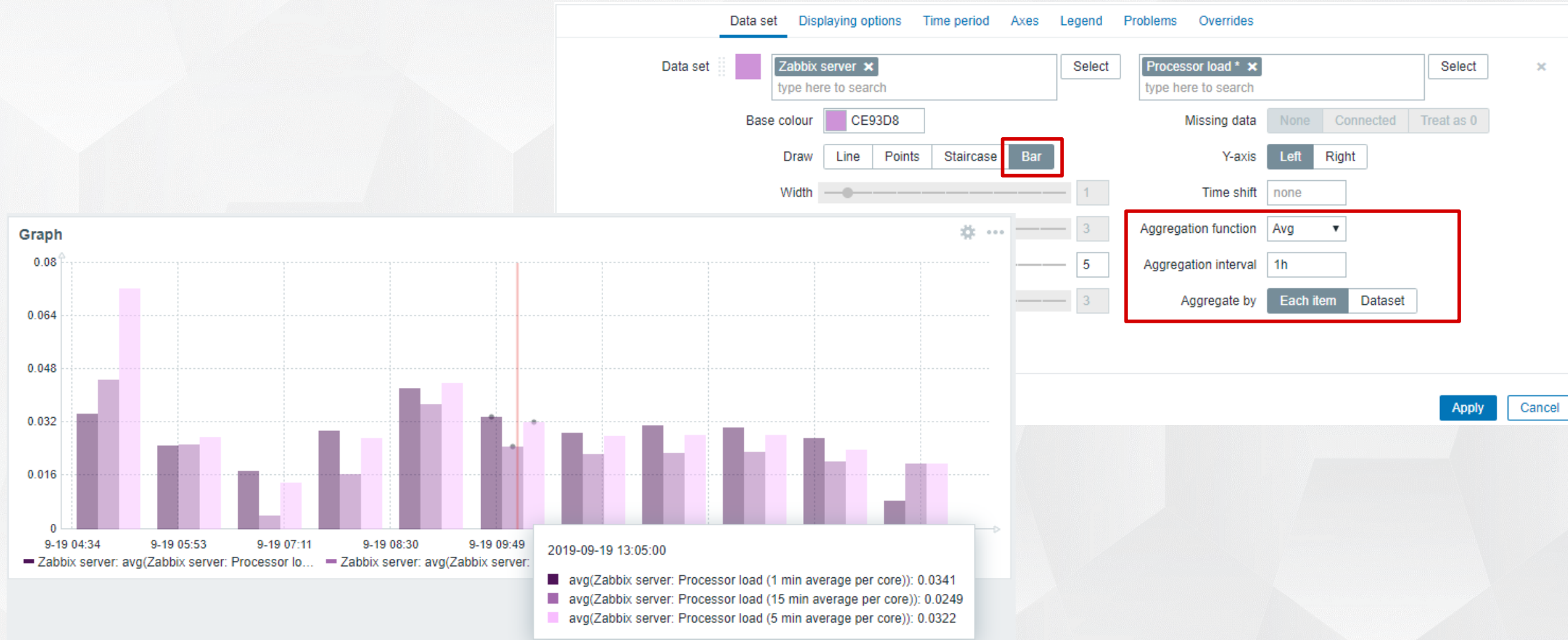
**Control data in real-time  
Timeshift  
Aggregate**

The following graph types are supported for the New graph:

- Line
- Points
- Staircase
- Bar



Aggregate item/dataset and bar graphs.



Many additional options for the graph widget.

**Data set** **Displaying options**

History data selection **Auto** History Trends

**Data set** **Displaying options** **Time period** **Axes** **Legend** **Problems** **Overrides**

Left Y  Show Right Y  Show X-Axis  Show

Min 0 Min calculated

Max 100 Max calculated

Units Static % Units Auto value

**Data set** **Displaying options** **Time period**

Set custom time period

From now-1h

To now

2020

May

M	T	W	T	F	S	S
27	28	29	30	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
1	2	3	4	5	6	7

**Data set** **Displaying options** **Time period** **Axes** **Legend**

Show legend

Number of rows  1

## Display problems on a graph.

Data set   Displaying options   Time period   Axes   Legend   **Problems**   Overrides

