
The Zabbix plugin for Fuel Documentation

Release 2.5-2.5.2-1

Mirantis Inc.

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REVISION HISTORY

Ver- sion	Revision date	Editor	Comment
0.1	01.23.2014	Irina Povolotskaya (ipovolotskaya@mirantis.com)	Created the template structure.
0.2	03.23.2015	Piotr Misiak (pmisiak@mirantis.com)	First release.
0.3	03.25.2015	Irina Povolotskaya (ipovolotskaya@mirantis.com)	Minor changes.
0.4	03.30.2015	Irina Povolotskaya (ipovolotskaya@mirantis.com)	Added <i>Document purpose</i> and <i>Key terms, acronyms and abbreviations</i> sections.
0.5	03.31.2015	Piotr Misiak (pmisiak@mirantis.com)	Installation guide changed to rpm package
0.6	04.02.2015	Piotr Misiak (pmisiak@mirantis.com)	User guide added
1.0	04.15.2015	Piotr Misiak (pmisiak@mirantis.com)	Major version
1.0.1	02.05.2016	Olivier Bourdon (obourdon@mirantis.com)	Minor version
2.0.0	11.23.2015	Swann Croiset (scroiset@mirantis.com)	Major version
2.5.0	11.20.2015	Swann Croiset (scroiset@mirantis.com)	Major version
2.5.0	03.10.2016	Olivier Bourdon (obourdon@mirantis.com)	Doc fixes
2.5.1	07.20.2016	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 9.0 support
2.5.1	10.19.2016	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 9.1 support
2.5.2	01.10.2017	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 9.2 support Bug Fixes

DOCUMENT PURPOSE

This document provides instructions for installing, configuring and using Zabbix monitoring plugin for Fuel.

KEY TERMS, ACRONYMS AND ABBREVIATIONS

Zabbix An enterprise open source monitoring solution for networks and applications. It is designed to monitor and track the status of various network services, servers, and other network hardware.

VIP Virtual IP Address.

GUIDE TO THE ZABBIX PLUGIN EXTENSION FOR FUEL

This plugin extends Mirantis OpenStack functionality by adding Zabbix monitoring system. It installs Zabbix server, frontend and agent components. The plugin configures Zabbix by adding templates to monitor nodes and OpenStack services and APIs.

4.1 Requirements

Requirement	Version/Comment
Fuel	7.0, 8.0, 9.0, 9.1 and 9.2

4.2 Operational limitations

- If a base-os role node is deployed within the environment, the plugin installation may fail because the management network is not configured (see bug [1515956](#)).
- Prior to version 2.5.0, the plugin requires access to distribution repository, external or local mirror, in order to download necessary packages for proper installation. Since plugin version 2.5.0, the *fuel-createmirror* command is supported.
- If you remove some nodes after initial deployments, their related informations will not be removed from the Zabbix collected metrics and you will have to remove these manually from the Zabbix UI.
- MySQL database is common with other OpenStack services (see [1531834](#)) This has a potential high impact on the disk sizing for `/var/lib/mysql` even though the biggest set of data has been cut down drastically.
- Zabbix server service is located on one of the controller nodes therefore and in the exact same manner than [1531834](#) can impact disk space, this can have a significant CPU and/or memory usage on controller nodes for large deployment.

RELEASE NOTES / CHANGELOG

2.5.2

- Compatibility with MOS 7.0, 8.0, 9.0, 9.1 and 9.2
- VIP becomes unavailable after its Controller reboot if Zabbix with OVS bridges are used (bug [1644821](#))
- Error when deploying on MOS 9.0 env with modified hostnames (bug [1633701](#))

2.5.1

- Compatibility with MOS 7.0, 8.0, 9.0 and 9.1

2.5.0

- Compatibility with MOS 8.0
- Service “zabbix_server” was restarted after executing of task “upload_core_repos” (bug [1529642](#))
- Monitoring of HAProxy vips doesn’t work when the backend name contains dots (bug [1525713](#))
- Zabbix plugin should provide zabbix_get command (bug [1525924](#))
- Fail to deploy with base-os or virt roles (bug [1515956](#))
- Enhance *Ceph* monitoring
- *Zabbix configuration tuning* for server and agents
- Add *MySQL* cluster metrics (wsrep global variables)
- Embed all package dependencies (bug [1483983](#))
- Fix HAproxy configuration behind the Zabbix VIP (bug [1510115](#))
- Reduced set of HA proxy gathered data to be in sync with LMA (bug [1531834](#) + see [LMA metrics](#))
- Compatibility with MOS 7.0 (follow up)
 - Fix NTP monitoring on controller nodes (bug [1513454](#))
 - Monitor *cinder-volume* process (instead of the Pacemaker resource which has been removed)
 - Fix trigger for Neutron DHCP/L3 agents (these agents run now on all controllers)
 - Fix Swift container TCP check (bug [1517472](#))
- New process checks
 - nova-conductor
 - nova-novncproxy
- Generate documentation with *Sphinx*

