

Visualize IT!

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ZABBIX 2019
Conference
BENELUX

1. Item units

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Item units – making values readable

Zabbix collects raw data, but the data is not always easily readable

Item	Raw metrics	Human readable
Free disk space on /	4498935808	4.19 GB
Incoming traffic on eth 0	5341623	5.34 Mbits
Host uptime	21285721	246 days, 08:42:01
APC Battery status	2	batteryNormal

Solution : use units or value mappings

Item units – Bytes

How to convert Bytes to Kilobytes, Megabytes, Gigabytes etc.. ?

Item	Raw metrics	Human readable
Free disk space on /	4498935808	4.19 GB

Use “special” units called B (Bytes) and Bps (Bytes per second) in item units

* Type of information

Units

Free disk space on / 5m 1w 365d Zabbix a... 2019-01-29 18:08:47 4.17 GB
[vfs.fs.size\[/, free\]](#)

Values are correctly divided by 1024 !

Item units – raw values vs human readable

How to convert seconds (unixtime or uptime) to days and hours ?

Item	Raw metrics	Human readable
Host uptime	21285721	246 days, 08:42:01

Use s (seconds) or uptime as a unit

s	Host uptime <u>system.uptime</u>	1m	1w	365d	Zabbix a...	2019-01-29 18:50:32	8m 6d 9h
uptime	Host uptime <u>system.uptime</u>	1m	1w	365d	Zabbix a...	2019-01-29 18:47:32	246 days, 09:26:01

Item units – value mapping

Zabbix reports status as 2, but explanation is needed

Item	Raw metrics	Human readable
APC Battery status	2	batteryNormal

Use value mapping

Show value [show value mappings](#)

- APC Battery Status
- 1 ⇒ unknown
 - 2 ⇒ batteryNormal
 - 3 ⇒ batteryLow

APC Battery Status 90d 365d Zabbix t... 2019-01-29 10:0... batteryNormal (2)
[apc](#)

Item units – other

How to multiply other “standard” units ?

Item	Raw metrics	Human readable
Incoming traffic on eth 0	5341643623	5.34 Gbits

Use your own defined units

Type of information

Units

Incomming traffic on eth 0 30s 90d 365d Zabbix agent 2019-01-29 09:26:40 5.34 Gbits
[incoming](#)

Item units – other

Sometimes you can get strange results using units

unit	Raw metrics	Result
!persons	2300	2300 persons
!rpm	6500	6500 rpm
!hosts	1500	1500 hosts
!iops	3600	3600 iops

