The Zabbix SNMP Trap Daemon plugin for Fuel Documentation

Release 1.1-1.1.1-1

Mirantis Inc.

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REVISION HISTORY

Version	Revision date	Editor	Comment
0.1	06.19.2015	Piotr Misiak (pmisiak@mirantis.com)	First release
0.2	08.12.2015	Piotr Misiak (pmisiak@mirantis.com)	Updated release
0.3	08.02.2015	Marciej Relewicz (mrelewicz@mirantis.com)	Updated for fix
1.0.0	11.20.2015	Swann Croiset (scroiset@mirantis.com)	New Major version
1.0.1	03.14.2016	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 8.0 support Doc fixes
1.1.0	05.11.2016	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 9.0 support
1.1.0	10.19.2016	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 9.1 support
1.1.1	02.17.2017	Olivier Bourdon (obourdon@mirantis.com)	Added MOS 9.2 support

CHAPTER

TWO

DOCUMENT PURPOSE

This document provides instructions for installing, configuring and using Zabbix SNMP trap daemon extension to the Zabbix monitoring plugin for Fuel.

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THREE

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.

SNMP trap A message which is send from agent (for example, from network switch) to monitoring manager.

SNMP community A password which is used for incoming SNMP traps authorization.

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FOUR

GUIDE TO THE SNMP TRAP DAEMON FOR ZABBIX PLUGIN

This plugin extends Zabbix plugin functionality by adding ability to receive SNMP traps from management network and pass them to Zabbix. For more information about networks, see the Logical Networks section of MOS documentation. The plugins installs snmptrapd daemon for receiving and snmptt software for parsing and passing traps to Zabbix. This plugin does not provide any additional features from user point of view. It was designed as a base for other plugins which needs to analyze SNMP traps incoming from for example network and storage hardware like network switches or storage arrays. By using this plugin user can easily create additional plugins to add monitoring of SNMP traps specific for their hardware.

4.1 Requirements

Requirement	Version/Comment
Fuel	7.0, 8.0, 9.0, 9.1 and 9.2
Zabbix plugin for Fuel	2.5.2

CHAPTER

FIVE

RELEASE NOTES / CHANGELOG

1.1.1

- Compatibility with MOS 9.2

1.1.0

- Compatibility with MOS 9.0 and MOS 9.1

1.0.1

- Compatibility with MOS 8.0
- Fix Cross-plugin display restrictions for some plugins prevent Settings tab from opening (bug 1538617)

1.0.0

- This is the first release of the plugin.

CHAPTER

SIX

LIMITATIONS

The plugin only supports neutron when specifying network settings. Old legacy mode (nova-network) is not supported

CHAPTER

SEVEN

INSTALLATION GUIDE

7.1 SNMP trap daemon for Zabbix plugin installation

To install SNMP trap daemon for Zabbix plugin, follow these steps:

1. Download and install the Zabbix plugin for Fuel from the Fuel Plugins Catalog.
2. Download the SNMP trap daemon for Zabbix plugin from the Fuel Plugins Catalog.
3. 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_snmptrapd-1.1-1.1.1-1.noarch.rpm root@<Fuel_Master_IP>:/tmp
```

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

```
# cd /tmp
# fuel plugins --install zabbix_snmptrapd-1.1-1.1.1-1.noarch.rpm
```

5. Check if the plugin was installed successfully:

```
# fuel plugins
id | name                       | version  | package_version
---|----------------------------|----------|----------------
1  | zabbix_monitoring          | 2.5.2    | 3.0.0
2  | zabbix_snmptrapd           | 1.1.1    | 3.0.0
```

7.2 SNMP trap daemon for Zabbix plugin removal

To uninstall SNMP Trap Daemon for Zabbix plugin, follow these steps:

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

```
# fuel plugins --remove zabbix_snmptrapd==1.1.1
```

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_snmptrapd
```

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EIGHT

USER GUIDE

8.1 Important preliminary notes

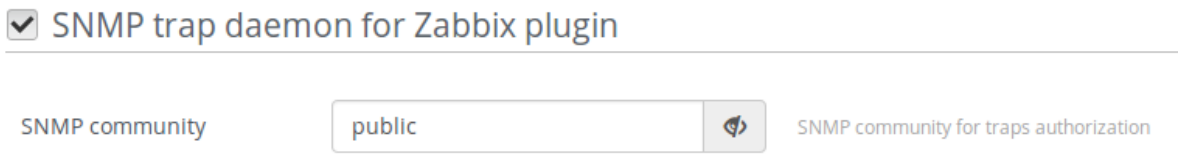
- It is highly recommended to do a network verification check prior to any deployment.
- This plugin version only supports Ubuntu OS type.
- You can also choose any supervisor and/or also change the networking configuration according to your needs but you can not use the old legacy networking mode (nova-network) as this is not supported.
- See Zabbix Plugin for Fuel Documentation for additional notes