Show problems

Selected items only

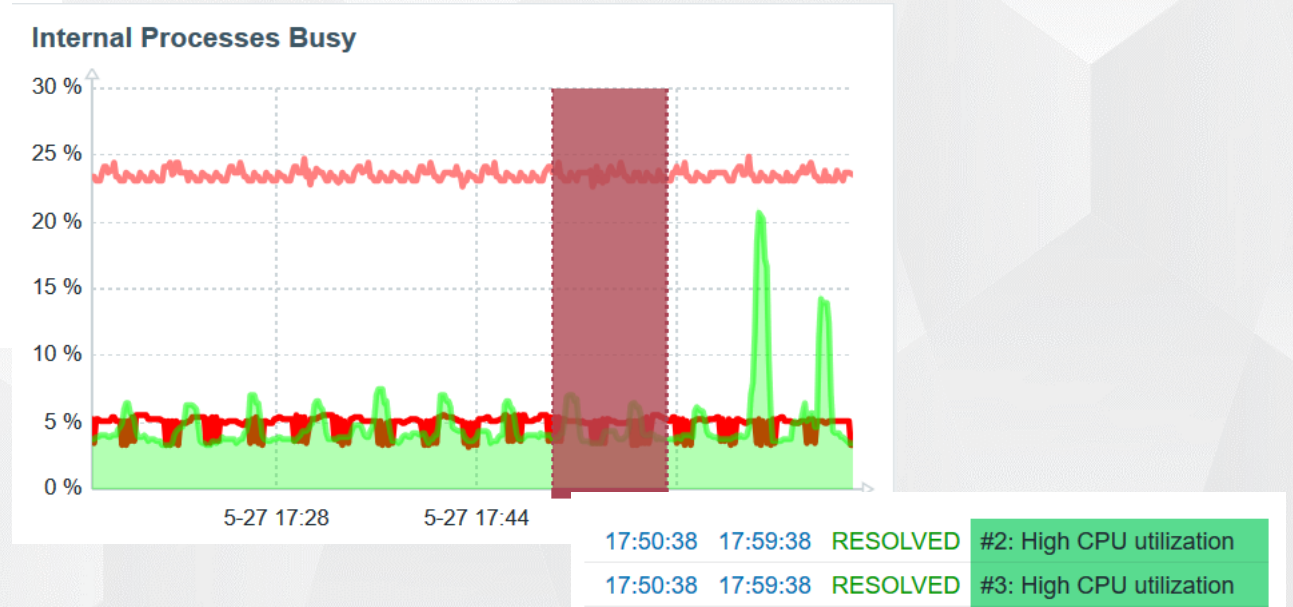
Problem hosts    
type here to search

Severity  Not classified    Warning    High  
 Information    Average    Disaster

Problem

Tags  And/Or    Or

[Add](#)



Some widgets are interactive.

Map navigation tree widget can be used to switch between maps.

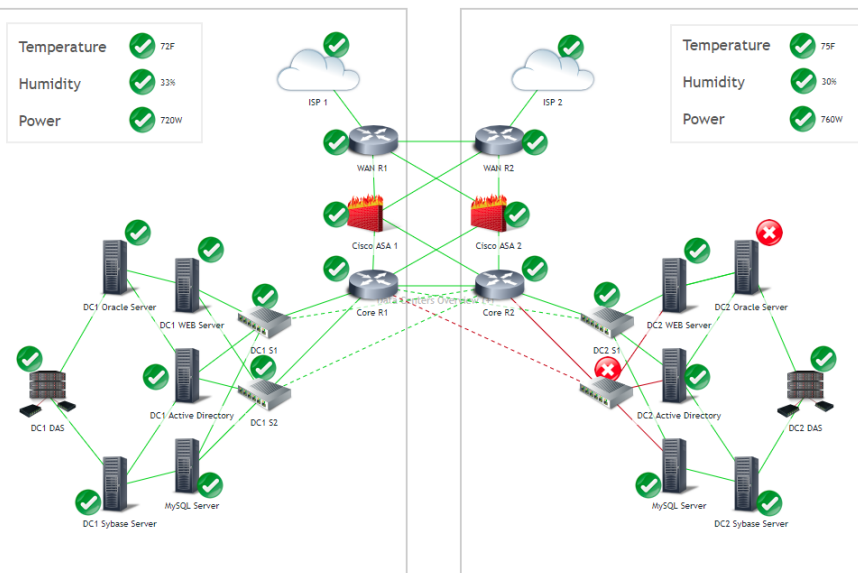
## Maps Tree

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



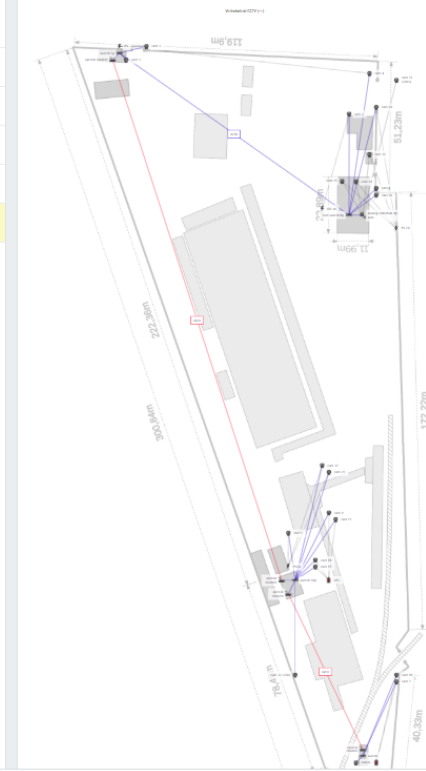
## Maps Tree

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



# PRACTICAL SETUP

- 1) Create a new item on "Template training system info":
  - system.localtime
- 2) Create a new Training dashboard
  - Add:
    - A Map tree element
    - A Map widget with a link to the map tree element
    - 3 clocks displaying server / local / your host time.
    - Problems count.



