

9. Virtual machine monitoring

Overview

Support of monitoring VMware environments is available in Zabbix starting with version 2.2.0.

Zabbix can use low-level discovery rules to automatically discover VMware hypervisors and virtual machines and create hosts to monitor them, based on pre-defined host prototypes.

The default dataset in Zabbix offers several ready-to-use templates for monitoring VMware vCenter or ESX hypervisor.

The minimum required VMware vCenter or vSphere version is 4.1.

Details

The virtual machine monitoring is done in two steps. First, virtual machine data is gathered by *vmware collector* Zabbix processes. Those processes obtain necessary information from VMware web services over the SOAP protocol, pre-process it and store into Zabbix server shared memory. Then, this data is retrieved by pollers using Zabbix simple check [VMware keys](#).

Starting with Zabbix version 2.2.9 the collected data is divided into 2 types: VMware configuration data and VMware performance counter data. Both types are collected independently by *vmware collectors*. Because of this it is recommended to enable more collectors than the monitored VMware services. Otherwise retrieval of VMware performance counter statistics might be delayed by the retrieval of VMware configuration data (which takes a while for large installations).

Currently only datastore, network interface and disk device statistics and custom performance counter items are based on the VMware performance counter information.

Configuration

For virtual machine monitoring to work, Zabbix should be [compiled](#) with the `--with-libxml2` and `--with-libcurl` compilation options.

The following configuration file options can be used to tune the Virtual machine monitoring:

- **StartVMwareCollectors** - the number of pre-forked vmware collector instances. This value depends on the number of VMware services you are going to monitor. For the most cases this should be:
 $servicenum < StartVMwareCollectors < (servicenum * 2)$
where *servicenum* is the number of VMware services. E. g. if you have 1 VMware service to monitor set StartVMwareCollectors to 2, if you have 3 VMware services, set it to 5. Note that in most cases this value should not be less than 2 and should not be 2 times greater than the number of VMware services that you monitor. Also keep in mind that this value also depends on your VMware environment size and *VMwareFrequency* and *VMwarePerfFrequency* configuration parameters (see below).

- **VMwareCacheSize**
- **VMwareFrequency**
- **VMwarePerfFrequency**
- **VMwareTimeout**

For more details, see the configuration file pages for Zabbix [server](#) and [proxy](#).

Discovery

Zabbix can use a low-level discovery rule to automatically discover VMware hypervisors and virtual machines.

The screenshot shows the 'Discovery rule' configuration page in Zabbix. The form includes the following fields and sections:

- Name:** Discover VMware hypervisors
- Type:** Simple check
- Key:** vmware.hv.discovery[{\$URL}]
- User name:** {\$USERNAME}
- Password:** {\$PASSWORD}
- Update interval (in sec):** 3600
- Flexible intervals:** A table with columns 'Interval', 'Period', and 'Action'. It currently contains the text 'No flexible intervals defined.'
- New flexible interval:** A section with a light green background containing:
 - Interval (in sec): 50
 - Period: 1-7,00:00-24:00
 - An 'Add' button.
- Keep lost resources period (in days):** 30
- Filter:** Macro and Regexp input fields.
- Description:** Discovery of hypervisors.
- Enabled:** A checked checkbox.

Discovery rule key in the above screenshot is `vmware.hv.discovery[{$URL}]`.

Host prototypes

Host prototypes can be created with the low-level discovery rule. When virtual machines are discovered, these prototypes become real hosts. Prototypes, before becoming discovered, cannot have their own items and triggers, other than those from the linked templates. Discovered hosts will belong to an existing host and will take the IP of the existing host for the host configuration.

Discovery rules					
Displaying 1 to 3 of 3 found					
« Template list Template: Template Virt VMware Applications (2) Items (1) Triggers (0) Graphs (0) Screens (0) Discovery ru					
<input type="checkbox"/>	Name	Items	Triggers	Graphs	Hosts
<input type="checkbox"/>	Discover VMware clusters	Item prototypes (1)	Trigger prototypes (0)	Graph prototypes (0)	Host prototypes (0)
<input type="checkbox"/>	Discover VMware hypervisors	Item prototypes (0)	Trigger prototypes (0)	Graph prototypes (0)	Host prototypes (1)
<input type="checkbox"/>	Discover VMware VMs	Item prototypes (0)	Trigger prototypes (0)	Graph prototypes (0)	Host prototypes (1)

In a host prototype configuration, LLD macros are used for the host name, visible name and host group prototype fields. Host status, linkage to existing host groups and template linkage are other options that can be set.