- Allow deployment without Horizon (bug [1517005](#))
- Skip zabbix agent installation when node has either 'base-os' or 'virt' role (bug [1515956](#))

2.0.0

- Fix HA issue when scaling down/up a controller (bug [1506767](#))
- Compatibility with MOS 7.0
- Disable user Guest in zabbix
- Use HTTPS Zabbix UI
- Use dedicated VIP for Zabbix server

1.0.0

- This is the first release of the plugin.

LIMITATIONS

- The plugin only supports neutron when specifying network settings. Old legacy mode (nova-network) is not supported
- If a base-os role node is deployed within the environment, the plugin installation may fail because the management network is not configured (see bug [1515956](#)).
- Prior to version 2.5.0, the plugin requires access to distribution repository, external or local mirror, in order to download necessary packages for proper installation. Since plugin version 2.5.0, the *fuel-mirror* (formerly *fuel-createmirror*) command is supported.

6.1 Reduced footprint

The Zabbix plugin does not support reduced footprint deployment for Fuel 7.0 and Fuel 8.0. [LP1610217](#)

The Zabbix plugin version 2.5.2 supports the reduced footprint deployment starting with Fuel 9.x **only**. To deploy a corresponding OpenStack environment:

1. Enable the [reduced footprint](#) feature and deploy all `virt` nodes **without** enabling the Zabbix plugin in the Fuel web UI.
2. Once the `virt` nodes are successfully deployed, enable the Zabbix plugin in the Fuel web UI.
3. Deploy your OpenStack environment as usual (controller, compute, and other nodes as required).

INSTALLATION GUIDE

7.1 Zabbix plugin installation

To install Zabbix plugin, follow these steps:

1. Download the plugin from the [Fuel Plugins Catalog](#).
2. Copy the plugin from your local machine to a previously deployed Fuel Master node using SSH. If you do not have the Fuel Master node yet, see [Quick Start Guide](#):

```
# scp zabbix_monitoring-2.5-2.5.2-1.noarch.rpm root@<Fuel_Master_IP>:/tmp
```

3. Log into the Fuel Master node. Install the plugin:

```
# cd /tmp
# fuel plugins --install zabbix_monitoring-2.5-2.5.2-1.noarch.rpm
```

4. Check if the plugin was installed successfully:

```
# fuel plugins
id | name | version | package_version
---|-----|-----|-----
1 | zabbix_monitoring | 2.5.2 | 3.0.0
```

7.2 Zabbix plugin removal

To uninstall Zabbix plugin, follow these steps:

1. Delete all environments in which Zabbix plugin has been enabled.
2. Uninstall the plugin:

```
# fuel plugins --remove zabbix_monitoring==2.5.2
```

3. Check if the plugin was uninstalled successfully:

```
# fuel plugins
id | name | version | package_version
---|-----|-----|-----
...
You can still have other plugins listed here but not zabbix_monitoring
```

8.1 Important preliminary notes

- It is highly recommended to do a network verification check prior to any deployment.
- This plugin version only supports Ubuntu OS type.
- You can also choose any supervisor and/or also change the networking configuration according to your needs but you can not use the old legacy networking mode (nova-network) as this is not supported.
- Please note however that the Zabbix server will be located on the controller nodes and that the MySQL database which Zabbix will use is common to all other OpenStack components. This might have a very important impact on CPU and/or memory usage on controller nodes as well as disk space consumption in /var/lib/mysql due to the fact that Zabbix is gathering quite an important number of metrics and quite frequently (see known problems hereafter).
- If you want Zabbix to operate in HA mode, you need to select several nodes as controllers so that the deployment automatically enables Zabbix high-availability.

8.2 Known problems

- If a base-os role node is deployed within the environment, the plugin installation may fail because the management network is not configured (see bug [1515956](#)).
- If you remove some nodes after initial deployments, their related informations will not be removed from the Zabbix collected metrics and you will have to remove these manually from the Zabbix UI.
- MySQL database is common with other OpenStack services (see [1531834](#)) This has a potential high impact on the disk sizing for /var/lib/mysql even though the biggest set of data has been cut down drastically.
- Zabbix server service is located on one of the controller nodes therefore and in the exact same manner than [1531834](#) can impact disk space, this can have a significant CPU and/or memory usage on controller nodes for large deployment.
- Error when deploying on MOS 9.0 env with modified hostnames (see bug [1633701](#)).

