

# Configure Zabbix Docker

## Configure Zabbix Server to point to zabbix-agent container

- Navigate to **Monitoring --> Hosts -->Zabbix Server --> Configuration (Figure 1)**

**Figure 1**

The screenshot shows the Zabbix web interface with the 'Hosts' page selected. A specific host, 'Zabbix server', is highlighted. The 'Configuration' menu item is being clicked, as indicated by a cursor icon over it. The menu also includes other options like 'HOST', 'Inventory', 'Latest data', 'Problems', 'Graphs', 'Screens', 'Web', 'SCRIPTS', 'Detect operating system', 'Ping', and 'Traceroute'. The top navigation bar includes tabs for 'Interface', 'Availability', 'Tags', and 'Problems'. The status bar for the host shows '127.0.0.1: 10050' and 'ZBX SNMP JMX IPMI'. A red notification badge with the number '1' is visible in the top right corner.

- Clear **127.0.0.1** from IP address field
- Enter **zabbix-agent** in the **DNS name** field
- Set **Connect to** field to **DNS**
- Click the **Update** button (**Figure 2**)

**Figure 2**

The screenshot shows the 'Hosts' configuration page for the 'Zabbix server' host. The 'Host' tab is selected. The host details are as follows:

- \* Host name: Zabbix server
- Visible name: (empty)
- \* Groups: Zabbix servers (with a 'Select' button)
- \* Interfaces: Type: Agent, IP address: (empty), DNS name: zabbix-agent, Connect to: DNS, Port: 10050, Default: (radio button selected)

The top navigation bar includes links for 'All hosts', 'Enabled', and various monitoring metrics like 'Applications 22', 'Items 137', 'Triggers 84', 'Graphs 26', 'Discovery rules 3', and 'Web scenarios'.

# Configure Zabbix Server Timezone

Edit /opt/zabbix-docker/.env\_web uncomment the following line:

```
#PHP_TZ=Europe/Riga
```

Navigate to <http://php.net/manual/en/timezones.php> locate your local timezone and set PHP\_TZ to it, for example for American Eastern you would set it to the following:

```
PHP_TZ=America/New_York
```

# Configure Zabbix Server Server Name

Edit /opt/zabbix-docker/.env\_web and set the following line:

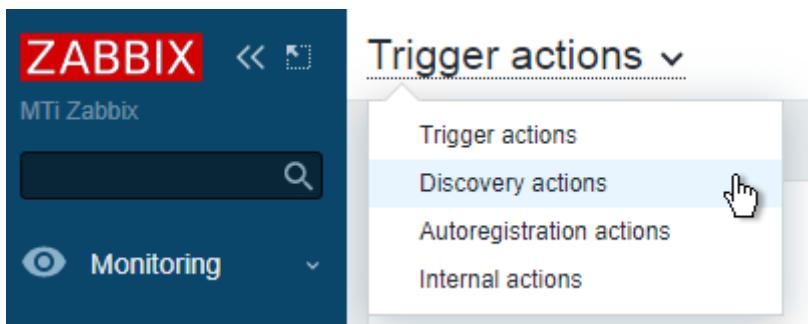
```
ZBX_SERVER_NAME=Composed installation
```

to a server name that you like (Example: ZBX\_SERVER\_NAME=Widgets, Inc)

# Configure Zabbix Auto Discover

- Navigate to **Configuration --> Actions --> Actions Drop-down --> Discovery actions (Figure 3)**

**Figure 3**



- Select **Auto discovery. Linux servers** and click **Enable (Figure 4)** to enable Linux hosts auto discovery

**Figure 4**

## Discovery actions ▾

The screenshot shows the 'Discovery actions' configuration screen. At the top, there is a search bar and a 'Name' input field. Below this, a table lists discovery actions. The first row is selected, indicated by a yellow background. It contains a checkbox labeled 'Name ▲', a 'Conditions' column with the text 'Received value contains Linux', 'Discovery status equals Up', and 'Service type equals Zabbix agent'. Below the table are buttons for '1 selected', 'Enable', 'Disable', and 'Delete'.

# Enable Zabbix Notifications

- Navigate to **Configuration --> Actions -->Actions Drop-down --> Trigger actions (Figure 5)**

**Figure 5**

The screenshot shows the Zabbix interface with a sidebar on the left containing 'Monitoring' and 'Inventory' sections. A dropdown menu is open over the 'Trigger actions' link, showing options: 'Trigger actions' (which is highlighted with a blue background), 'Discovery actions', 'Autoregistration actions', and 'Internal actions'. A cursor icon is pointing at the 'Trigger actions' option.

