Monitoring WebSite with Zabbix

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To monitor the web site, we will use the standard zabbix functionality. Here are the parameters for which we will observe:

- Availability.
- Response time in milliseconds.
- Access speed.
- Work authorization on the site.

To do this, we will perform the following sequence of actions:

- Create a template for monitoring sites.
- Configure Web scenarios.
- Create graphs.
- Add triggers to check the availability and download speed of the site.

We proceed to setting up monitoring. We will use only the standard functionality available after installation. There will be no additional user parameters or scripts. If you do not have your own monitoring server, I recommend post on this site – <u>install and configure zabbix</u>.

Adding a web site to the monitoring

The easiest way to connect a site to monitoring is to add its check on an already existing host. In this case there is one big disadvantage – if you want to enable this monitoring from another host, or simply transfer to another server, then it will be difficult to do so. It is much more easy to monitor sites and everything connected with it, set up in a separate template. So go to the section **Configuration -> Templates** and create a new template.

ZABBI	X Monit	toring	Inventory F	Reports	Configuration	Administratio	on	
Host groups	Templates	Hosts	Maintenance	Action	s 1 Event correlati	on Discovery	Services	
Templat	es 2	•						
	N	ame				L	inked templates	type h
						Apply	Reset	

A standard form for creating a template opens. Enter the name of the template, where the settings for monitoring sites will be, and add it to some group.

Templa	tes		
Template	Linked templates	Macros	
	* Template name	Sites Monitoring	
	Visible name		
	* Groups	My Templates × type here to search	Select
	Description		
		sysadminw	ork.com
	(Add	

Open this template. Go to the Web Scenarios tab and add a new web scenario to monitor the site.

Web monitoring	Group a	Host Sites Mon	toring Create web scenario
All templates / Sites Monitoring Applications Items Trigge	s Graphs Screens Discovery rules	Web scenarios	Filter 🍸
	Status all Enabled	Disabled 1	
	Apply Reset	31496	siminwork.com
Name ▲ Number of steps Inter	al Attempts Authenti	cation HTTP proxy	Application Status
	No data found.		
			Displaying 0 of 0 found

Fill in the basic parameters of the script. As a name, I usually specify the address of the site. In my example it will be github.com. Set the name of the application for monitoring sites for easy sorting of items related to the sites, the interval of testing and the number of connection attempts.

Scenario	Steps Authentic	ation	
1	* Name	github.com	
	Application	No applications found.	
	New application	Sites Monitoring	
· ·	* Update interval	1m	
	* Attempts	3	
	Agent	Zabbix	
	HTTP proxy	http://[user[:password]@]proxy.example.com[:port]	
	Variables	Name Value	
		name a value	Remove
		Add	
	Headers	Name Value	
		iii name ⇒ value	Remove
		Add Sysadminwork.	MO3.
	Enabled		
		Add Cancel	

After that, go to the Steps tab and add the verification step.

Scenario	Steps	Authentica	ation
1	1	* Steps	Add
			Add Cancel

Then I specify the parameters of the step.

Step of web scenar	rio	×
* Name	index	
* URL	https://github.com/	rse
Query fields	Name Value	
	iii name ⇒ value	Remove
	Add	
Post type	Form data Raw data	
Post fields	Name Value	
	iii name ⇒ value	Remove
	Add	
Variables	Name Value	
	name ⇒ value	Remove
	Add	
Headers	Name Value	
	iii name ⇒ value	Remove
	Add	
Follow redirects		
Retrieve only headers		
* Timeout	15s	
Required string	2019 GitHub Inc	
Poquired status codes	200	
Required status codes		
	Add	Cancel

Let me explain each parameter:

- Name the name of the step. In this case, the main page of the site will be checked, therefore I call the step index. This is not important, but I recommend giving names meaningful, so that later it would be convenient to operate with names, for example, in triggers.
- URL the address of the page to be checked.
- *Required string* the string on the page that zabbix will look for. I took the string from the footer site. If zabbix find it on the page, it will assume that the site is all right. If not, it will bee an error.
- *Required status codes* the required response code. I specify 200. If zabbix receives some other code in response from the web server, the check has failed.

After filling in all the parameters, click Add to add a step and then Add again to add the verification script itself. It should turn out like this.