8.3 Environment configuration

1. Create an environment.

For more information about environment creation, see [Create a new OpenStack environment in Mirantis OpenStack User Guide](#).

2. Choose in *Environments* an environment for which you want to run Zabbix plugin.
3. Open *Settings* tab and scroll the page down. On the left select *Zabbix for Fuel*.
4. Set credentials for *Zabbix for Fuel*:

You could see default passwords by clicking on the eye icon.

It is highly recommended to change default passwords for Zabbix Administrator, Zabbix Database and Monitoring user.

User 'monitoring' will be added in Openstack for zabbix API checks.

5. Adjust other environment settings to your requirements and deploy the environment.

For more information, see [Deploy changes in Mirantis OpenStack User Guide](#).

6. If you are using Fuel network-template you should add new roles mapping named 'zabbix'. Here is a sample:

```
network_scheme:
  mgmt:
    endpoints:
      - br-mgmt
    roles:
      zabbix: br-mgmt
```

For details see [Using Networking Templates](#).

8.4 Zabbix frontend UI

1. After successful deployment you will see a green notification: "Deployment of environment 'test' is done. Access the OpenStack dashboard (Horizon) at <http://172.16.0.2/>".

In this example, 172.16.0.2 is a VIP address (see troubleshooting section to see how to get this IP address).

Zabbix UI will be available at <http://172.16.0.2/zabbix> (at `http://<VIP>/zabbix` in general).

After opening this address in a browser, you should see Zabbix login page:



- Now log into Zabbix with the credentials set provided on the Settings tab of the Fuel web UI (see step 2 in the *Environment configuration* section).

After logging into Zabbix, you will see the Zabbix Dashboard page:

ZABBIX

Monitoring | Inventory | Reports | Configuration | Administration

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

History: Dashboard » Status of triggers » Configuration of templates » Configuration of applications » Configuration of items

PERSONAL DASHBOARD

Favourite graphs
No graphs added.
Graphs »

Favourite screens
No screens added.
Screens » Slide shows »

Favourite maps
No maps added.
Maps »

Status of Zabbix

Parameter	Value	Details
Zabbix server is running	Yes	192.168.0.1:10051
Number of hosts (enabled/disabled/templates)	48	4 / 0 / 44
Number of items (enabled/disabled/not supported)	406	381 / 12 / 13
Number of triggers (enabled/disabled [problem/ok])	227	224 / 3 [5 / 219]
Number of users (online)	2	1
Required server performance, new values per second	9.19	-

Updated: 13:07:54

System status

Host group	Disaster	High	Average	Warning	Information	Not classified
Computes	0	0	0	0	0	0
Controllers	0	1	0	4	0	0
ManagedByPuppet	0	1	0	4	0	0

Updated: 13:07:55

Host status

Host group	Without problems	With problems	Total
Computes	1	0	1
Controllers	0	2	2
ManagedByPuppet	2	2	4

Updated: 13:07:54

Last 20 issues

Host	Issue	Last change	Age	Info	Ack	Actions
node-14.domain.tld	Processor load is too high on node-14.domain.tld	2015-03-24 13:02:23	5m 32s		No	
node-13.domain.tld	Processor load is too high on node-13.domain.tld	2015-03-24 12:21:58	45m 57s		No	
node-13.domain.tld	Lack of free swap space on node-13.domain.tld	2015-03-24 11:46:11	1h 21m 44s		No	
node-13.domain.tld	Nova Scheduler process is not running on node-13.domain.tld	2015-03-24 11:37:02	1h 30m 53s		No	
node-14.domain.tld	Lack of free swap space on node-14.domain.tld	2015-03-13 14:09:35	10d 22h 58m		No	

