

Task. Web Monitoring with Zabbix

Testing Infrastructure:

Vagrantfile to spin up 2 VMs (virtualbox):

- zabbix server, provisioned by Vagrant provisioner
- Zabbix agents on both VMs, provisioned by Vagrant provisioner
- Install Tomcat 7 on 2nd VM, deploy any “hello world” application



To prove that they work, you can execute either of the following links:

- To a [JSP page](#).
- To a [servlet](#).

Tasks:

1. Configure WEB check:

- Scenario to test Tomcat availability as well as Application health

A screenshot of the Zabbix web interface. The top navigation bar includes 'Monitoring', 'Inventory', 'Reports', 'Configuration', and 'Administration'. Below this is a sub-navigation bar with 'Host groups', 'Templates', 'Hosts', 'Maintenance', 'Actions', 'Event correlation', 'Discovery', and 'IT services'. The main section is titled 'Web monitoring'. It shows a breadcrumb trail: 'All hosts / 172.33.33.22 / Enabled / ZBX / SNMP / JMX / IPMI'. There are statistics for 'Applications 10', 'Items 47', 'Triggers 19', 'Graphs 9', and 'Discovery rules 2'. The 'Scenario' tab is selected, showing a form for configuring a web check. The form includes fields for 'Name' (set to 'Test tomcat'), 'Application' (a dropdown menu), 'New application' (a text input field), 'Update interval (in sec)' (set to 60), 'Attempts' (set to 1), 'Agent' (set to 'Zabbix'), 'HTTP proxy' (set to 'http://[user[:password]]@[proxy.example.com][:port]'), and 'Variables' (a text area).

Steps	Name	Timeout	URL	Required	Status codes
1:	tomcat page is OK	15 sec	http://172.33.33.22		200

[Add](#)

Update

Clone

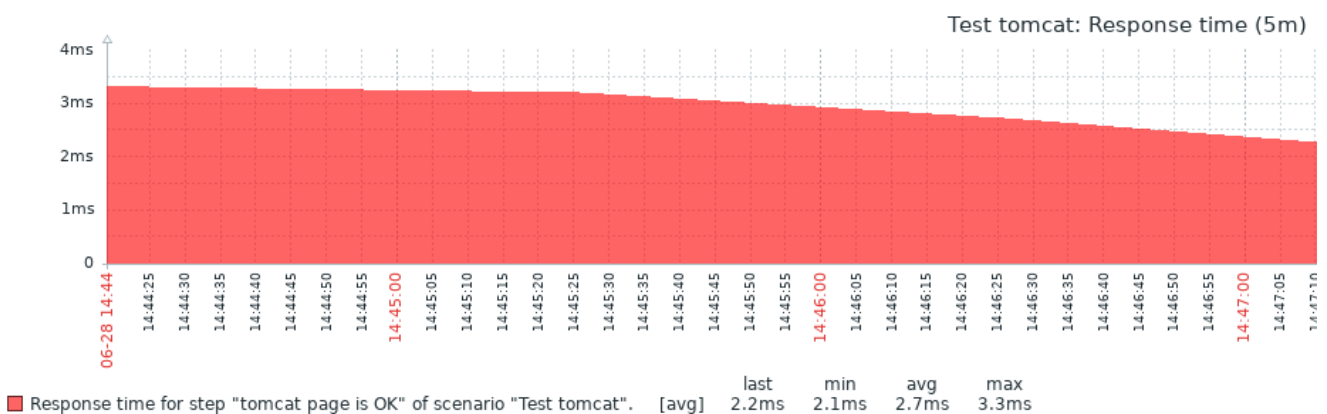
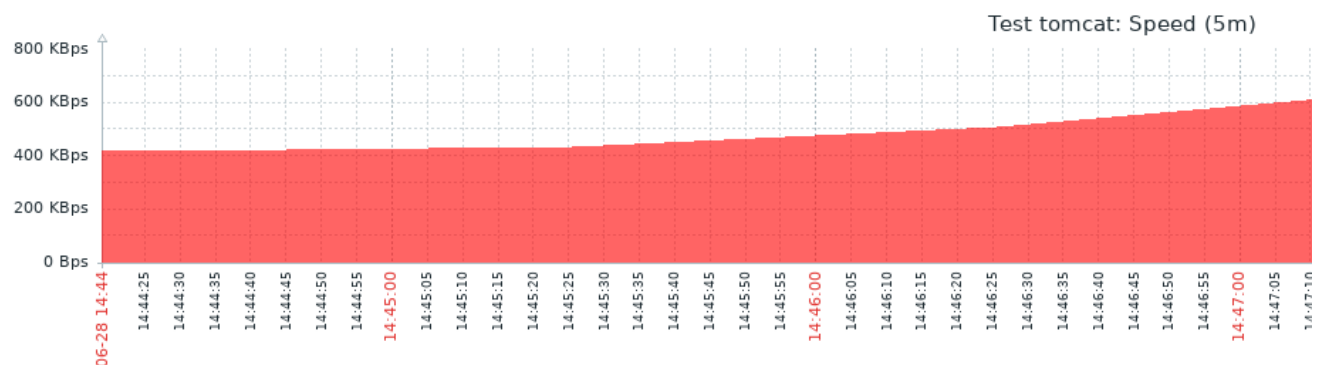
Clear history and trends