8.2 Known problems

- #1529643: Zabbix snmptrapd: Service "snmptt" was restarted after executing of task "upload_core_repos"
- See Zabbix Plugin for Fuel Documentation for additional problems

8.3 Environment configuration

1. Create an environment. For more information about environment creation, see Mirantis OpenStack User Guide.
2. Enable and configure Zabbix plugin for Fuel. For instructions, see Zabbix Plugin Guide in the Fuel Plugins Catalog.
3. Open *Settings* tab of the Fuel web UI and scroll the page down. On the left choose *SNMP trap daemon for Zabbix plugin*, select the plugin checkbox and set *SNMP community* parameter:



   You could see default value by clicking on the eye icon. It is highly recommended to change default SNMP community, because it is used to authorize incoming SNMP traps.

4. Adjust other environment settings to your requirements and deploy the environment. For more information, see Mirantis OpenStack User Guide.

8.4 Environment validation

After a successful deployment, all Controller Nodes should have the following:

1. snmptrapd daemon running and listening on UDP/162 port on the VIP address reserved for Zabbix.
2. snmptrapd daemon configured to pass all SNMP traps to snmptt handler.
3. snmptt daemon running which parse SNMP traps and stores them in a log file in a format accepted by Zabbix.
4. Zabbix SNMPTrapper processes running which reads SNMP traps from the log file (only on node on which Zabbix Server is running).

To test if everything is installed and configured properly, follow these steps:

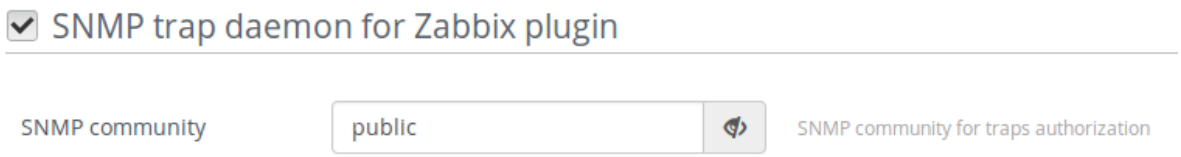
1. Generate a SNMP test trap by running the following command from any node:

```
# snmptrap -v 2c -c <SNMP_community> <mgmt_VIP_address> "" \
    .1.3.6.1.4.1.8072.2.3.0.1
```

where:

<SNMP_ community>

It is set in the SNMP trap daemon for Zabbix plugin Settings in Fuel UI:



<mgmt_VIP_address>

If you don't know the address, run the following command on any node:

```
# awk '/zbx_vip_mgmt/ {n=1} n==1 && /ipaddr/ {print;exit}' \
      /etc/astute.yaml | sed -e 's/.*: //'
```

You should get the required VIP in the output:

```
192.168.0.3
```

2. After several seconds of running the snmptrap command you should see a line in the Zabbix Server log file similar to this one:

```
# grep netSnmpExampleHeartbeatNotification /var/log/zabbix/zabbix_server.log
10730:20150611:182933.176 unmatched trap received from [192.168.0.4]:
18:29:27 2015/06/11 .1.3.6.1.4.1.8072.2.3.0.1 Normal "Status Events"
node-46.domain.tld - netSnmpExampleHeartbeatNotification
```

This is a proof that test SNMP trap has been received and passed to Zabbix. It is "unmatched" for Zabbix because there is no configuration for this trap in Zabbix (this trap is for testing purposes only).