5 of 5 issues are shown
Updated: 13:07:55

Web monitoring

Host group	Ok	Failed	Unknown

No web scenarios found.
Updated: 13:07:54

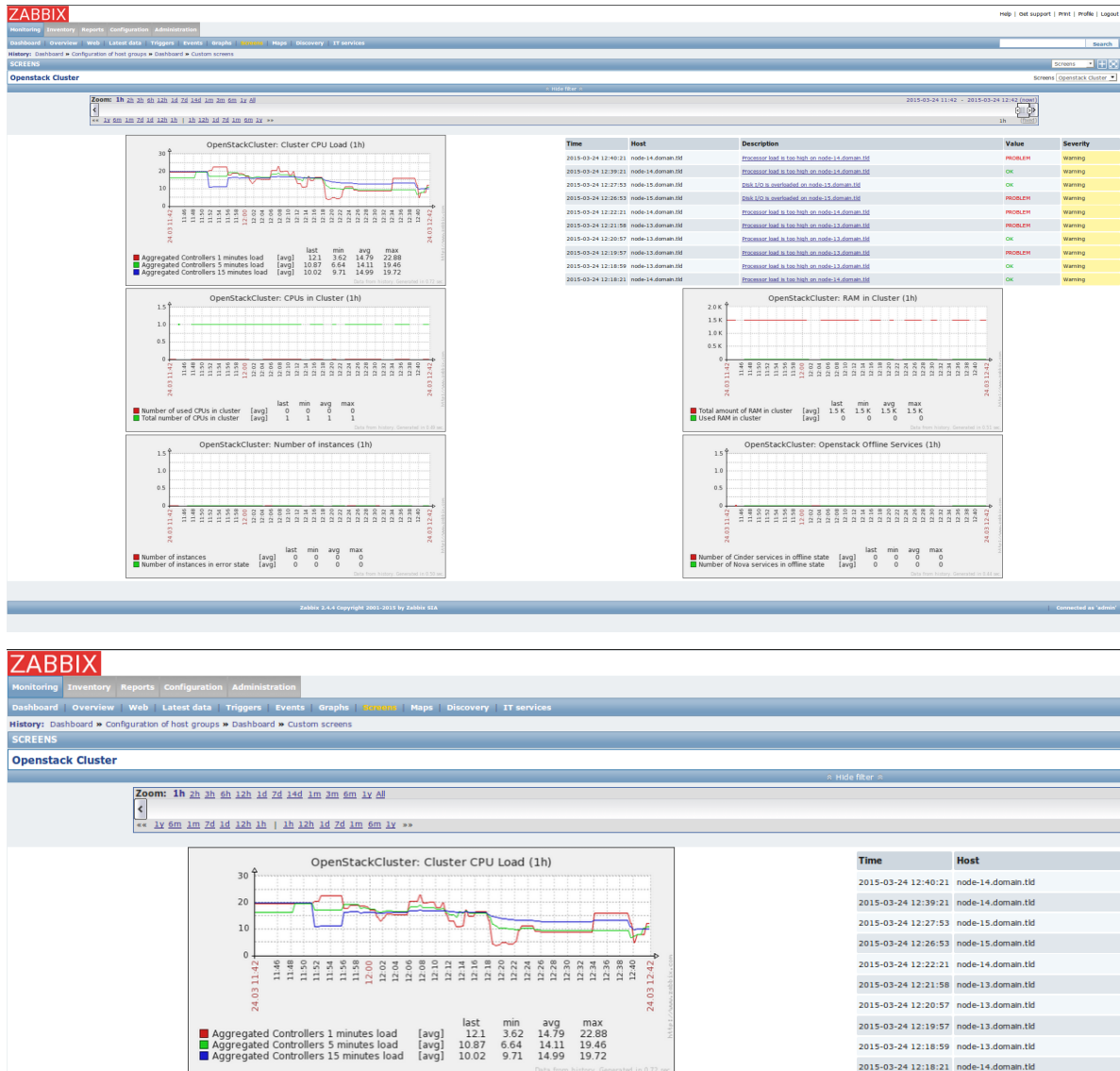
- The Zabbix Dashboard page provides information on running processes and their state.

If all processes are running successfully in the environment, you should see only green color.

To demonstrate that monitoring is working properly, the Nova Scheduler process had been turned off.

You can notice that Zabbix detected the halted process and provided the problem description: Nova Scheduler process is not running on node-13.domain.tld.

When you go to Monitoring->Screens page, you will see the OpenStack Cluster screen:



On this screen you have general statistics and graphs presenting resources usage in OpenStack environment.

There is also a list of last 10 events recorded by Zabbix.

8.4.1 Pages

Below there are a few screenshots from Zabbix configuration pages to show how it should look after a successful environment deployment. Zabbix UI provides several pages placed under Configuration tab.

Host groups page

This page has a list of host groups with their members. There are separate groups for Controllers and Computes. These groups are used to join nodes with the same role in OpenStack environment. There is also ManagedByPuppet group which contains all OpenStack nodes. Remaining host groups are created by default in Zabbix. For more information and instructions, see 6.1 Hosts and host groups chapter in the official Zabbix Documentation.

