

## Task. Items

Create item and develop custom trigger for log monitoring (tomcat logs)

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI Applications 10 Items 50 Triggers 21 Graphs 9 Discovery rules 2 Web scenarios

Name

Log info

Type

Zabbix agent (active) ▼

Key

log[/var/log/tomcat/catalina.2019-07-01.log,INFO]

Select

Type of information

Log ▼

Update interval (in sec)

30

History storage period (in days)

90

Log time format

New application

Applications

None-

CPU

Filesystems

General

**ZABBIX**

[Monitoring](#) [Inventory](#) [Reports](#) [Configuration](#) [Administration](#)



[Dashboard](#) [Problems](#) [Overview](#) [Web](#) [Latest data](#) [Triggers](#) [Graphs](#) [Screens](#) [Maps](#) [Discovery](#) [IT services](#)

Hostname: Log info

Values

Filter ▼

Timestamp	Local time	Value
2019-07-01 15:03:08		INFO: Server startup in 1239 ms
2019-07-01 15:03:08		INFO: Starting ProtocolHandler ["ajp-bio-8009"]
2019-07-01 15:03:08		INFO: Starting ProtocolHandler ["http-bio-8080"]
2019-07-01 15:03:08		INFO: Deployment of web application directory /var/lib/tomcat/webapps/examples has
2019-07-01 15:03:08		INFO: At least one JAR was scanned for TLDs yet contained no TLDs. Enable debug log logger for a complete list of JARs that were scanned but no TLDs were found in them unneeded JARs during scanning can improve startup time and JSP compilation time.
2019-07-01 15:03:08		INFO: TLD skipped. URI: http://java.sun.com/jsp/jstl/xml is already defined
2019-07-01 15:03:08		INFO: TLD skipped. URI: http://java.sun.com/jstl/xml is already defined
2019-07-01 15:03:08		INFO: TLD skipped. URI: http://java.sun.com/jstl/xml_rt is already defined
2019-07-01 15:03:08		INFO: TLD skipped. URI: http://java.sun.com/jsp/jstl/sql is already defined
2019-07-01 15:03:08		INFO: TLD skipped. URI: http://java.sun.com/jstl/sql is already defined
2019-07-01 15:03:08		INFO: TLD skipped. URI: http://java.sun.com/jstl/sql_rt is already defined

## Create trigger,that shows information with sample application

### Triggers

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 50 Triggers 22 Graphs 9 Discovery rules 2 Web scenarios

Trigger Dependencies

Name

Severity

Expression

[Expression constructor](#)

### Triggers

Filter ▼							
<input type="checkbox"/> Severity	Status	Info	Time ▼	Age	Ack	Host	Name
<input checked="" type="checkbox"/> Information	PROBLEM		2019-07-01 15:17:09	2m 55s	No 2	Hostname	Search_for_sample_war

## Create a trigger for undeploying sample.war event

### Triggers

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 50 Triggers 22 Graphs 9 Discovery rules 2 Web scenarios

Trigger Dependencies

Name

Severity

Expression

[Expression constructor](#)

## Undeploy sample.war and have alert

### Triggers

Filter ▼							
<input type="checkbox"/> Severity	Status	Info	Time ▼	Age	Ack	Host	Name
<input checked="" type="checkbox"/> Warning	PROBLEM		2019-07-01 15:30:09	22s	No 1	Hostname	Search_for_undeploying_sample_war

Task:

Configure:

1. Simple checks:

- Zabbix Server WEB availability (80)

All hosts / Zabbix server

Enabled

ZBX

SNMP

JMX

IPMI

Applications 12

Items 65

Triggers 43

Graphs 10

Discovery rules 2

Web scenarios

Name

Web\_availability\_zabbix

Type

Simple check

Key

net.tcp.service[http,,80]

Select

Host interface

127.0.0.1 : 10050

User name

Password

Type of information

Numeric (unsigned)

Data type

Decimal

Units

Use custom multiplier

☐

1

Update interval (in sec)