Solution : use ! to display values as is

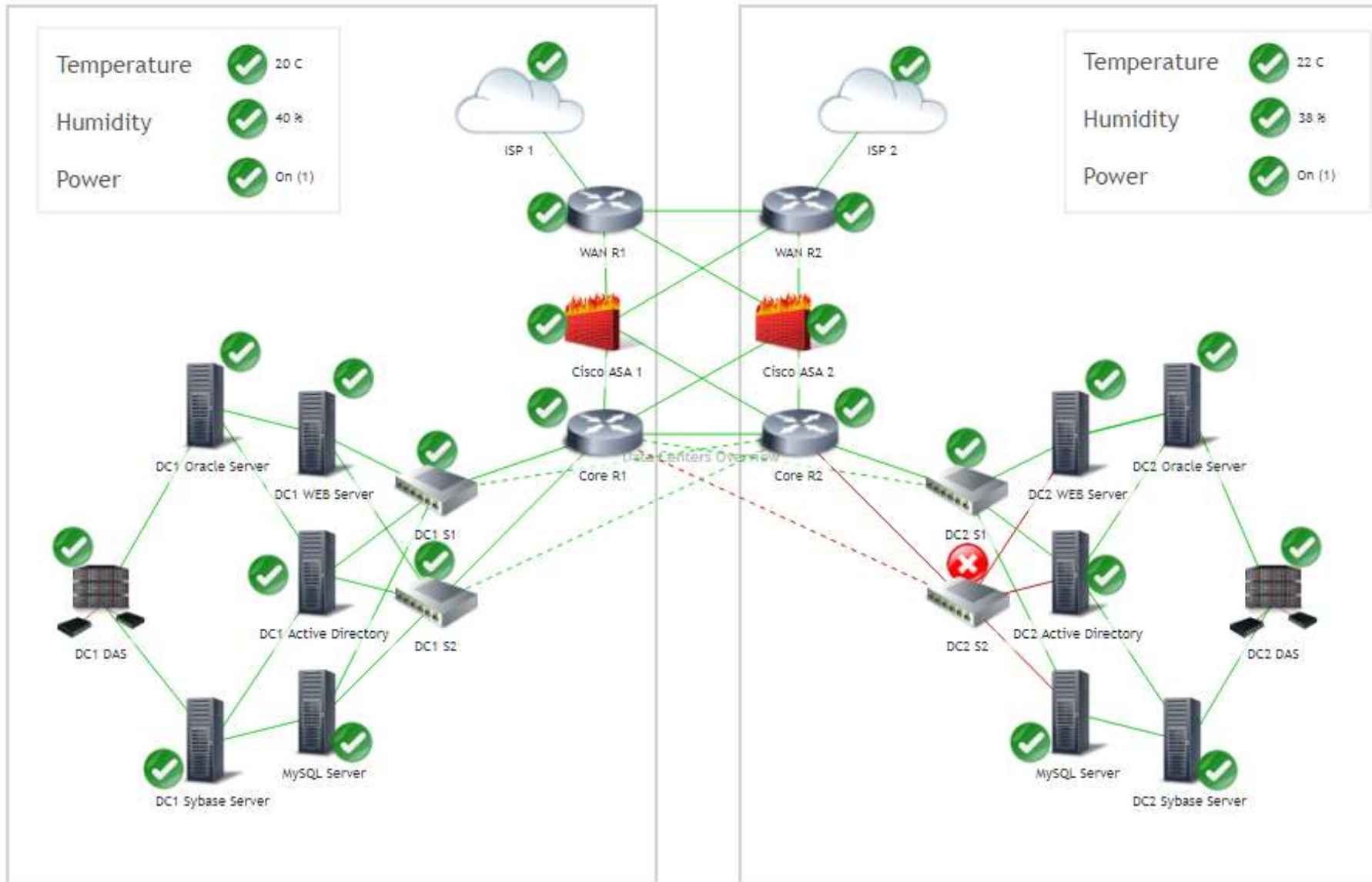
An aerial view of a city, likely Utrecht, featuring a prominent Gothic cathedral with a tall spire. The city is densely packed with buildings, and the sky is a deep blue with some clouds. The text is overlaid on the image.

2. Maps

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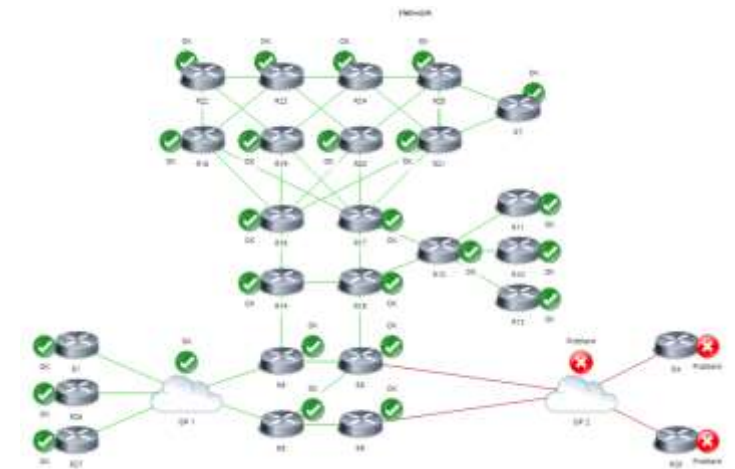
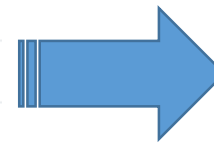
Maps



Maps – main benefits

- Display network topology
- Display live data
- Show problem location
- See what else is affected

Average	PROBLEM	SW6-MT-10G	↑ Interface ether6-master(): Link down
Average	PROBLEM	SW6-MT-10G	↑ Interface ether8(): Link down
Warning	PROBLEM	SW5-HP-2530-48G	Interface 7(): In half-duplex mode
High	PROBLEM	Miks	↑ Zabbix agent on Miks is unavailable for 5 minutes
Warning	PROBLEM	RT-ZABBIX-CORE-1	↓ Interface <l2tp-zux>(): High bandwidth usage >90%



Maps – creating them effortlessly

- Assign icons automatically based on inventory data
- Automatically create dynamics maps for host groups
- Use built-in macros and user macros
- Use Zabbix API to automate map creation

Let's watch !!!