The Zabbix plugin for Fuel Documentation, Release 2.5-2.5.2-1

ZABBIX
Help / Get support / Host / Profile / Logout

Accounting Inventory Reports Configuration Administration
Users groups Templates House Maintenance Actions Devices Media Discovery IT services
Search

History: Dashboard • Configuration of host groups • Dashboard • Custom screens • Dashboard

CONFIGURATION OF HOST GROUPS

Host groups
displaying 1 to 7 of 7 found

Name	#	Members
Computers	Templates (9) Items (1)	ipaddr-1.9.domain.tld
Controlles	Templates (9) Items (2)	ipaddr-3.3.domain.tld ipaddr-1.4.domain.tld
Discovered hosts	Templates (9) Items (0)	-
Linux servers	Templates (9) Items (2)	1
Load balancers	Templates (1) Items (0)	Template App WebProxy
Managed devices	Templates (1) Items (1)	ipaddr-1.9.domain.tld ipaddr-1.2.domain.tld ipaddr-1.4.domain.tld OperaticStackUser
Templates	Templates (14) Items (0)	Template App OperaticStackCollector Compuls Template App OperaticStackClient vncfb Template App OperaticStack Nova API GETSET checks Template App OperaticStack Nova RHABBITMQ Template App OperaticStack Linux API checks Template App OperaticStack LVMFS Template App Hmcuache Template App Jafelias State Template App OperaticStack KmsAdmin Template App OperaticStack Scheduler Template App OperaticStack Nova API GET Template App OperaticStack Swift Object Template App OperaticStack Nova API checks Template App OperaticStack Nova CloudWatch Template App OperaticStack Network IPsec Auth Template App OperaticStack Nova API GETSET Template App OperaticStack Cinder API checks Template App OperaticStack Nova conf Template App OperaticStack Jenkins Worker Template App OperaticStack Nova Scheduler Template App OperaticStack Nova API metadata Template App OperaticStack Monitor Template App OperaticStack Cassandra Template App Zabbix Agent Template App OperaticStack Swift Container Template App OperaticStack Linux API Template App PSYCBI Template App OperaticStack Network I/L Agents Template App OperaticStack Linux Hostcopy Template App OperaticStack Network Metadata Admin Template App OperaticStack Nova Compute Template App WebProxy Template App OperaticStack Swift Proxy Template Fuel OS Linux Template OperaticStack Cluster Template App OperaticStack Nova API Template App OperaticStack Nova Network Template App Zabbix Agent Template App OperaticStack Cinder API Template App OperaticStack RHABBITMQ Template App OperaticStack Network ZVS Admin Template App OperaticStack Swift Account

Zabbix 2.4.4 Copyright 2001-2015 by Zabbix SIA
 Connected as admin

Hosts page

This page contains a list of all monitored OpenStack nodes and, additionally one OpenStackCluster virtual host which represents OpenStack API. There are also lists of linked monitoring templates to particular hosts. During installation, the plugin detects which services have been installed on a particular node and links appropriate templates to the node to enable monitoring for those services. There is an Zabbix agent availability report in the last column. When 'Z' icon is green, the Zabbix agent on this node is running and available.

[illegible]

ZABBIX

Monitoring
Inventory
Reports
Configuration
Administration

Host groups
Templates
Hosts
Maintenance
Actions
Screens
Slide shows
Maps
Discovery
IT services

History: Dashboard » Custom screens » Dashboard » Configuration of host groups » Configuration of templates

CONFIGURATION OF HOSTS

Hosts

Displaying 1 to 4 of 4 found

<input type="checkbox"/>	Name	Applications	Items	Triggers	Graphs	Discovery	Web	Interface
<input type="checkbox"/>	node-13_domain.tld	Applications (46)	Items (165)	Triggers (103)	Graphs (20)	Discovery (4)	Web (0)	192.168.0.2: 10050
<input type="checkbox"/>	node-14_domain.tld	Applications (46)	Items (171)	Triggers (103)	Graphs (23)	Discovery (4)	Web (0)	192.168.0.3: 10050
<input type="checkbox"/>	node-15_domain.tld	Applications (20)	Items (53)	Triggers (28)	Graphs (7)	Discovery (4)	Web (0)	192.168.0.4: 10050
<input type="checkbox"/>	OpenStackCluster	Applications (1)	Items (17)	Triggers (5)	Graphs (5)	Discovery (0)	Web (0)	192.168.0.1: 10049

Export selected
Go (0)

Zabbix 2.4.4 Copyright

Templates page

This page contains a list of all monitoring templates and list of hosts to which they are linked. A monitoring template is a way to group items, graphs and thresholds which monitor a particular resource type, for example an OpenStack

service like Nova Compute. For more information and instructions, see [6.6 Templates](#) chapter in the official Zabbix Documentation.