30

Custom intervals

Type	Interval	Period	Action
Flexible	Scheduling	50	1-7,00:00-24:00

Add

Remove

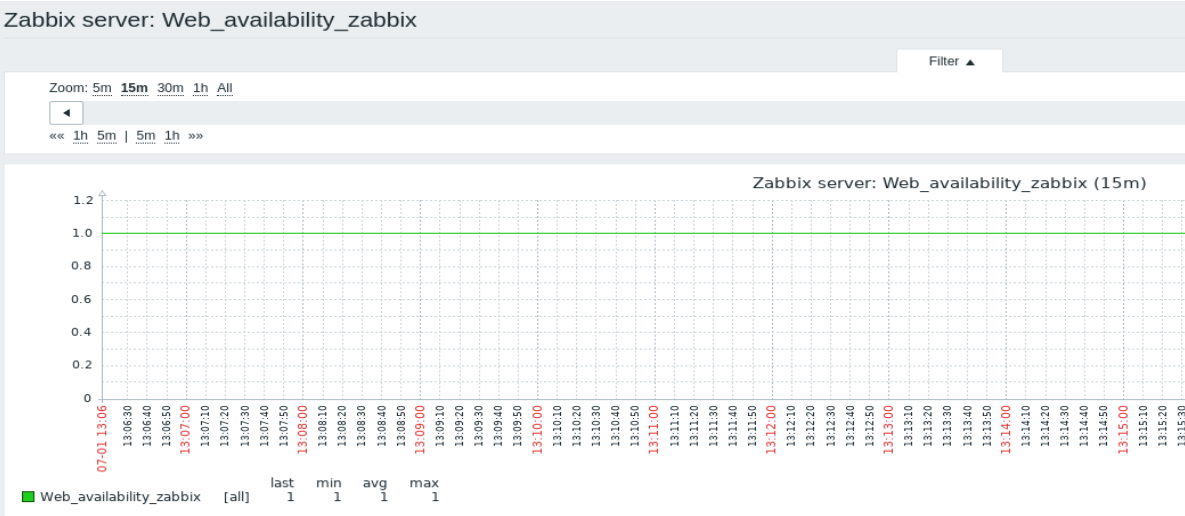
History storage period (in days)

90

Trend storage period (in days)

365

Check the getting value of check



Create triggers

Triggers

All hosts / Zabbix server

Enabled

ZBX

SNMP

JMX

IPMI

Applications 12

Items 66

Triggers 45

Graphs 10

Discovery rules 2

Web scenarios

Trigger

Dependencies

Name

Triger\_web\_available\_zabbix

Severity

Not classified

Information

Warning

Average

High

Disaster

Expression

{Zabbix server:net.tcp.service[http,,80].last()}=1

Add

Expression constructor

OK event generation

Expression

Recovery expression

None

PROBLEM event generation mode

Single

Multiple

OK event closes

All problems

All problems if tag values match

Triggers

All hosts / Zabbix server

Enabled

ZBX

SNMP

JMX

IPMI

Applications 12

Items 66

Triggers 45

Graphs 10

Discovery rules 2

Web scenarios

Trigger

Dependencies

Name

Triger\_web\_fail\_zabbix

Severity

Not classified

Information

Warning

Average

High

Disaster

Expression

{Zabbix server:net.tcp.service[http,,80].last()}=0

Add

Expression constructor

OK event generation

Expression

Recovery expression

None

PROBLEM event generation mode

Single

Multiple

OK event closes

All problems

All problems if tag values match

Tags

tag

value

Remove

Add

Triggers

Group all

Filter

<input type="checkbox"/>	Severity	Status	Info	Time	Age	Ack	Host	Name
<input type="checkbox"/>	Information	PROBLEM		2019-07-01 13:35:56	5m 57s	No 1	Zabbix server	Triger web available zabbix

- Zabbix DB is available (3306)

Items

All hosts / Zabbix server Enabled ZBX SNMP JMX IPMI Applications 12 Items 66 Triggers 45 Graphs 10 Discovery rules 2 Web scenarios