Delete

Cancel

Web monitoring

Host	Name ▲	Number of steps
172.33.33.22	Test tomcat	1



2. Configure Triggers to alert once WEB resources become unavailable

Triggers

All hosts / 172.33.33.22 Enabled ZBX SNMP JMX IPMI Applications 10 Items 47 Triggers 20 Graphs 9 Discovery rules 2 Web scenarios 1

Trigger Dependencies

Name Tomcat is unavailable

Severity Not classified Information Warning Average **High** Disaster

Expression {172.33.33.22:web.test.fail[Test tomcat].last()}<>0 Add

[Expression constructor](#)

OK event generation Expression Recovery expression None

PROBLEM event generation mode Single Multiple

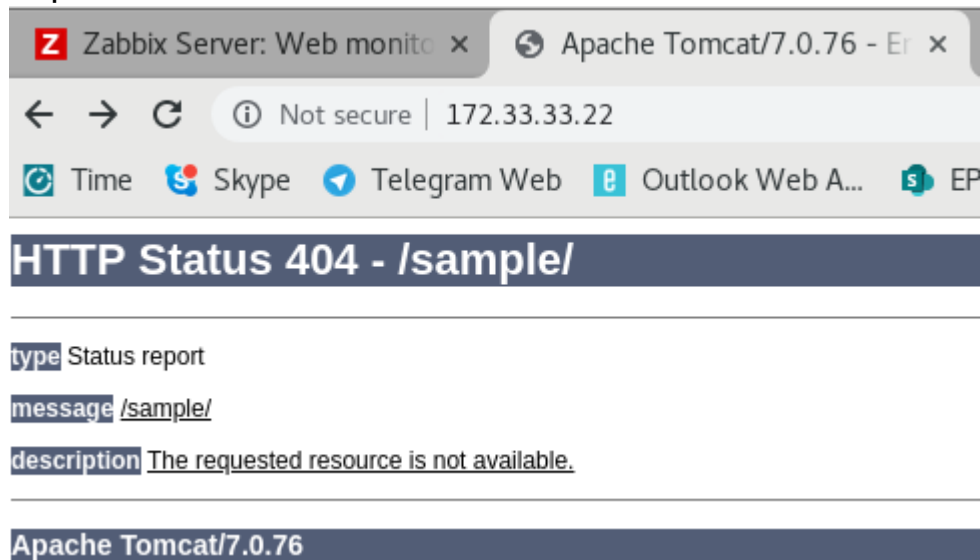
OK event closes All problems All problems if tag values match

Tags

tag	value	Remove
-----	-------	------------------------

[Add](#)

Undeploy sample.war



Examine this event on Zabbix server

ZABBIX Monitoring Inventory Reports Configuration Administration

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

Web monitoring

Host	Name ▲	Number of steps	Last check	Status
172.33.33.22	Test tomcat	1	2019-06-28 15:25:26	Step "tomcat page is OK" [1 of 1] failed: response code "404" did not match any of the required status codes "200"

ZABBIX Monitoring Inventory Reports Configuration Administration

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

Triggers

Filter ▼

Severity	Status	Info	Time ▼	Age	Ack	Host	Name
High			2019-06-28 15:21:26	6m 29s	No 2	172.33.33.22	Tomcat is unavailable

Receive email

PROBLEM: Tomcat is unavailable Входящие x



cender99a@gmail.com

кому: я ▼

Trigger: Tomcat is unavailable

Trigger status: PROBLEM

Trigger severity: High

Trigger URL:

Item values:

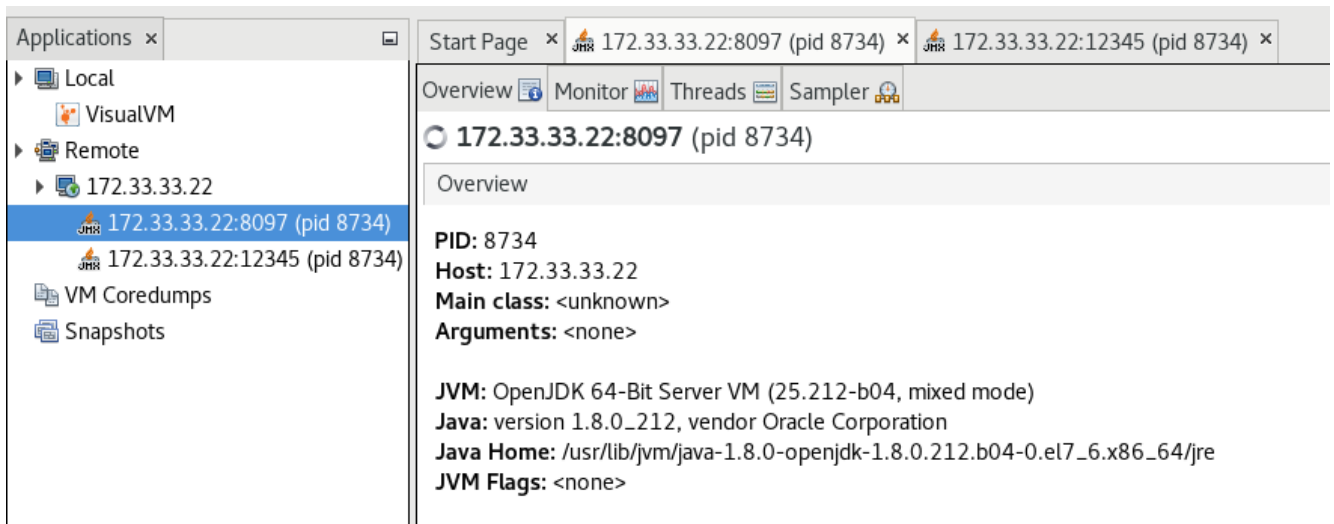
- Failed step of scenario "Test tomcat". (172.33.33.22:web.test.fail[Test tomcat]): 1

Task. Java Monitoring with Java

Tasks:

1. Configure Zabbix to examine Java parameters via Java Gateway

After configure - test connections via Visual VM

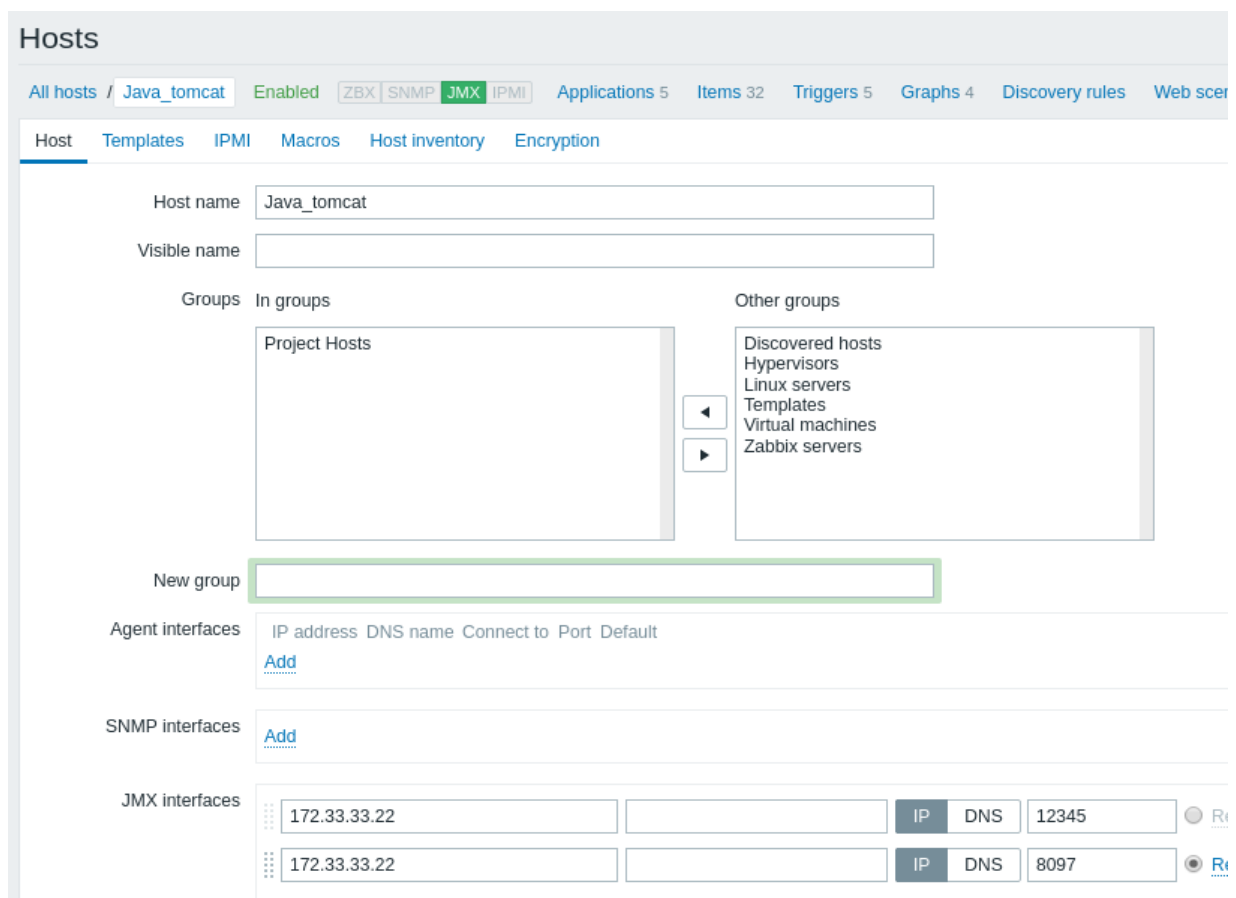


The screenshot shows the VisualVM interface. On the left, the 'Applications' tree is expanded to 'Remote' > '172.33.33.22', with the specific application '172.33.33.22:8097 (pid 8734)' selected. The main panel displays the 'Overview' tab for this application. The details shown are:

- PID:** 8734
- Host:** 172.33.33.22
- Main class:** <unknown>
- Arguments:** <none>
- JVM:** OpenJDK 64-Bit Server VM (25.212-b04, mixed mode)
- Java:** version 1.8.0_212, vendor Oracle Corporation
- Java Home:** /usr/lib/jvm/java-1.8.0-openjdk-1.8.0.212.b04-0.el7_6.x86_64/jre
- JVM Flags:** <none>

Connect Zabbix via Java Gateway to Java

Create new host for jmx connections



The screenshot shows the Zabbix 'Hosts' configuration page for a host named 'Java_tomcat'. The 'JMX' tab is selected. The configuration includes:

- Host name:** Java_tomcat
- Visible name:** (empty)
- Groups:** In groups: Project Hosts; Other groups: Discovered hosts, Hypervisors, Linux servers, Templates, Virtual machines, Zabbix servers.
- New group:** (empty text box)
- Agent interfaces:** (empty table with columns: IP address, DNS name, Connect to, Port, Default)
- SNMP interfaces:** (empty table with column: Add)
- JMX interfaces:** Two entries are shown:
 - IP: 172.33.33.22, Port: 12345, Protocol: IP, Status: Disabled (radio button)
 - IP: 172.33.33.22, Port: 8097, Protocol: IP, Status: Enabled (radio button)

Add template

Hosts

[All hosts](#) / [Java_tomcat](#) Enabled ZBX SNMP JMX IPMI Applications 5 Items 32 Triggers 5 Graphs 4 Discovery rules Web scenarios

[Host](#) [Templates](#) [IPMI](#) [Macros](#) [Host inventory](#) [Encryption](#)

Linked templates

Name	Action
Template JMX Tomcat	Unlink Unlink and clear

Link new templates

[Add](#)

Create item

Items

[All hosts](#) / [Java_tomcat](#) Enabled ZBX SNMP JMX IPMI Applications 5 Items 33 Triggers 5 Graphs 4 Discovery rules Web scenarios