The screenshot shows the Zabbix web interface with the 'Templates' tab selected. The page displays a list of templates with columns for Applications, Items, Triggers, Graphs, Screens, Discovery, and Links. The list includes various templates for monitoring applications like HAProxy, Iptables, Memcached, MySQL, and OpenStack components. The interface also shows navigation tabs for Monitoring, Inventory, Reports, Configuration, and Administration.

The screenshot shows the Zabbix web interface with the 'Templates' tab selected. The page displays a list of templates with columns for Applications, Items, Triggers, and Graphs. The list includes various templates for monitoring applications like HAProxy, Iptables, Memcached, MySQL, and OpenStack components. The interface also shows navigation tabs for Monitoring, Inventory, Reports, Configuration, and Administration.

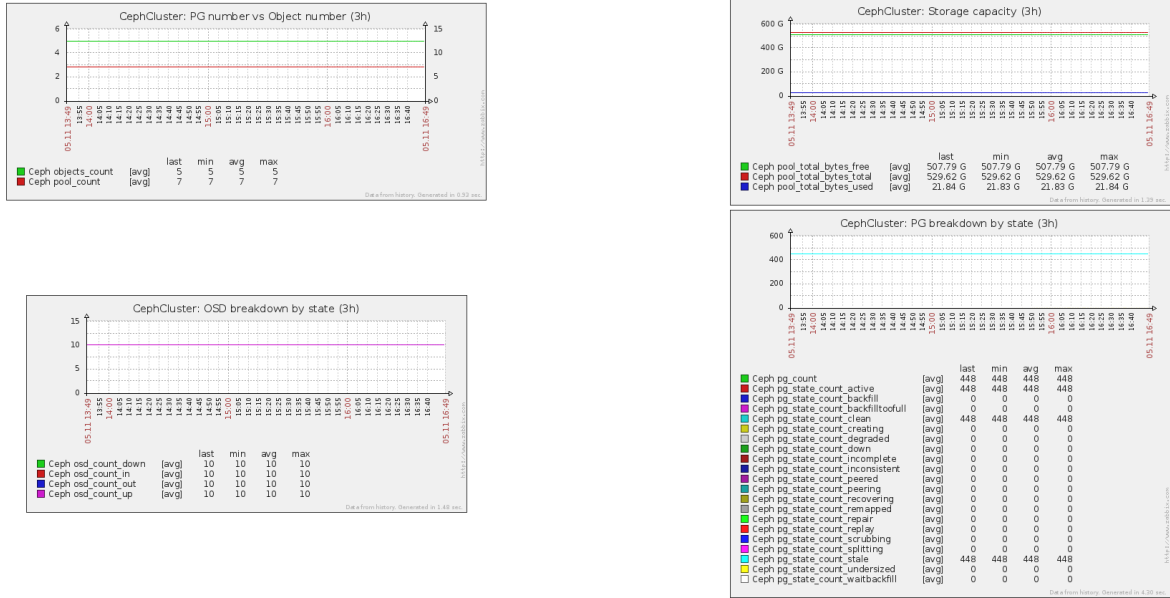
You can add an additional items (checks), create triggers and events via Zabbix UI. For more information and instructions, see [6.2 Items](#), [6.3 Triggers](#) and [6.4 Events](#) chapters in the official Zabbix Documentation.

By default, there are no notifications configured, but you can add them into the Zabbix UI. For more information and instructions, see [6.7 Notifications](#) upon events chapter in the official Zabbix Documentation.

8.5 Ceph


When Ceph is deployed the plugin configures:


- A check on the general health of the cluster as reported by the command *ceph health (version 1.0.0)*
- A Screen ‘Ceph’ providing an overview of the cluster with the following metrics (*version 2.5.0*):



- Zabbix is configured to verify that all Ceph processes are running (*version 2.5.0*):
 - ceph-osd
 - ceph-mon (on controller nodes)
- A Host 'CephCluster' is configured where are attached all cluster metrics (*version 2.5.0*):
 - Metrics collected for the cluster (*version 2.5.0*):
 - monitor_count
 - quorum_count
 - pg_bytes_used
 - pg_bytes_free
 - pg_bytes_total
 - pg_data_bytes
 - pg_count
 - pg_state_count_backfill
 - pg_state_count_repair
 - pg_state_count_creating
 - pg_state_count_recovering
 - pg_state_count_peered
 - pg_state_count_incomplete
 - pg_state_count_peering
 - pg_state_count_splitting
 - pg_state_count_waitbackfill
 - pg_state_count_down
 - pg_state_count_backfilltoofull