- Ensure you have already configured notifications under **Administration --> Media types**.
- Click the **Disabled** link under the **Status** column in the **Report problems to Zabbix administrators** item in order to change the status to **Enabled** (Figure 6).

**Figure 6**

The screenshot shows the 'Trigger actions' configuration screen. At the top, there is a search bar and a 'Create action' button. Below this, a table lists trigger actions. The first row is highlighted with a green background and contains a checked checkbox, the text 'Action disabled', and a 'X' button. Below the table are buttons for 'Apply' and 'Reset'. The table has columns for 'Name', 'Status' (with 'Enabled' and 'Disabled' buttons), 'Operations', and 'Status' (with 'Enabled' and 'Disabled' buttons). The first row in the table also has a 'Conditions' and 'Operations' column. The bottom of the table shows a single row with the text 'Report problems to Zabbix administrators' and 'Send message to user groups: Zabbix administrators via all media'.

# Enable Zabbix FreeNAS Monitoring

- On FreeNAS server enable **SNMP** by going to **Services --> SNMP** and set it to **Running** and **Start Automatically** and enable **SSH** by going to **Services --> SSH** and set it to **Running** and **Start Automatically** (**Figure 7**).

**Figure 7**

Name	Running	Start Automatically	Actions
LLDP	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button"/>
NFS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button"/>
Rsync	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button"/>
S.M.A.R.T.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button"/>
S3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="button"/>
SMB	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button"/>
SNMP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button"/>
SSH	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="button"/>

- On FreeNAS server, under **Services**, click on **SSH --> Actions** and ensure **Log in as root with password** and **Allow password authentication** checkboxes are checked and click the **Save** button (**Figure 8**).

**Figure 8**

Services / SSH

TCP port  
22

Log in as root with password ?

Allow password authentication ?

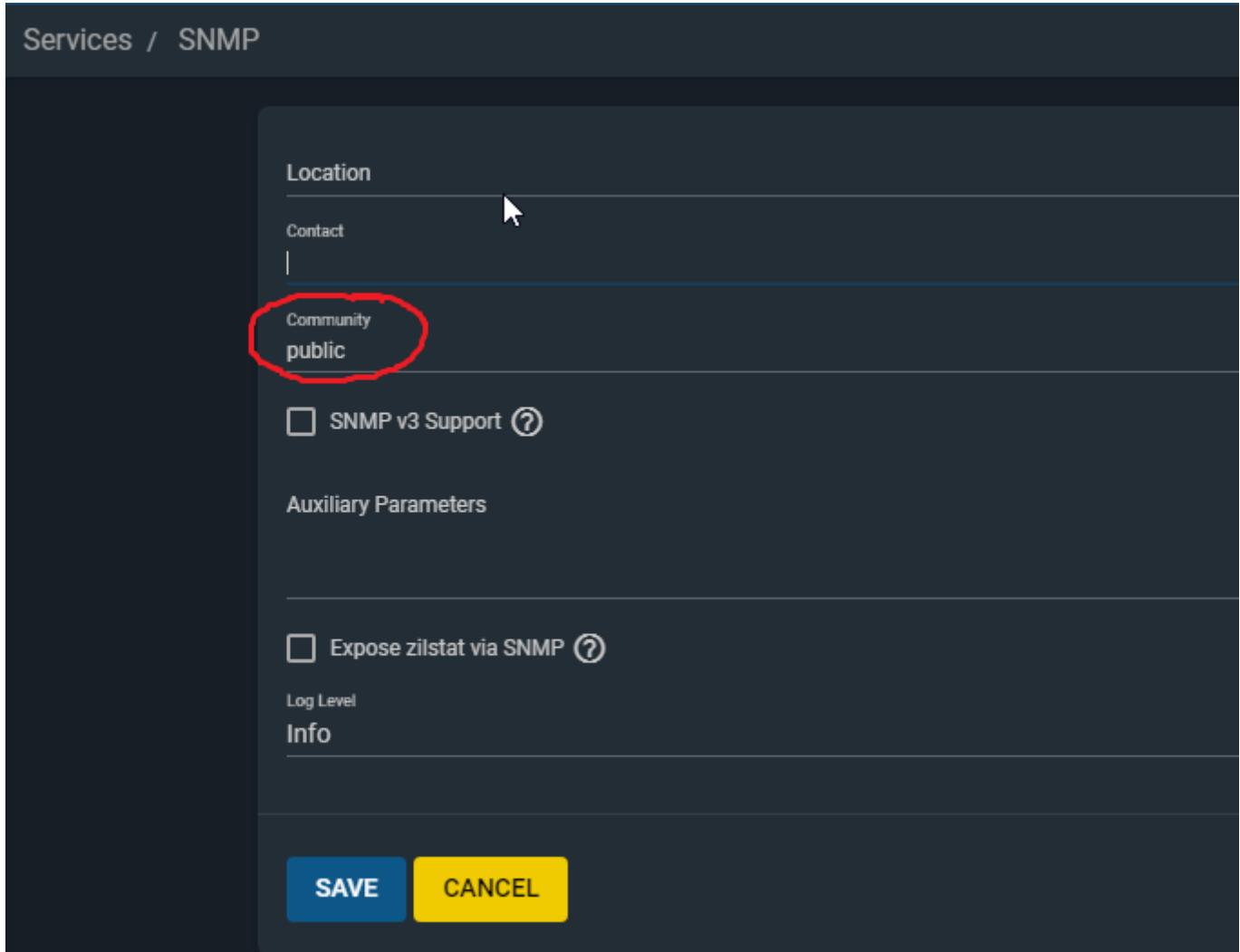
Allow TCP port forwarding ?