CONFIGURATION OF HOST PROTOTYPES

« [Template list](#) **Template: [Template Virt VMware](#)** « [Discovery list](#)

Discovery: [Discover VMware hypervisors](#) [Item prototypes \(0\)](#) [Trigger prototypes \(0\)](#)
[Graph prototypes \(0\)](#) [Host prototypes \(1\)](#)

Host
Groups
Templates
Host inventory

Host name

Visible name

Status

Discovered hosts are prefixed with the name of the discovery rule that created them, in the host list. Discovered hosts can be manually deleted. Discovered hosts will also be automatically deleted, based on the *Keep lost resources period (in days)* value of the discovery rule. Most of the configuration options are read-only, except for enabling/disabling the host and host inventory. Discovered hosts cannot have host prototypes of their own.

Ready-to-use templates

The default dataset in Zabbix offers several ready-to-use templates for monitoring VMware vCenter or directly ESX hypervisor.

These templates contain pre-configured LLD rules as well as a number of built-in checks for monitoring virtual installations.

Note that “*Template Virt VMware*” template should be used for VMware vCenter and ESX hypervisor monitoring. The “*Template Virt VMware Hypervisor*” and “*Template Virt VMware Guest*” templates are used by discovery and normally should not be manually linked to a host.

Templates								
Displaying 1 to 27 of 27 found								
<input type="checkbox"/>	Templates ↓	Applications	Items	Triggers	Graphs	Screens	Discovery	Web
<input type="checkbox"/>	Template Virt VMware Hypervisor	Applications (6)	Items (19)	Triggers (0)	Graphs (0)	Screens (0)	Discovery (1)	Web (0)
<input type="checkbox"/>	Template Virt VMware Guest	Applications (8)	Items (17)	Triggers (0)	Graphs (0)	Screens (0)	Discovery (3)	Web (0)
<input type="checkbox"/>	Template Virt VMware	Applications (2)	Items (1)	Triggers (0)	Graphs (0)	Screens (0)	Discovery (3)	Web (0)

If your server has been upgraded from a previous version and has no such templates, you can import them manually, downloading from the community page with [official templates](#). However, these templates have dependencies from the *VMware VirtualMachinePowerState* and *VMware status* value maps, so it is necessary to create these value maps first (using an [SQL script](#) or manually) before importing the templates.

Host configuration

To use VMware simple checks the host must have the following user macros defined:

- **{ \$URL }** - VMware service (vCenter or ESX hypervisor) SDK URL (<https://servername/sdk>)
- **{ \$USERNAME }** - VMware service user name
- **{ \$PASSWORD }** - VMware service { \$USERNAME } user password

Example

The following example demonstrates how to quickly setup VMware monitoring on Zabbix:

- compile zabbix server with required options (`--with-libxml2` and `--with-libcurl`)
- set the `StartVMwareCollectors` option in Zabbix server configuration file to 1 or more
- create a new host
- set the host macros required for VMware authentication:

Host	Templates	IPMI	Macros	Host inventory
Macro		Value		
<input type="text" value="{ \$PASSWORD }"/>		⇒	<input type="text" value="<password>"/>	Remove
<input type="text" value="{ \$URL }"/>		⇒	<input type="text" value="<url>"/>	Remove
<input type="text" value="{ \$USERNAME }"/>		⇒	<input type="text" value="<username>"/>	Remove
Add				
<input type="button" value="Save"/> <input type="button" value="Clone"/> <input type="button" value="Full clone"/> <input type="button" value="Delete"/> <input type="button" value="Cancel"/>				

- Link the host to the VMware service template:

Host	Templates	IPMI	Macros	Host inventory				
Linked templates	<table border="1"><thead><tr><th>Name</th><th>Action</th></tr></thead><tbody><tr><td>Template Virt VMware</td><td>Unlink Unlink and clear</td></tr></tbody></table>				Name	Action	Template Virt VMware	Unlink Unlink and clear
Name	Action							
Template Virt VMware	Unlink Unlink and clear							
Link new templates	<input type="text" value="type here to search"/> Add							
Save Clone Full clone Delete Cancel								

- Save the host

Troubleshooting

- In case of unavailable metrics, please make sure if they are not made unavailable or turned off by default in recent VMware vSphere versions or if some limits are not placed on performance-metric database queries. See [ZBX-12094](#) for additional details.

From: <https://www.zabbix.com/documentation/2.2/> - **Zabbix Documentation 2.2**

Permanent link: https://www.zabbix.com/documentation/2.2/manual/vm_monitoring

Last update: **2019/01/23 09:57**