Web monitoring				Group all	 Host Sites Monitor 	ring 🔻	Create web	scenario
All templates / Sites Monitoring	Applications 1 Items	Triggers Gra	aphs Screens I	Discovery rules Web scena	rios 1		F	ilter 🍸
			Status all	Enabled Disabled				
			Арр	Reset				
Name 🔺 Num	ber of steps	Interval	Attempts	Authentication	HTTP proxy	Application	Status	
github.com 1		1m	3	None	No	Sites Monitoring	Enabled	i
							Displaying 1 of	f 1 found
0 selected Enable Disable	e Clear history	Delete						

The simplest site availability check is done. Next we need to attach this template to some host, so that the actual checks start. I will attach the template to the zabbix server itself. To do this, go to **Configuration -> Hosts**, select Zabbix Server and attach the template created earlier to it.

Hosts			
All hosts / Zabbix server Ena	bled ZBX SNMP JMX IPMI Applications 15	Items 84 Triggers 54 Graphs 13 Discove	ery rules 5 Web scenarios 1
Host Templates IPMI N	lacros Host inventory Encryption		
Linked templates	Name Domain Expiration Remote RDP Sites Monitoring SSH Auth RPM SSL Sert Expiration	Action Unlink Unlink and clear Unlink Unlink and clear Unlink Unlink Unlink and clear Unlink Unlink and clear	
Link new templates	Template App Zabbix Server Template OS Linux type here to search Add Update Clone Full clone Delete	Unlink Unlink and clear Unlink Unlink and clear	erk.com

We wait a few minutes and go to the section **Monitoring -> Web** to watch the results of monitoring the site github.com.



The response code 200, the search string was found, which confirms Status OK. Here is graphics site download speed and response time. For more information about monitoring the specified site can be found in **Latest Data**.

	Host groups	type here to search	Select	Name				
	Hosts	type here to search	Select	Show items without data	\checkmark			
	Application	Sites Monitoring	Select	Show details				
			Appl	y Reset				
•	Host 🔻	Name		Last ch	eck	Last value	Change	
*	Zabbix server	Sites Monitoring (6 Items)						
		Download speed for scenario "github.com		03/19/2	019 04:10:52 PM	115.91 KBps	+1.82 KBps	Graph
		Download speed for step "index" of scena	rio "github.co	om". 03/19/2	019 04:10:52 PM	115.91 KBps	+1.82 KBps	Graph
		Failed step of scenario "github.com".		03/19/2	019 04:10: <mark>52 PM</mark>	adminwor	k.com	Graph
		Last error message of scenario "github.co	m".					History
		Response code for step "index" of scenario "github.com". 03/19/2019 04:10:52 PM 200						Graph
		Response time for step "index" of scenario	o "github.com	ı". 03/19/2	019 04:10:52 PM	671.6ms	- 10ms	Graph

The value of the parameter *Failed step of scenario "github.com"* equal to 0 means that all steps to check the site were completed without errors. If you have several steps and one of them is finished with an error, there will be a number of this step. That is, in general, all that is not 0, these are some problems. Later we will use it in the trigger. In the meantime, add a couple of graphs to the template, which can then be used in dashboards.

Setting up web site monitoring graphs

We return to our template and go to the Graphs section. Create a new graph.

ZABBIX	Monitori	ng Inv	entory R	eports	Configu	iration	Administra	tion		Q	O Support	Z Share	?	•	ц,
Host groups 1	emplates H	osts M	laintenance	Actions	Everft	correlation	Discover	y Services						xs-z	abbix
Graph2							G	all	▼ Host Sites	Monitoring		•	Crea	ate gra	aph
All templates /	Sites Monitori	ng App	lications 1	Items	Triggers	Graphs	Screens	Discovery rules	Web scenarios 1	avaadm	inwei	k.ee		5	
Name 🔺	3			Width	1	4		Height		Graph type					
								No data found.							
												Displa	ying O d	of 0 fou	und

Add a graph of the download speed for the main page of the site.