Compress connections ?

**SAVE** **CANCEL** **ADVANCED MODE**

- On FreeNAS server, under **Services**, click on **SNMP --> Actions** and note the **Community** string (default is **public**) or change as required and optionally set the **Log Level** to **Info** if you wish to get more information out of FreeNAS and click the **Save** button (**Figure 9**).

**Figure 9**



- Using WinSCP or scp download the following file from the FreeNAS server:

```
/usr/local/share/snmp/mibs/FREENAS-MIB.txt
```

- Upload the **FREENAS-MIB.txt** file to the Zabbix Docker server in the following directory:

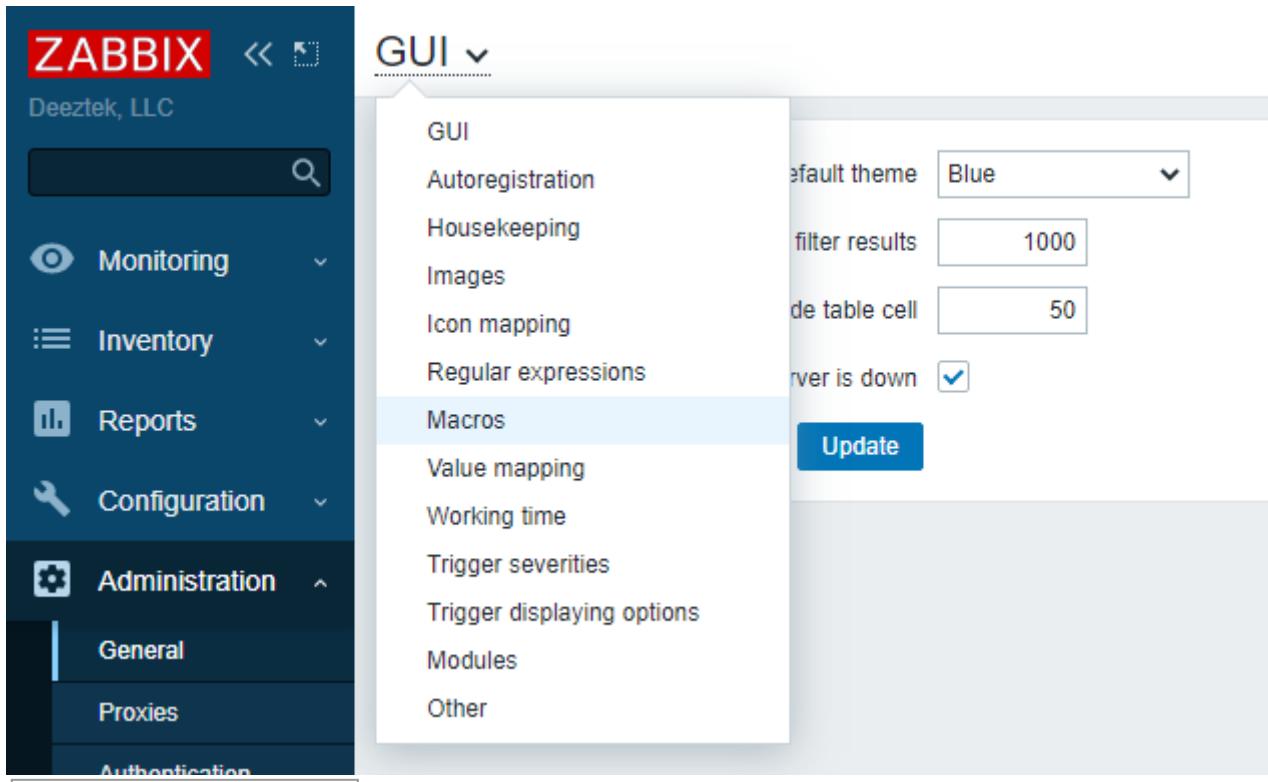
```
/opt/zabbix-docker/zbx_env/var/lib/zabbix/mibs
```