# Zabbix services





**SUMMIT**  
**ONLINE / 2020**

October 30

# What to expect this year?

- Free attendance for everyone
- Live streaming
- Available for all time zones
- Special chat rooms
- Dedicated to 5.2
- Special Fan packages

[www.zabbix.com/events/zabbix\\_summit\\_2020](http://www.zabbix.com/events/zabbix_summit_2020)



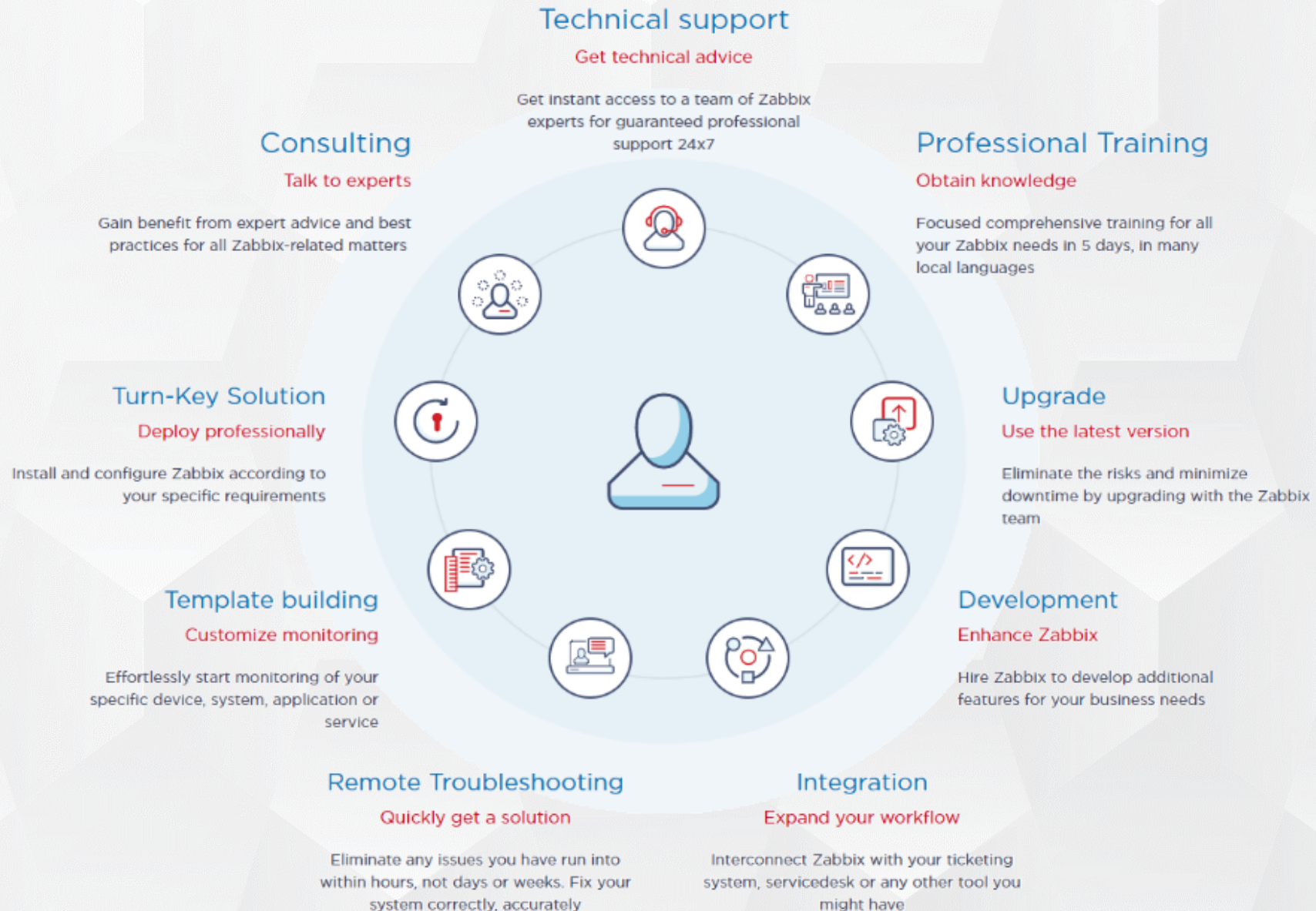
SUMMIT  
ONLINE / 2020

October 30



#zabbix IRC | Forum | Events | share.zabbix.com







Questions?



# Certification

Navigate to <https://exam.zabbix.com>

- This exam consists of 50 questions including True/False and multiple-choice questions (single answer and multiple answers).
- 60 minutes to complete the exam.
- The grade is 80% (passing threshold).
- You can use flag to mark any questions so you can come back to them later.
- You can still change an answer before submitting the quiz.
- You can receive 1 mark for each question.
- Partially correct answers will not be awarded.
- You will not be negatively marked for incorrect answers.

You are NOT allowed to use the documentation, Google, etc.



**Time for a break :)**