Maps – collecting inventory data

ZABBIX Monitoring Inventory Reports Configuration Administration Support Share ?

Dashboard Problems Overview Web Latest data Graphs Screens Maps Discovery Services Zabbix 4.0

Global view

[All dashboards](#) / [Global view](#) [Edit dashboard](#)

System information

Parameter	Value	Details
Zabbix server is running	Yes	localhost:1005
Number of hosts (enabled/disabled/templates)	97	16 / 0 / 81
Number of items (enabled/disabled/not supported)	730	724 / 0 / 6
Number of triggers (enabled/disabled)	303	303 / 0 [4 / 299]

Problems by severity

Host group ▲	Disaster	High	Average	Warning	Information	Not classified
Amsterdam Virtual machines				3		
Group Amsterdam				4		
Linux servers				1		

Local

Problems

Time ▼	Info	Host	Problem • Severity	Duration	Ack	Actions	Tags
17:06:26		Virtual 10	Free disk space is less than 20% on volume /	2h 27m 40s	No		

Favourit...

No maps added.

Maps – assigning inventory data to host

ZABBIX Monitoring Inventory Reports Configuration Administration

Dashboard Problems Overview Web Latest data Graphs Screens Maps Discovery Services Zabbix 4.0

Global view

All dashboards / Global view

System information

Parameter	Value	Details
Zabbix server is running	Yes	localhost:10051
Number of hosts (enabled/disabled/templates)	100	18 / 0 / 82
Number of items (enabled/disabled/not supported)	967	943 / 0 / 24
Number of triggers (enabled/disabled [problem/ok])	429	429 / 0 [8 / 423]
Number of users (online)	2	1

Problems by severity

Host group ▲	Disaster	High	Average	Warning	Information	Not classified
Amsterdam Virtual machines				3		
Group Amsterdam				4		
Linux servers				1		
Zabbix Proxies			2			

Local

Problems

Time ▼	Info	Host	Problem • Severity	Duration	Ack	Actions	Tags
19:54:44		Zabbix Proxy Luxembourg	Zabbix agent on Zabbix Proxy Luxembourg is unreachable for 5 minutes	28m 8s	No		
19:53:54		Zabbix Proxy Bruxelles	Zabbix agent on Zabbix Proxy Bruxelles is unreachable for 5 minutes	28m 58s	No		
19:00							
17:06:26		Virtual 10	Free disk space is less than 20% on volume /	3h 16m 26s	No		
17:04:44		Virtual 7	Free disk space is less than 20% on volume /	3h 18m 8s	No		
17:03:16		Virtual 5	Free disk space is less than 20% on volume /	3h 19m 36s	No		

Favourite maps

No maps added.

127.0.0.1:8040/zabbix/overview.php?d#reset=1

Maps – using custom images

The screenshot displays the Zabbix 4.0 web interface. At the top, there is a navigation menu with tabs for Monitoring, Inventory, Reports, Configuration, and Administration. Below this is a secondary menu with tabs for Dashboard, Problems, Overview, Web, Latest data, Graphs, Screens, Maps, Discovery, and Services. The main content area is titled "Global view" and contains several widgets:

- System information:** A table showing system parameters and their values.
- Problems by severity:** A bar chart showing the number of problems categorized by severity (Disaster, High, Average, Warning, Information, Not classified) for different host groups.
- Local:** A clock widget showing the current time.
- Problems:** A table listing active problems with columns for Time, Info, Host, Problem • Severity, Duration, Ack, Actions, and Tags.
- Favourit...:** A section for favorite maps, currently showing "No maps added."

Parameter	Value	Details
Zabbix server is running	Yes	localhost:1005
Number of hosts (enabled/disabled/templates)	98	16 / 0 / 82
Number of items (enabled/disabled/not supported)	743	737 / 0 / 6
Number of triggers (enabled/disabled)	303	303 / 0 [5 / 298]

Host group	Disaster	High	Average	Warning	Information	Not classified
Amsterdam Virtual machines				3		
Group Amsterdam				4		
Linux servers		1		1		

Time	Info	Host	Problem • Severity	Duration	Ack	Actions	Tags
17:07:45		Zabbix40	Processor load is too high on Zabbix40	9m 47s	No		

Maps – icon map creation

The screenshot shows the Zabbix 4.0 dashboard. At the top, there is a navigation bar with the ZABBIX logo and menu items: Monitoring, Inventory, Reports, Configuration, Administration, a search bar, Support, Share, and user icons. Below this is a secondary navigation bar with: Dashboard, Problems, Overview, Web, Latest data, Graphs, Screens, Maps, Discovery, Services, and the version Zabbix 4.0.