8.5 How to use SNMP trap daemon for Zabbix plugin

As noted above, with this plugin you can easily create additional plugins to add monitoring of SNMP traps specific for your hardware. To achieve this, the following tasks should be done by additional plugin:

1. On all Controller nodes, add SNMP traps to snmptt configuration:
   (a) Create configuration file in */etc/snmp/snmptt.conf.d/* directory, for example *emc.conf*, with SNMP traps defined, for more information, see snmptt documentation.
   (b) Add the file (absolute path) to *snmptt_conf_files* parameter in *snmptt.ini* file.
   (c) Reload snmptt service.
2. Create a Zabbix monitoring Template and export it to a file. For more information, see Templates section in the Zabbix documentation.
3. From Primary Controller node configure Zabbix:
   (a) Copy created Template file to the Primary Controller node.
   (b) Import the Template to Zabbix using *plugin_zabbix_configuration_import* resource.
   (c) Optionally, create a Host group in Zabbix using *plugin_zabbix_hostgroup* resource.
   (d) Create Host in Zabbix using *plugin_zabbix_host* resource setting appropriate name, IP and group.
   (e) Link the Template with the Host using *plugin_zabbix_template_link* resource.

There are two plugins in the Fuel Plugins Catalog you can refer to as an example:

1. EMC hardware monitoring extension for Zabbix plugin.
2. Extreme Networks hardware monitoring extension for Zabbix plugin.

These plugins do all the tasks mentioned above and have their own Zabbix monitoring Templates. You can simply copy one of these plugins and adjust SNMP traps configuration to your hardware. For more information about Fuel Plugins development, see Fuel Plugins wiki page.

CHAPTER

NINE

TROUBLESHOOTING

9.1 Running processes

After a successfull deployment the following processes should be running on the controller node which runs the Zabbix server (lines have been wrapped for more readability):

```
root     10222     1  0 13:54 ?        00:00:00
         /usr/sbin/snmptrapd -Lsd -p /var/run/snmptrapd.pid
root     10330     1  0 13:54 ?        00:00:00
         /usr/bin/perl /usr/sbin/snmptt --daemon
snmptt   10331 10330  0 13:54 ?        00:00:00
         /usr/bin/perl /usr/sbin/snmptt --daemon
snmp     19521     1  0 13:49 ?        00:00:00
         /usr/sbin/snmpd -Lsd -Lf /dev/null -u snmp -g snmp -I
             -smux mteTrigger mteTriggerConf -p /var/run/snmpd.pid
```

This processes ensure that the SNMP traps can be handled by Zabbix

If some of them do not run, please try to relaunch them appropriately using one of the following commands:

```
# service snmpd restart
# service snmptt restart
```

For the snmptrapper process, please make sure the contents of the corresponding Zabbix configuration file is accurate:

```
# cat /etc/zabbix/conf.d/zabbix_snmp.conf
### Managed by Puppet ###
# This is SNMP config file for ZABBIX server process
# To get more information about ZABBIX,
# go http://www.zabbix.com

############ GENERAL PARAMETERS #################

#SNMP Trapper
StartSNMPTrapper=1
SNMPTrapperFile=/var/log/snmptt/snmptt.log
```

and potentially restart the Zabbix server process which is managed by pacemaker. See Zabbix Plugin for Fuel Documentation to see how to do this.

9.2 Finding the management VIP to use to send SNMP traps

On the Fuel master node, use the primary controller node (here node-3):

```
# ssh -q node-3 ip netns exec zabbix ifconfig b_zbx_vip_mgmt | \
    grep 'inet addr:' | sed -e 's/[^:]*://' -e 's/ .*//'
192.168.0.3
```

Note that there is another way to find this:

```
# ssh -q node-3 "awk '/zbx_vip_mgmt/ {n=1} n==1 && /ipaddr/ {print;exit}' \
    /etc/astute.yaml" | sed -e 's/.*: //'
192.168.0.3
```

9.3 SNMP processes log files

The files can be found under:

```
/var/log/snmptt/snmpttsystem.log
```

9.4 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
```

9.5 Additional reading

See Zabbix Plugin for Fuel Documentation for additional troubleshooting tips

CHAPTER

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APPENDIX

10.1 Links

- Zabbix Official site
- Zabbix 2.4 documentation
- Zabbix 2.4 documentation - SNMP traps
- Zabbix 2.4 documentation - Templates
- Fuel Plugins CLI guide

10.2 Components licenses

10.2.1 deb packages

10.2.2 rpm packages

Name	License
net-snmp	BSD
net-snmp-libs	BSD
net-snmp-perl	BSD
snmptt	GPLv2+
perl-Config-IniFiles	GPL+
perl-Crypt-DES	BSD
perl-Digest-HMAC	GPL+
perl-Digest-SHA1	GPL+
perl-IO-stringy	GPL+
perl-List-MoreUtils	GPL+
perl-Net-SNMP	GPL+

10.2.3 puppet modules

Name	License
snmp	Apache 2.0