Name

Type

JMX agent

Key

jmx["java.lang:type=Memory",HeapMemoryUsage.committed]

Select

Host interface

172.33.33.22 : 8097

User name

Password

Type of information

Numeric (float)

Units

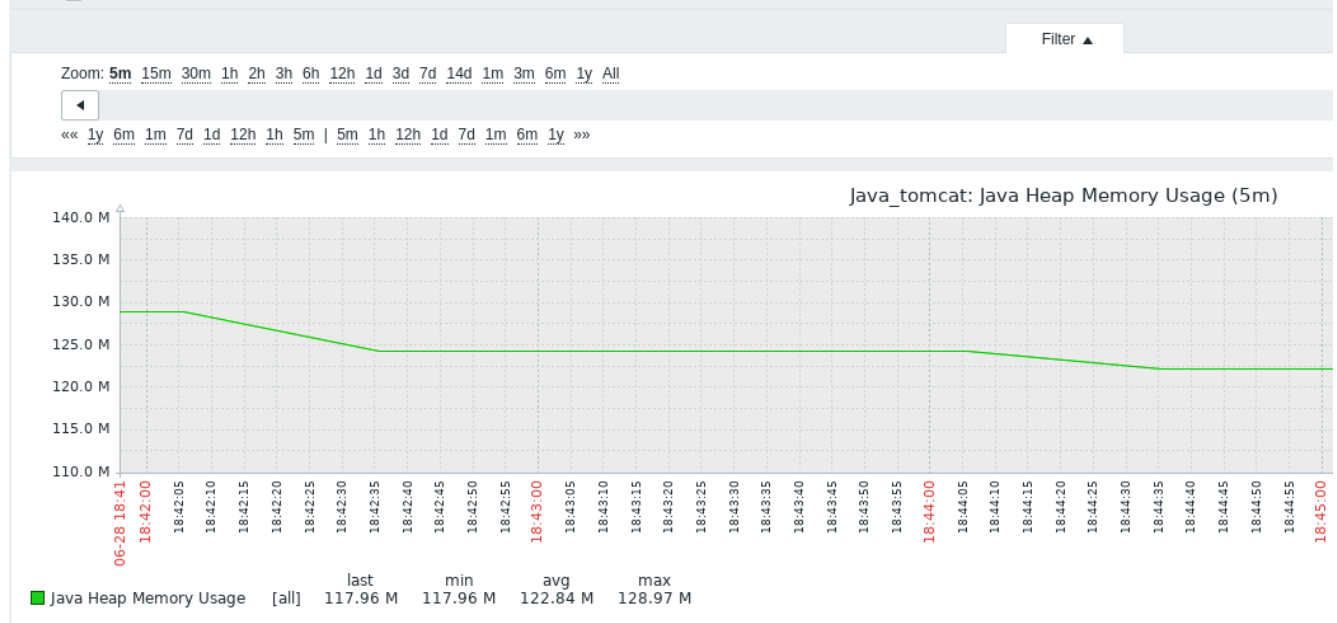
Use custom multiplier

☐

Update interval (in sec)

Examine Heap memory consumption

Java_tomcat: Java Heap Memory Usage



2. Configure triggers to alert once these parameters changed.

Triggers

All hosts / Java_tomcat Enabled ZBX SNMP JMX PMI Applications 5 Items 33 Triggers 6 Graphs 4 Discovery rules Web scenarios

Trigger Dependencies

Name: Memory alert

Severity: Not classified Information Warning Average **High** Disaster

Expression: `{Java_tomcat:jmx["java.lang.type=Memory",HeapMemoryUsage.committed].last(0)} > 70000000` 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

Trend: _____

Triggers

Group **all**

Filter ▼

<input type="checkbox"/>	Severity	Status	Info	Time ▼	Age	Ack	Host	Name
<input type="checkbox"/>	High	PROBLEM		2019-06-28 19:11:36	1m 53s	No 1	Java_tomcat	Memory alert

Get email

PROBLEM: Memory alert Входящие x


cender99a@gmail.com

кому: я ▼

Trigger: Memory alert

Trigger status: PROBLEM

Trigger severity: High

Trigger URL:

Item values:

1. Java Heap Memory Usage (Java_tomcat:jmx["java.lang:type=Memory",HeapMemoryUsage.committed]): 70254592
2. *UNIQUE* *UNIQUE* *UNIQUE* *UNIQUE*