- pg_state_count_remapped
- pg_state_count_replay
- pg_state_count_inconsistent
- pg_state_count_clean
- pg_state_count_active
- pg_state_count_undersized
- pg_state_count_degraded
- pg_state_count_stale
- pg_state_count_scrubbing
- objects_count
- pool_count
- pool_total_bytes_used
- pool_total_bytes_free
- pool_total_bytes_total
- pool_total_percent_used
- pool_total_percent_free
- osd_count_up
- osd_count_down
- osd_count_in
- osd_count_out
- Triggers configured (*version 2.5.0*):
- An alert is triggered when Zabbix fail to collect Ceph cluster metrics
- An alert is triggered when the cluster free capacity is under 10%

« [Host list](#) **Host:** [CephCluster](#) [Enabled](#)  [Applications \(1\)](#) [Items \(39\)](#) [Triggers \(2\)](#) [Graphs \(4\)](#) [Discovery rules \(0\)](#) [Web scenarios \(0\)](#)

<input type="checkbox"/> Severity	Name 	Expression	Status
<input type="checkbox"/> Warning	Template App OpenStack Ceph Cluster: Cannot retrieve Ceph metrics from {HOST.NAME1} node	(CephCluster.probe.ceph.last{0})<>0	Enabled
<input type="checkbox"/> Warning	Template App OpenStack Ceph Cluster: Ceph free capacity is low (< 10%)	(CephCluster.pool.total.percent.free.last{0})<10	Enabled

8.6 MySQL

The following metrics are retrieved for each MySQL server (generally running on controller nodes):

Template list Template: Template/App/MySQL Applications (1) Items (17) Triggers (4) Graphs (2) Screens (1) Discovery rules (0) Web scenarios (0)			
Wizard	Name	Triggers	Key
<input type="checkbox"/>	MySQL begin operations per second		mysql.status[Com_begin]
<input type="checkbox"/>	MySQL bytes received per second		mysql.status[Bytes_received]
<input type="checkbox"/>	MySQL bytes sent per second		mysql.status[Bytes_sent]
<input type="checkbox"/>	MySQL cluster node is connected	Triggers (1)	db.wsrp.connected.query
<input type="checkbox"/>	MySQL cluster node is ready	Triggers (1)	db.wsrp.ready.query
<input type="checkbox"/>	MySQL cluster node status	Triggers (1)	db.wsrp.status.query
<input type="checkbox"/>	MySQL commit operations per second		mysql.status[Com_commit]
<input type="checkbox"/>	MySQL delete operations per second		mysql.status[Com_delete]
<input type="checkbox"/>	MySQL insert operations per second		mysql.status[Com_insert]
<input type="checkbox"/>	MySQL queries per second		mysql.status[Questions]
<input type="checkbox"/>	MySQL rollback operations per second		mysql.status[Com_rollback]
<input type="checkbox"/>	MySQL select operations per second		mysql.status[Com_select]
<input type="checkbox"/>	MySQL slow queries		mysql.status[Slow_queries]
<input type="checkbox"/>	MySQL status	Triggers (1)	mysql.ping
<input type="checkbox"/>	MySQL update operations per second		mysql.status[Com_update]
<input type="checkbox"/>	MySQL uptime		mysql.status[Uptime]
<input type="checkbox"/>	MySQL version		mysql.version

and 4 triggers are configured:

- a simple *mysqladmin ping* check (*version 1.0.0*)
- and 3 cluster related checks (*version 2.5.0*):
 - the cluster node is ready
 - the cluster node is connected to the cluster
 - the cluster node status (Primary, Non-Primary or Disconnected)

TROUBLESHOOTING

9.1 Finding the active Zabbix server node

To find the node(s) where Zabbix server is active, run the following command on Fuel master node:

```
# fuel nodes | grep controller | awk -F\| '{print $1,$NF}' | sort -n -k 2 | \
    uniq -s 1 | while read cnode lenv; do echo "===== Environment $lenv" ; \
        ssh -q node-$cnode 'for r in p_zabbix-server vip_public; do \
            crm resource status $r; \
        done' ; done
===== Environment 1
resource p_zabbix-server is running on: node-4.test.domain.local
resource vip_public is running on: node-3.test.domain.local
```

9.2 Finding the public VIP

On the returned node from the command above for a given environment, you might also want to know what is the Zabbix VIP address, so run the following command on Fuel master node:

```
# ssh -q node-3 ip netns exec haproxy ifconfig b_public | \
    grep 'inet addr:' | sed -e 's/[^:]*://' -e 's/ .*//'
172.16.0.2
```