NameDB\_availability\_zabbix

TypeSimple check

Keynet.tcp.service[tcp,,3306]Select

Host interface127.0.0.1 : 10050

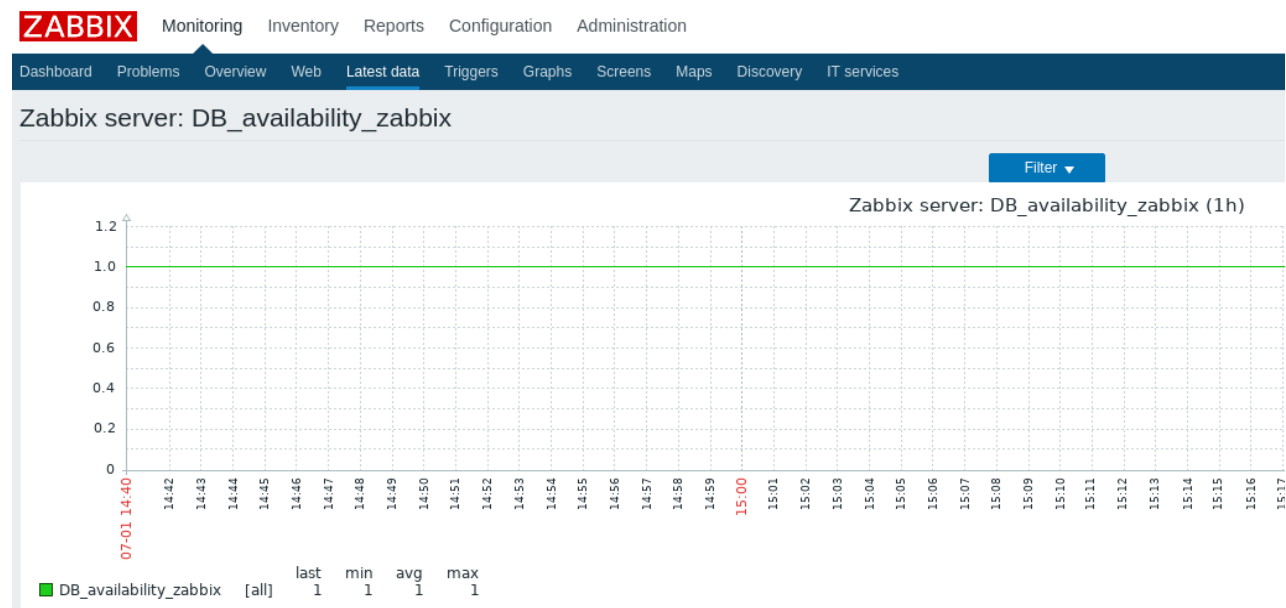
User name

Password

Type of informationNumeric (unsigned)

Data typeDecimal

Units



## Triggers

All hosts / Zabbix server Enabled ZBX SNMP JMX IPMI Applications 12 Items 66 Triggers 46 Graphs 10 Discovery rules 2 Web scenarios

Trigger Dependencies

Name DB\_available\_zabbix

Severity Not classified Information Warning Average High Disaster

Expression {Zabbix server:net.tcp.service[tcp,,3306].last()}=1

Add

[Expression constructor](#)

OK event generation Expression Recovery expression None

PROBLEM event generation mode Single Multiple

## Triggers

Filter ▼

<input type="checkbox"/> Severity	Status	Info	Time ▼	Age	Ack	Host	Name
<input checked="" type="checkbox"/> Information	PROBLEM		2019-07-01 15:42:57	1m 3s	No 1	Zabbix server	DB available_zabbix

- Tomcat availability (80)

## Items

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 47 Triggers 19 Graphs 9 Discovery rules 2 Web scenarios

Name Web\_availability\_tomcat

Type Simple check ▼

Key net.tcp.service[http,,80]