The main content area is titled "Global view" and includes an "Edit dashboard" button and a hamburger menu icon. Below the title, there are several widgets:

- System information:** A table with columns for Parameter, Value, and Details. It shows the Zabbix server is running (Yes), 98 hosts (16 enabled, 0 disabled, 82 templates), 743 items (737 enabled, 0 disabled, 6 not supported), and 303 triggers (303 enabled, 0 disabled).
- Problems by severity:** A table showing the number of problems for different host groups and severities. The severities are Disaster, High, Average, Warning, Information, and Not classified. The groups shown are Amsterdam Virtual machines (3), Group Amsterdam (4), and Linux servers (1).
- Local:** A clock widget showing the current time.
- Problems:** A table listing active problems. The columns are Time, Info, Host, Problem • Severity, Duration, Ack, Actions, and Tags. Three problems are listed, all with the severity "Warning" and the message "Free disk space is less than 20% on volume /".
- Favourit...:** A section titled "Favourit..." with the text "No maps added."

Parameter	Value	Details
Zabbix server is running	Yes	localhost:1005
Number of hosts (enabled/disabled/templates)	98	16 / 0 / 82
Number of items (enabled/disabled/not supported)	743	737 / 0 / 6
Number of triggers (enabled/disabled)	303	303 / 0 [4 / 299]

Host group	Disaster	High	Average	Warning	Information	Not classified
Amsterdam Virtual machines				3		
Group Amsterdam				4		
Linux servers				1		

Time	Info	Host	Problem • Severity	Duration	Ack	Actions	Tags
17:06:26		Virtual 10	Free disk space is less than 20% on volume /	2h 21m 37s	No		
17:04:44		Virtual 7	Free disk space is less than 20% on volume /	2h 23m 19s	No		
17:03:16		Virtual 5	Free disk space is less than 20% on volume /	2h 24m 47s	No		

Maps – building site maps

The screenshot shows the Zabbix web interface with the 'Maps' menu item highlighted in the navigation bar. The main content area displays the 'Global view' dashboard with various widgets:

- System information:** A table showing system parameters and their values.
- Problems by severity:** A heatmap showing the number of problems for different host groups across severity levels.
- Local:** A clock widget showing the local time.
- Problems:** A table listing active problems with details like time, host, problem description, duration, and actions.
- Favourite maps:** A section for favorite maps, currently showing 'No maps added'.
- Favourite graphs:** A section for favorite graphs, currently showing 'No graphs added'.

Parameter	Value	Details
Zabbix server is running	Yes	localhost:10051
Number of hosts (enabled/disabled/templates)	99	17 / 0 / 82
Number of items (enabled/disabled/not supported)	952	823 / 0 / 20
Number of triggers (enabled/disabled [problem/ok])	410	410 / 0 [11 / 399]
Number of users (online)	2	1
Required server performance, new values per second	12.35	

Host group	Disaster	High	Average	Warning	Information	Not classified
Amsterdam Virtual machines		3		2		
Group Amsterdam		3		3		
Linux servers		1		1		
Zabbix Proxies			2			

Time	Info	Host	Problem + Severity	Duration	Ack	Actions	Tags
21:45:31		Virtual 10	Processor load is too high on Virtual 10	1m 29s	No		
21:45:23		Ubuntu host	Processor load is too high on Ubuntu host	1m 37s	No		
21:45:22		Virtual 7	Processor load is too high on Virtual 7	1m 38s	No		
21:00							
19:54:44		Zabbix Proxy Luxembourg	Zabbix agent on Zabbix Proxy Luxembourg is unreachable for 5 minutes	1h 52m 16s	No		
19:53:54		Zabbix Proxy Bruxelles	Zabbix agent on Zabbix Proxy Bruxelles is unreachable for 5 minutes	1h 53m 6s	No		
19:00							
17:06:26		Virtual 10	Free disk space is less than 20% on volume /	4h 40m 34s	No		
17:04:44		Virtual 7	Free disk space is less than 20% on volume /	4h 42m 16s	No		
17:00							
04:57:55		Ubuntu host	Free disk space is less than 20% on volume /	16h 49m 5s	No		