9.3 Finding the management VIP

On the returned node from the command above for a given environment, you might also want to know what is the Zabbix VIP address, so run the following command on Fuel master node:

```
# ssh -q node-4 ip netns exec zabbix ifconfig b_zbx_vip_mgmt | \
    grep 'inet addr:' | sed -e 's/[^:]*://' -e 's/ .*//'
192.168.0.3
# ssh -q node-4 awk '/zbx_vip_mgmt/ {n=1} n==1 && /ipaddr/ {print;exit}' \
    /etc/astute.yaml | sed -e 's/.*: //'
192.168.0.3
```

9.4 Connect to Zabbix Web GUI

Use the URI using the public VIP:

```
http://172.16.0.2/zabbix
```

If you cannot access to the Zabbix UI, check that the HTTP *Apache* server is running on all controller nodes:

```
# /etc/init.d/apache2 status
* apache2 is running
```

9.5 Zabbix server

If the Zabbix UI reports ‘Zabbix server is not running’, check the following:

1. Check if the zabbix-server process runs and where is located, in the following example the server runs on node-2:

```
# crm status
[snip]
p_zabbix-server      (ocf::fuel:zabbix-server):    Started node-2.test.domain.
↪ local
```

2. Check logs in ‘/var/log/zabbix/zabbix_server.log’ to see eventual error.
3. If the zabbix-server is down, start it by using the *pacemaker* command:

```
# crm resource start p_zabbix-server
```

4. If the zabbix-server is still down, try the following:

```
# crm resource stop p_zabbix-server
# crm resource cleanup p_zabbix-server
# crm resource start p_zabbix-server
```

5. If after the previous commands the zabbix-server is still down and you didn’t find any explanation in the logs, try to increase the log level:

```
# sed -i 's/DebugLevel=3/DebugLevel=4/' /etc/zabbix/zabbix_server.conf
# crm resource restart p_zabbix-server
```

9.6 Zabbix agents

If a Zabbix agent don’t report data (this can be determined on the Zabbix UI page: configuration > hosts).

1. Check if the corresponding agent is running:

```
# /etc/init.d/zabbix-agent status
```

2. Restart the zabbix-agent if not running:

```
# /etc/init.d/zabbix-agent restart
```

3. If the zabbix-agent is still down or doesn't report any data try the following command to validate the agent's configuration. This command should display all data that agent is configured to collect, if not the command should display an explicit error with regard to the configuration:

```
# zabbix_agentd -p
```

9.7 Zabbix log files

On any of the cluster node, you might want to look into the Zabbix agents and server log files under:

```
/var/log/zabbix
```

10.1 Zabbix configuration tuning

New in version 2.5.0

10.1.1 Zabbix server

To be able to handle large environments, Zabbix server is configured with the following parameters (provided that there is enough memory on the node otherwise the default values are used).

Memory cache sizes:

- CacheSize = 32M (default 8M)
- HistoryCacheSize = 128M (default 8M)
- TrendCacheSize = 512M (default 4M)
- HistoryTextCacheSize = 128M (default 16M)

The process numbers are also increased:

- StartPollers = 30 (default 10)
- StartPollersUnreachable = 30 (default 1)
- StartTrappers = 15 (default 5)

Refer to the [Zabbix server](#) official documentation for further details and this [blog entry](#) can be useful to configure the optimal number of Zabbix processes.

10.1.2 Zabbix agent

The following parameters are set up:

- StartAgents = 10 (number of processes used to collect data, default 3)
- Timeout = 30 (default 3 seconds)

Refer to the [Zabbix agent](#) official documentation for further details.

10.1.3 Kernel

Since cache related parameters of Zabbix server daemon are increased, Linux kernel has to be configured accordingly. The plugin also configures the maximum shared memory to 1GB (sysctl kernel.shmmax).

Refer to the [How to configure shared memory](#) for further details.

10.2 Links

- [Zabbix Official site](#)
- [Zabbix 2.4 documentation](#)
- [Zabbix 2.4 documentation - SNMP traps](#)
- [Fuel Plugins CLI guide](#)

10.3 Components licenses

10.3.1 deb packages

Name	License
zabbix-agent	GPL-2.0
zabbix-frontend-php	GPL-2.0
zabbix-get	GPL-2.0
zabbix-sender	GPL-2.0
zabbix-server-mysql	GPL-2.0

10.3.2 rpm packages

Name	License
zabbix-agent	GPLv2+
zabbix-get	GPLv2+
zabbix-sender	GPLv2+
zabbix-server	GPLv2+
zabbix-server-mysql	GPLv2+
zabbix-web	GPLv2+
zabbix-web-mysql	GPLv2+