Select

Host interface 172.33.33.22 : 10050 ▼

User name

Password

Type of information Numeric (unsigned) ▼

Data type Decimal ▼

Units

Use custom multiplier ☐ 1

Hostname: Web\_availability\_tomcat

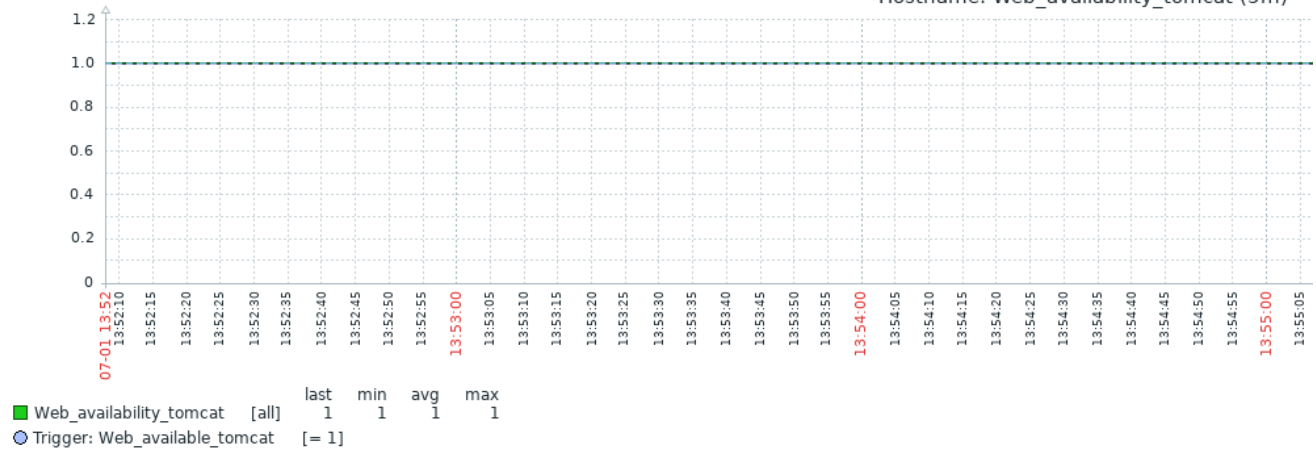
Filter ▲

Zoom: 5m 15m 30m 1h 2h 3h 6h 12h 1d 3d 7d 14d 1m 3m 6m 1y All



« 1y 6m 1m 7d 1d 12h 1h 5m | 5m 1h 12h 1d 7d 1m 6m 1y »»

Hostname: Web\_availability\_tomcat (5m)



## Triggers

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 48 Triggers 19 Graphs 9 Discovery rules 2 Web scenarios

Trigger Dependencies

Name Web\_available\_tomcat

Severity Not classified Information Warning Average High Disaster

Expression {Hostname:net.tcp.service[http,.80].last()=1}

Add

[Expression constructor](#)

OK event generation Expression Recovery expression None

PROBLEM event generation mode Single Multiple

OK event closes All problems All problems if tag values match

ZABBIX

Monitoring Inventory Reports Configuration Administration



Shar

Dashboard Problems Overview Web Latest data Triggers Graphs Screens Maps Discovery IT services

## Triggers

Group all Host all

Filter ▼

Severity Status Info Time Age Ack Host Name

Information PROBLEM 2019-07-01 13:56:59 1m 23s No 1 Hostname Web available tomcat

• Tomcat availability (8080)

Items

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 50 Triggers 23 Graphs 9 Discovery rules 2 Web scenarios

