# Zabbix Agent Simulator

*To developing the extensions, to testing them, to verify the configuration, to teaching, to demo and to the glory of Zabbix !*

**Credits.**

I wish to thank the authors of the software called SNMPSIM.

http://snmpsim.sourceforge.net/

The ones who shows me the way.  Also, the authors of the Zabbix monitoring platform. Without you, this software wouldn't exists at all

http://www.zabbix.com

*Thanks you for all your help and encouragement*

ZABBIX

What is the Zabbix Agent Simulator. Well, as the name probably suggesting, it is  a piece if software which simulating the Zabbix Agent. Your first question probably will be: "Why on Earth you wanna do this ?" There are simple answer on this question and an answer with "multiple choices of answers". I will start with simple one:

Zabbix Agent Simulator intended to be used instead regular Zabbix passive Agent in the situations, where use of the real Zabbix Agent is not practical or simply not desirable.

## What is "non-practical" ?

"Non-practical" means, that the use of the regular Zabbix Agent which is coming with Zabbix will not bring desirable results. For example: when you are developing your Triggers and Actions, you test host rarely having the thresholds that you are programming. Many times, I saw how Zabbix Administrators deployed configurations, which were not fully tested.

## What is "not desirable" ?

"Non desirable" means that you are following the design and development solution which is flawed in one or several ways and continue to use this development method will bring you into a troubles later on. For example: many times, I saw when people were tried to test there configurations on live installations. Indeed, this is a very bad practice and it must be avoided at all cost.

So, what is the "long answer" on what is the Zabbix Agent Simulator and the scope of use for this software tool

- ⭐ Configurations and monitoring architecture testing.
  Zabbix Agent Simulator can generate you the values for the metrics exactly to your specifications and scenarios. You can simulate any conditions on your host or Agent monitored application, without bothering the production environment and you can perform full test of your Zabbix configuration behavior in all possible situations.

- ⭐ Post-mortem analysis.
  If your production configuration doesn't work, you can take the values and "re-play" them on your development and test Zabbix installations. This will permit you to see what is wrong with your production configuration and how to fix that.

**ZABBIX**

So, what is the "long answer" on what is the Zabbix Agent Simulator and the scope of use for this software tool

- Zabbix architecture and capabilities demonstration.

- Safe simulation of the massive infrastructure on your virtual hosts for your development and test "sandboxes"

- Use during training and in other forms of the lab and educational environment. Safe simulation of the catastrophic failures of your infrastructure for educational and training purposes. I say: "let them play with this simulator, not with the real things".

*And any other situations similar and not similar to those.*

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ZAS Agent is a Python application and do require that you have Python2 of version 2.6+ and older installed on your host. Now-days, Python is a standard staple on most Unix-like operating systems, but do check if you have one and what it's version.

```
[root@class1 ~]# python --version
Python 2.6.6
```

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ZAS Agent requires some of the standard and 3-rd party Python modules to function. To check, if your environment is ready, please run the script check_python_packages.py located in subdirectory "install"

```
[root@class1 install]# python check_python_packages.py
Module 'os'................. OK
Module 'sys'................ OK
Module 'ConfigParser'...... OK
Module 'argparse'.......... OK
Module 'struct'............ OK
Module 'multiprocessing'... OK
Module 'socket'............ OK
Module 'time'.............. OK
Module 'logging'........... OK
Module 'redis'............. OK
Module 'numpy'............. OK
Module 'fnmatch'........... OK
Module 're'................ OK
Module 'signal'............ OK
Module 'daemonize'......... OK
```

Here, we will review some of the required packages, which usually are not the part of the standard Python library. The easiest way to install those packages is with help of the handy python-pip tool. If this tool is not included in your OS distribution, you can download and install it from here:

https://pip.pypa.io/en/stable/installing/

| Package name | Homepage | Description |
|---|---|---|
| redis | https://github.com/andymccurdy/redis-py | The Python interface to the Redis key-value store. |
| numpy | http://www.numpy.org/ | NumPy is the fundamental package for scientific computing with Python. |
| daemonize | http://daemonize.readthedocs.org/en/latest/?badge=latest | Library for writing system daemons in Python. |
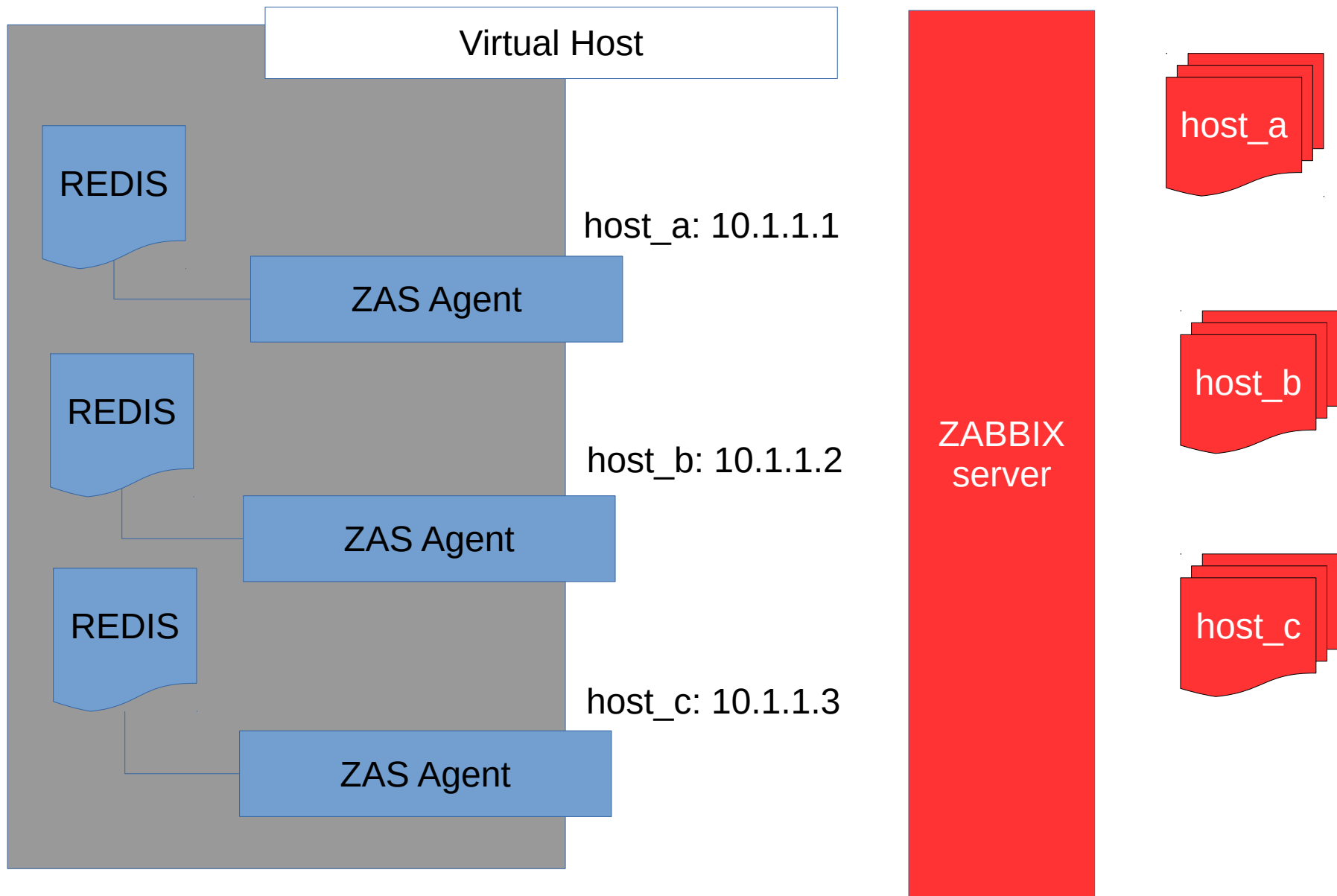
Zabbix Agent Simulator while mimicking the real Zabbix passive Agent, will return the values for the requested keys, according to the Agent configuration. The values are ether static, generated according to some scenarios or obtainable from external sources (Redis datastore). Unlike real Agent, Zabbix Agent Simulator returns only values for the keys, specified in ZAS configuration.

**Here is the value types, which can be used as return value with ZAS**

| Value type | Description |
|---|---|
| static: | The simplest value type, returning the static value defined in ZAS configuration. |
| random: | Return the uniform random number within the range |
| redis: | Searches Redis database #0 for the key matched the requested metric key and return stored value |
| rqueue: | Searches Redis database #1 for the key matched the requested metric key, which refers the list and returns last item from this list |
| scenario: | |