Zabbix

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https://www.zabbix.com/documentation/
- **agents** report availability and integrity information and statistics to the server
- the server is the central repository in which all configuration, statistical and operational data are stored
- all configuration information as well as the data gathered by Zabbix is stored in a **database**
- for an easy access to Zabbix from anywhere and from any platform, the **web-based interface** is provided (PHP-based)
  - the interface is part of Zabbix server, and usually (but not necessarily) runs on the same physical machine as the one running the server
  - Zabbix web interface must run on the same physical machine if SQLite is used
- **proxy** can collect data on behalf of Zabbix server
  - optional, but it may be very beneficial to distribute the load of a single Zabbix server
Data gathering

- availability and performance checks
- support for SNMP (both trapping and polling), IPMI, JMX, VMware monitoring
- custom checks
- gathering desired data at custom intervals
- performed by server/proxy and by agents
you can define very flexible problem thresholds, called **triggers**, referencing values from the backend database (**items**)

<table>
<thead>
<tr>
<th>Severity</th>
<th>Name</th>
<th>Expression</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warning</td>
<td>Template WN: Core number on {HOST.NAME} is &lt; 16</td>
<td><code>(alicegrid33.ba.infn.it:ncores.last(0))&lt;($NCOR_MIN)</code></td>
</tr>
<tr>
<td>High</td>
<td>Template WN: Cron daemon not running on {HOST.NAME}</td>
<td><code>(alicegrid33.ba.infn.it:proc.num[crond].last(0))=0</code></td>
</tr>
<tr>
<td>High</td>
<td>Template WN: CVMS not mounted</td>
<td><code>(alicegrid33.ba.infn.it:cvms.str(OK))=0</code></td>
</tr>
<tr>
<td>High</td>
<td>Template WN: EMI-Release is not correct</td>
<td><code>(alicegrid33.ba.infn.it:emi.release.str($EMI_REL))=0</code></td>
</tr>
<tr>
<td>Average</td>
<td>Template WN: Lack of available memory on server {HOST.NAME}</td>
<td><code>(alicegrid33.ba.infn.it:vm.memory.size[available].last(0))&lt;20M</code></td>
</tr>
<tr>
<td>Warning</td>
<td>Template WN: Lack of free swap space on {HOST.NAME}</td>
<td><code>(alicegrid33.ba.infn.it:system.swap.size[free].last(0))&lt;50</code></td>
</tr>
<tr>
<td>Warning</td>
<td>Template WN: Processor load is too high on {HOST.NAME}</td>
<td><code>(alicegrid33.ba.infn.it:system.cou.load.last(0))&gt;1.50</code></td>
</tr>
<tr>
<td>High</td>
<td>Template WN: SSH not running on {HOST.NAME}</td>
<td><code>(alicegrid33.ba.infn.it:proc.num[sshd].last(0))=0</code></td>
</tr>
<tr>
<td>Information</td>
<td>Template WN: Users logged in {HOST.NAME}</td>
<td><code>(alicegrid33.ba.infn.it:system.users.num.last(0))&gt;0</code></td>
</tr>
<tr>
<td>Average</td>
<td>Template WN: Zabbix agent on {HOST.NAME} is unreachable for 10 minutes</td>
<td><code>(alicegrid33.ba.infn.it:agent.ping.nodata(10m))=1</code></td>
</tr>
</tbody>
</table>
Highly configurable alerting

- sending notifications can be customized for the escalation schedule, recipient, media type
- notifications can be made meaningful and helpful using macro variables
- automatic actions include remote commands
Graphing, maps, reporting

- monitored items are immediately graphed using the built-in graphing functionality
- ability to create custom graphs that can combine multiple items into a single view
- network maps
- custom screens and slide shows for a dashboard-style overview
- reports
- high-level (business) view of monitored resources
Historical data storage

● data stored in a database (MySQL, PostgreSQL, SQLite)
● configurable history
● built-in housekeeping procedure
Easy configuration

- grouping checks in **templates**
- templates can inherit other templates
- add monitored devices as **hosts**
- hosts are picked up for monitoring, once in the database
- apply **templates** to monitored devices
Network discovery

- automatic discovery of network devices
- agent auto registration
- discovery of file systems, network interfaces and SNMP OIDs
Permissions system

- secure user authentication (Internal, LDAP, HTTP)
- certain users can be limited to certain views
Zabbix API

Zabbix API provides programmable interface to Zabbix i.e. for

- mass manipulations
- 3rd party software integration

JSON-RPC or httplib (Python) can be used!
Data flow

● In order to create an item that gathers data you must first create a host.
● you must first have an item to create a trigger
● you must have a trigger to create an action
● thus if you want to receive an alert that your CPU load it too high on Server X you must
  ○ create a host entry for Server X
  ○ followed by an item for monitoring its CPU,
  ○ then a trigger which activates if the CPU is too high,
  ○ followed by an action which sends you an email
Thank you!