NameAvailability\_tomcat\_8080

TypeSimple check

Keynet.tcp.service[tcp,,8080]Select

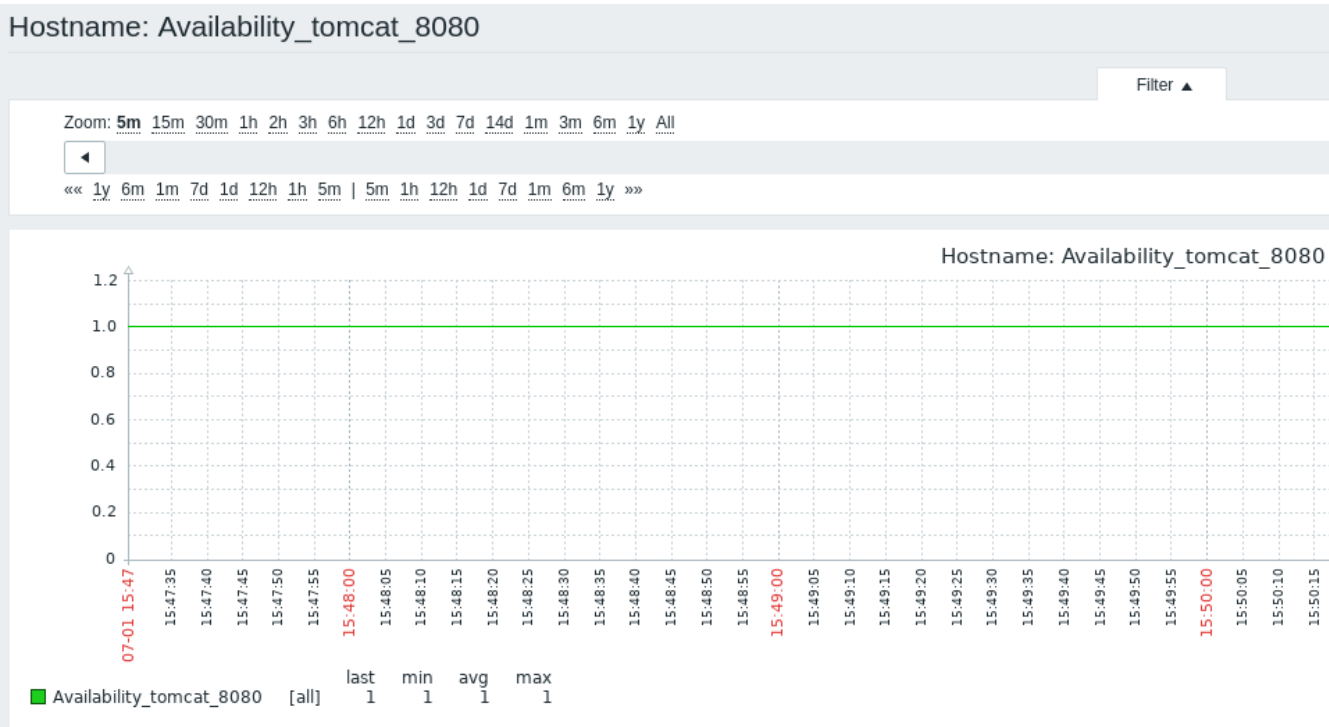
Host interface172.33.33.22 : 10050

User name

Password

Type of informationNumeric (unsigned)

Data typeDecimal





## Triggers

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 50 Triggers 23 Graphs 9 Discovery rules 2 Web scenarios

Trigger Dependencies

Name Available\_tomcat\_8080

Severity Not classified Information Warning Average High Disaster

Expression {Hostname:net.tcp.service[tcp,,8080].last()}=1

Add

[Expression constructor](#)

OK event generation Expression Recovery expression None

PROBLEM event generation mode Single Multiple

OK event closes All problems All problems if tag values match

Tags

tag

value

[Remove](#)

[Add](#)

## Triggers

Filter

<input type="checkbox"/> Severity	Status	Info	Time	Age	Ack	Host	Name
<input type="checkbox"/> Information			2019-07-01 15:57:15	18s	No 1	Hostname	Available_tomcat_8080

- Tomcat Server is available by ssh (22)

## Items

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 49 Triggers 20 Graphs 9 Discovery rules 2 Web scenarios

Name SSH\_availability\_tomcat

Type Simple check

Key net.tcp.service[ssh,,22]

Select

Host interface 172.33.33.22 : 10050

User name

Password

Type of information Numeric (unsigned)