Maps – building region maps

ZABBIX Monitoring Inventory Reports Configuration Administration

Dashboard Problems Overview Web Latest data Graphs Screens Maps Discovery Services Zabbix 4.0

Global view

All dashboards / Global view


System information

Parameter	Value	Details
Zabbix server is running	Yes	localhost:10051
Number of hosts (enabled/disabled/templates)	99	17 / 0 / 82
Number of items (enabled/disabled/not supported)	961	932 / 0 / 29
Number of triggers (enabled/disabled [problem/ok])	419	419 / 0 [9 / 410]
Number of users (online)	2	1
Required server performance, new values per second	12.5	

Problems by severity

Host group	Disaster	High	Average	Warning	Information	Not classified
Amsterdam Virtual machines		2		2		
Group Amsterdam		3		5		
Linux servers		1		1		
Zabbix Proxies			2	1		

Local



Problems

Time	Info	Host	Problem - Severity	Duration	Ack	Actions	Tags
01:12:18		Zabbix Proxy Amsterdam	High ICMP ping loss	9m 51s	No		
Today							
2019-01-29 21:45:31		Virtual 10	Processor load is too high on Virtual 10	3h 36m 38s	No		
2019-01-29 21:45:23		Ubuntu host	Processor load is too high on Ubuntu host	3h 36m 46s	No		
2019-01-29 21:45:22		Virtual 7	Processor load is too high on Virtual 7	3h 36m 47s	No		
2019-01-29 19:54:44		Zabbix Proxy Luxembourg	Zabbix agent on Zabbix Proxy Luxembourg is unreachable for 5 minutes	5h 27m 25s	No		
2019-01-29 19:53:54		Zabbix Proxy Bruxelles	Zabbix agent on Zabbix Proxy Bruxelles is unreachable for 5 minutes	5h 28m 15s	No		
2019-01-29 17:06:26		Virtual 10	Free disk space is less than 20% on volume /	8h 15m 43s	No		
2019-01-29 17:04:44		Virtual 7	Free disk space is less than 20% on volume /	6h 17m 25s	No		
2019-01-29 04:57:55		Ubuntu host	Free disk space is less than 20% on volume /	20h 24m 14s	No		

Favourite maps

No maps added

Favourite graphs

Map-Belgium-Holl...svg ^ benelux.jpg ^ zabbix.png ^ flame.jpg ^

Show all

3. Dashboards

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Dashboards – adding multiple items

Dashboard Problems Overview Web Latest data Graphs Screens Maps Discovery Services Zabbix 4.0

Dashboards Create dashboard

<input type="checkbox"/>	Name ▲
<input type="checkbox"/>	Global view
<input type="checkbox"/>	Zabbix server health

Displaying 2 of 2 found

0 selected Delete

Zabbix 4.0.3. © 2001–2018, Zabbix SIA

Dashboards – building dynamic dashboards

Dashboards

Create dashboard



- Name ▲
- Global view
- Infrastructure dashboard

Displaying 2 of 2 found

0 selected

Delete

4. Graph widget

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Graph widget – multiple data sets

The screenshot displays the Zabbix web interface. At the top, there is a navigation menu with links for Monitoring, Inventory, Reports, Configuration, and Administration. Below this is a secondary menu with links for Dashboard, Problems, Overview, Web, Latest data, Graphs, Screens, Maps, Discovery, and Services. The main content area is titled 'Benelux' and contains a sub-section 'All dashboards'. A dialog box is open, showing a large white area with the text 'Add a new widget'. In the top right corner of the dialog, there are three buttons: '+ Add widget', 'Save changes', and 'Cancel'. At the bottom of the page, there is a footer that reads 'Zabbix 4.0.3rc1 © 2001–2018 Zabbix SIA'.

Graph widget – dynamic data set

Dashboards

Create dashboard

<input type="checkbox"/>	Name ▲
<input type="checkbox"/>	Global view
<input type="checkbox"/>	Infrastructure dashboard
<input type="checkbox"/>	Zabbix overview

Displaying 3 of 3 found

0 selected

Thank you!

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