Name Download speed for step "index" of scenario "github.com" Width 600 Height 200 Graph type Normal ▼ Show legend ♥ Show working time ♥ Show working time ♥ Show triggers ♥ Percentile line (right) Percentile line (right) Y axis MIN value Fixed ♥ 0.0000 Y axis MAX value Calculated ♥ Items Name Function Draw style Y axis side Color if thems Name Function min ♥ Gradient line view of scenario min ♥	aph Preview	
* Width 600 * Height 200 Graph type Normal ▼ Show legend ✓ Show vorking time ✓ Show triggers ✓ Percentile line (ieft)	* Nam	Download speed for step "index" of scenario "github.com"
Height 200 Graph type Normal ▼ Show legend ▼ Show working time ● Show triggers ● Percentile line (left) ● Percentile line (right) ● Y axis MIN value Exced ▼ 0.0000 Y axis MIN value Calculated ▼ * Items Name Function Draw style Y axis side Color # Items Name Function Draw style Y axis side Color # Items Name Function Draw style Y axis side Color # Items Name Function Draw style Y axis side Color # Items Name Function Draw style Y axis side Color # Items Name Function Draw style Y axis side Color # Items Name Function Draw style Y axis side Color	* Widt	600
Graph type Normal ▼ Show legend ✓ Show vorking time ✓ Show triggers ✓ Percentile line (left) Percentile line (right) Y axis MIN value Fixed ▼ 0.0000 Y axis MAX value Calculated ▼ * Items Name Function Draw style Y axis side Color iii 1: Sites Monitoring: Download speed for step "index" of scenario min ▼ Gradient line ● Left ● DEFORT	* Heigh	200
Show legend Show vorking time Show vorking time Show triggers Show triggers Percentile line (left) Percentile line (right) Y axis MIN value Fixed 0.0000 Y axis MAX value Calculated Items Name Item Item Item Item Item Item Item It	Graph type	Normal
Show working time ✓ Show triggers ✓ Percentile line (left) □ Percentile line (right) □ Y axis MIN value Fixed 0.0000 Y axis MAX value Calculated ● * Items Name Function Draw style Y axis side Color ii 1: Sites Monitoring: Download speed for step "index" of scenario min ▼ Gradient line ● ●	Show legen	
Show triggers Percentile line (left) Percentile line (right) Y axis MIN value Fixed • 0.0000 Y axis MAX value Calculated • Items Name Function Draw style Y axis side Color Items Items Items Items Items Color Item Gradient line Item Function Item Function Item Item Item Item Item Item Item Item	Show working time	
Percentile line (left)	Show trigger	
Percentile line (right) Y axis MIN value Fixed O.0000 Y axis MAX value Calculated Items Name Items Name Items Name Items Name Function Gradient line Function Gradient line Function F	Percentile line (left	
Y axis MIN value Fixed 0.0000 Y axis MAX value Calculated Items Name Function Draw style Y axis side Color Items Name Function Draw style Y axis side Color Items Name Function Draw style Y axis side Color Items Sites Monitoring: Download speed for step "index" of scenario min • Gradient line Color	Percentile line (right	
Y axis MAX value Calculated Items Name Function Draw style Y axis side Color Items Sites Monitoring: Download speed for step "index" of scenario min Gradient line System of the second step of the sec	Y axis MIN value	Fixed v 0.0000
Items Name Function Draw style Y axis side Color 11: Sites Monitoring: Download speed for step "index" of scenario "github.com". min ▼ Gradient line Gradient line	Y axis MAX value	Calculated •
"gitnub.com".	* Item	Name Function Draw style Y axis side Color Action 11 Sites Monitoring: Download speed for step "index" of scenario min ▼ Gradient line Gradient line Gradient line
Add		Add

Similarly, you can add a site response time. I once added both of these graphics to Screen. It should turn out like this.

github.com on Zabbix server	github.com 💌 🛃
	< Zoom out > Last 1 hour ()
Zabbix server: Download speed for step "index" of scenario "github.com" 200 KBps 0 Bps 0 B	Zabbix server: Response time for step "index" of scenario "github.com"

For more usefull visualizations, it is better to use **Dashboards**.

Site unavailability alert

Let's set up notifications about problems on the site. I offer 2 types of alerts:

- Low site access speed.
- The site availability.

We go, as usual in the original template, on the Triggers tab and add a new one.

Triggers		Group all	Host Sites Monitoring Create trigger
All templates / Sites Monitoring	Applications 1 Items Triggers Gra	phs 2 Screens 1 Discovery rules	Web scenarios 2
Severity 1	Name 🔺 🔰 2	Expression	s ^{Statu} ard minwork attom
_	_	No data found.	a a a a a a a a a a a a a a a a a a a
			Displaying 0 of 0 found
0 selected Enable Disable	Copy Mass update Delete		

I propose such a trigger condition to determine the inaccessibility of the site. If the average value of the last 3 checks is greater than or equal to one, then the site unavailability warning is triggered.