Data type Decimal

Units

Use custom multiplier ☐ 1

Update interval (in sec) 30

## Hostname: SSH\_availability\_tomcat

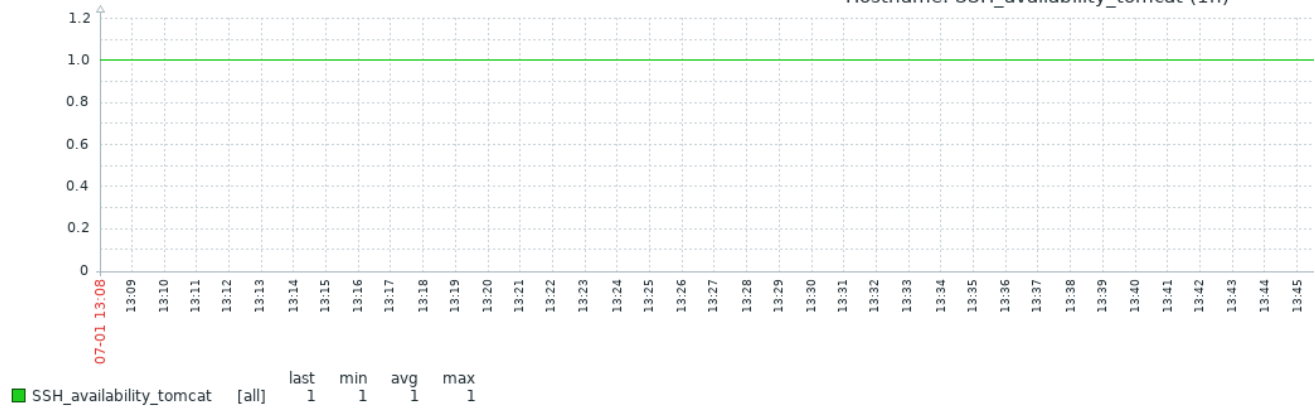
Filter ▲

Zoom: 5m 15m 30m 1h 2h All



« 1h 5m | 5m 1h »»

### Hostname: SSH\_availability\_tomcat (1h)



## Triggers

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 49 Triggers 20 Graphs 9 Discovery rules 2 Web scenarios

Trigger Dependencies

Name SSH\_available\_tomcat

Severity Not classified Information Warning Average High Disaster

Expression {Hostname:net.tcp.service[ssh,,22].last()}=1

Add

[Expression constructor](#)

## Triggers

Filter ▼

<input type="checkbox"/> Severity	Status	Info	Time ▼	Age	Ack	Host	Name
<input type="checkbox"/> Information	PROBLEM		2019-07-01 14:10:58	14s	No 1	Hostname	SSH_available_tomcat

## 2. Calculated Checks:

- CPU Load per Core (1, 5, 15min)

Create 3 items, that represent average CPU Load in 1,5,15 min

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI [Applications](#) 10 [Items](#) 57 [Triggers](#) 24 [Graphs](#) 9 [Discovery rules](#) 2 [Web scenarios](#)

Name

Type

Key

Host interface

Type of information

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI [Applications](#) 10 [Items](#) 57 [Triggers](#) 24 [Graphs](#) 9 [Discovery rules](#) 2 [Web scenarios](#)

Name

Type

Key

Host interface

Type of information

Units

Use custom multiplier ☐

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI [Applications](#) 10 [Items](#) 57 [Triggers](#) 24 [Graphs](#) 9 [Discovery rules](#) 2 [Web scenarios](#)

Name

Type

Key

Host interface

Type of information

## Create item for number of cores

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI [Applications](#) 10 [Items](#) 57 [Triggers](#) 24 [Graphs](#) 9 [Discovery rules](#) 2 [Web scenarios](#)

Name

Number\_of\_cores

Type

Zabbix agent

Key

system.cpu.num

Select

Host interface

172.33.33.22 : 10050

Type of information

Numeric (unsigned)

Data type

Decimal

Create calculated checks for every average CPU load item, that represent CPU load per core.

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI [Applications](#) 10 [Items](#) 57 [Triggers](#) 24 [Graphs](#) 9 [Discovery rules](#) 2 [Web scenarios](#)

Name

CPUload\_percore\_1

Type

Calculated

Key

system.cpu.load.percore1

Select

Formula

`last("system.cpu.load[,avg1"])/last("system.cpu.num")`

Type of information

Numeric (float)

### Items

[All hosts](#) / [Hostname](#) Enabled ZBX SNMP JMX IPMI [Applications](#) 10 [Items](#) 57 [Triggers](#) 24 [Graphs](#) 9 [Discovery rules](#) 2 [Web scenarios](#)

Name

CPUload\_percore\_5

Type

Calculated

Key

system.cpu.load.percore5

Select

Formula

`last("system.cpu.load[,avg5"])/last("system.cpu.num")`

Type of information

Numeric (float)

# Items

All hosts / Hostname Enabled ZBX SNMP JMX IPMI Applications 10 Items 57 Triggers 24 Graphs 9 Discovery rules 2 We

Name CPUload\_percore\_15

Type Calculated

Key system.cpu.load.percore15

Select

Formula last("system.cpu.load[avg15]"/last("system.cpu.num"))

Type of information Numeric (float)