All templates / Sites Monitoring /	Applications 1 Items Triggers 1 Graphs 2 Screens 1 Discovery rules Web scenarios 2
Trigger Dependencies	
* Name	Site github.com is down
Severity	Not classified Information Warning Average High Disaster
* Problem expression	{Sites Monitoring:web.test.fail[github.com].avg(#3)}>=1
	Expression constructor
OK event generation	Expression Recovery expression None
* Recovery expression	(Sites Monitoring web test fail(github.com) last()=0
	Expression constructor
PROBLEM event generation mode	Single Multiple
OK event closes	All problems All problems if tag values match
Tags	tag value Remove
	Add
Allow manual close	

When 0 goes in all checks, everything is in order. The trigger will work only if all 3 last checks are not zero. In my example, Failed step can be either 0 or 1, where 1 is the number of the failed step. If you have several steps, then the second step or the third step may be a failure. That is, the value can be greater than 1. But in any case, if the last 3 values in a row are strictly not 0, then the trigger is triggered. The recovery operation is very simple. If the last check without error, that is, the code is 0, then we consider that the site is already working.

To test the trigger, it is enough to add a line to the /etc/hosts file on the zabbix server:



and wait 3 minutes to get 3 unsuccessful checks. After that, you should have been sent a notification about the inaccessibility of the site. I got this:

	Zabbix server - PROBLEM: Site github.com is down			
•	кому: zabbix 👻			
	Trigger: Site <u>github.com</u> is down Trigger status: PROBLEM Trigger severity: High Trigger URL:	ayaadminwork.com		
	Item values:			
	1. Failed step of scenario "github.com". (Zabbix server:web.test.fail[github.com]): 1			
	Original event ID: 593325			

Next, we check the server response time. Here everyone is free to tune in as it seems to him more correct and convenient. I use such a scheme. I take the average response time of the site and multiply it by 3. Then I look at the last 7 checks. If in 5 checks among these seven there were values higher than the tripled average response time, then I consider that the site slows down and it is necessary to send a notification. It is a bit confusing, but in practice such a scheme I have recommended myself well without false positives. However, if there are real problems, I see them. We make the trigger.

Trigger	Dependencies				
	* Name	Response time for github.com is too slow			
	Severity	Not classified Information Warning Average High Disaster			
	* Problem expression	{Sites Monitoring:web.test.time[github.com,index,resp].count(#7,1.5,"ge")}>4 Add			
		Expression constructor			
	OK event generation	Expression Recovery expression None			
	* Recovery expression	{Sites Monitoring:web.test.time[github.com,index,resp].count(#3,1.5,"It")}>1			
		Expression constructor			
PROBLE	M event generation mode	Single Multiple			
	OK event closes	All problems All problems if tag values match			
	Tags	tag value Remove			
		Add			
	Allow manual close				
	URL				
	Description	In last 5 requests to github.com, 3 or more responses was more than 1500 ms.			
		sysadminwork.com			
	Enabled				
	A	dd Cancel			

Condition recovery – in the last three requests, two or more were faster than the tripled average access time. Expression text to copy:

{Sites	Monitoring:web.test.time[github.com,index,resp].count(#7,1.5,"ge")}>4	
{Sites	Monitoring:web.test.time[github.com,index,resp].count(#3,1.5,"lt")}>1	

Here 1.5 is the response time in seconds. You can check it in Latest Data.

	itoring Inventory Reports Co	figuration Administration		Q Q Support	🛛 Share ? 💄 🕛
Dashboard Problems	Overview Web Latest data Gra	hs Screens Maps Discovery	Services		xs-zabbix
Zabbix server:	Response time for step '	ndex" of scenario "git	hub.com".	View as 500 latest values	▼ As plain text
Timestamp	Value				
03/19/2019 09:00:51 PM	0.5445				
03/19/2019 08:59:51 PM	0.5874				
03/19/2019 08:58:50 PM	0.5936			sharequiumoi	K.COM
03/19/2019 08:57:49 PM	0.5614				
03/19/2019 08:56:48 PM	0.9305				
03/19/2019 08:55:47 PM	0.5683				

In conclusion, I leave my template that I created for writing the article. You can copy and edit to adapt it for your sites. It is faster than being from scratch. Template exported from zabbix version 4.0 – sites monitoring.xml

That's all, web site monitoring works, authorization is checked, the site unavailability notification is configured. For completeness, you can create a Screen or Dashboard with the output of all the necessary parameters on one screen. Its settings will already depend on the specific situation and the data that you have. For example, if you have configured web server monitoring, then you can place a number of graphs of its download and parameters of access to the site. There you can also add the load of the server itself on the processor and memory and display a graph of the use of the network interface.

Zabbix is very flexible and allows you to customize everything for every taste and under any requirements.