## Check values

<input type="checkbox"/>	CPUload_average_1 system.cpu.load[avg1]	30	90	365	Zabbix ...	2019-07-01 18:4...	1
<input type="checkbox"/>	CPUload_average_5 system.cpu.load[avg5]	30	90	365	Zabbix ...	2019-07-01 18:4...	1.01
<input type="checkbox"/>	CPUload_average_15 system.cpu.load[avg15]	30	90	365	Zabbix ...	2019-07-01 18:4...	0.95
<input type="checkbox"/>	CPUload_percore_1 system.cpu.load.percore1	30	90	365	Calculat...	2019-07-01 18:4...	0.5
<input type="checkbox"/>	CPUload_percore_5 system.cpu.load.percore5	30	90	365	Calculat...	2019-07-01 18:4...	0.51
<input type="checkbox"/>	CPUload_percore_15 system.cpu.load.percore15	30	90	365	Calculat...	2019-07-01 18:0...	0.47

### 3. Internal Checks:

- How many items are enabled

Items

All hosts / Zabbix server

Enabled

ZBX

SNMP

JMX

IPMI

Applications 12

Items 68

Triggers 46

Graphs 10

Discovery rules 2

Web scenarios

Name

Number\_of\_Items

Type

Zabbix internal

Key

zabbix[host,,items]

Select

Type of information

Numeric (unsigned)

Data type

Decimal

Units

Use custom multiplier

☐

1

Update interval (in sec)

30

Custom intervals

Type	Interval	Period	Action
Flexible	Scheduling	50	1-7,00:00-24:00

Add

Remove

History storage period (in days)

30

### Latest data

Filter

	Host	Name	Int...	His...	Tre...	Type	Last check	Last value
	Zabbix server	- other - (1 item)						
		Number_of_Items zabbix[host,,items]	30	90	365	Zabbix i...	2019-07-01 16:2...	67

## Triggers

All hosts / Zabbix server Enabled ZBX SNMP JMX IPMI Applications 12 Items 68 Triggers 46 Graphs 10 Discovery rules 2 Web scenarios

Trigger Dependencies

Name Changing\_number\_of\_current\_items

Severity Not classified Information Warning Average High Disaster

Expression {Zabbix server:zabbix[host,items].last()}<>67

Add

[Expression constructor](#)

OK event generation Expression Recovery expression None

PROBLEM event generation mode Single Multiple

OK event closes All problems All problems if tag values match

Add 1 item and see alert

## Triggers

Filter ▼							
Severity	Status	Info	Time ▼	Age	Ack	Host	Name
Information	PROBLEM		2019-07-01 16:32:17	32s	No 1	Zabbix server	Changing_number_of_current_items

• How many Servers are being monitored

## Items

All hosts / Zabbix server Enabled ZBX SNMP JMX IPMI Applications 12 Items 67 Triggers 46 Graphs 10 Discovery rules 2 Web scenarios

Name Number\_of\_hosts

Type Zabbix internal

Key zabbix[hosts]

Select

Type of information Numeric (unsigned)

Data type Decimal

Units

Use custom multiplier 1

Update interval (in sec) 30

Custom intervals

Type	Interval	Period	Action
Flexible Scheduling	50	1-7,00:00-24:00	<a href="#">Remove</a>

[Add](#)

History storage period (in days) 90

# Latest data

Filter ▼

<input type="checkbox"/> Name ▲	Int...	His...	Tre...	Type	Last check	Last value
▼ - other - (1 item)						
<input type="checkbox"/> Number_of_hosts zabbix[hosts]	30	90	365	Zabbix i...	2019-07-01 16:3...	3

Selected: 1 items

Display selected items

Display all items

# Triggers

All hosts / Zabbix server Enabled ZBX SNMP JMX IPMI Applications 12 Items 68 Triggers 47 Graphs 10 Discovery rules 2 Web scenarios

Trigger Dependencies

Name

Changing\_number\_of\_current\_hosts

Severity

Not classified Information Warning Average High Disaster

Expression

{Zabbix server:zabbix[hosts].last()}<>3

Add

Expression constructor

OK event generation

Expression Recovery expression None

PROBLEM event generation mode

Single Multiple

OK event closes

All problems All problems if tag values match

# Add host and see alert

## Triggers

Filter ▼

<input type="checkbox"/> Severity	Status	Info	Time ▼	Age	Ack	Host	Name
<input type="checkbox"/> Information			2019-07-01 16:41:19	1s	No 1	Zabbix server	Changing_number_of_current_hosts