- Restart the Zabbix docker stack:

```
cd /opt/zabbix-docker && docker-compose down
cd /opt/zabbix-docker && docker-compose up -d
```

- On the Zabbix server navigate to **Administration --> General --> GUI drop-down --> Macros (Figure 10)**

**Figure 10**



- Ensure the **Value** field of the **{\$SNMP\_COMMUNITY}** Macro is set to **public** or whatever value you set the FreeNAS Community string from above and click the **Update** button (Figure 11).

**Figure 11**

Macro	Value	Description
{\$SNMP_COMMUNITY}	public	T description Remove

- Using a web browser download the following templates from Zabbix Share:

SNMP Interfaces discovery

<https://share.zabbix.com/official-templates/snmp-devices/snmp-interfaces-discovery>

SNMP Interfaces discovery

<https://share.zabbix.com/official-templates/snmp-devices/snmp-processors-discovery>

SNMP Generic

<https://share.zabbix.com/official-templates/snmp-devices/snmp-generic>

FreeNAS 11 SNMP

<https://share.zabbix.com/storage-devices/freenas/freenas-11>

- On the Zabbix server navigate to **Configuration --> Templates --> Import** and import each of the templates you downloaded above ensuring the **Rules** are set like below before each import (**Figure 12**):

**Figure 12**

## Import

The screenshot shows the 'Import' dialog box with the following interface elements:

- A file input field labeled "Import file" with a "Choose File" button.
- An "HTTP" dropdown menu.
- A "Rules" section with three checkboxes:
  - "Update existing" (checked)
  - "Create new" (checked)
  - "Delete missing" (unchecked)
- A table listing various Zabbix entities with checkboxes:

Entity	Update existing	Create new	Delete missing
Groups	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Hosts	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Templates	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Template screens	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Template linkage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Applications	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Items	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Discovery rules	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Triggers	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Graphs	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Web scenarios	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Screens	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Maps	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Images	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Media types	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Value mappings	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
- Buttons at the bottom: "Import" (blue) and "Cancel".

- On the Zabbix server navigate to **Configuration --> Hosts --> Create Host**
- In the **Host** tab, fill out the **Host name, groups** and **interfaces** where **192.168.xxx.xxx** is the IP of your FreeNAS host (**Figure 13**)

**Figure 13**

## Hosts

All hosts / hdgfreenas.deeztek.com Enabled ZBX SNMP JMX IPMI Applications 8 Items 306 Triggers 64 Graphs 138 Discovery rules 5 Web scenarios

Host Templates IPMI Tags Macros Inventory Encryption

\* Host name freenas

Visible name

\* Groups FreeNAS x HDG x Select

\* Interfaces Type IP address DNS name Connect to Port Default

Agent	192.168.xxx.xxx		IP	DNS	10050	<input checked="" type="radio"/> Remove
SNMP	192.168.xxx.xxx		IP	DNS	161	<input checked="" type="radio"/> Remove

\* SNMP version SNMPv1

\* SNMP community {\$SNMP\_COMMUNITY}

Use bulk requests

Add

Description

Monitored by proxy (no proxy)

Enabled

Update Clone Full clone Delete Cancel

- In the **Templates** tab, ensure you link the **Template Module ICMP Ping** and the **Template SNMP FREENAS 11** templates and click the **Update** button (**Figure 14**)

**Figure 14**

## Hosts

All hosts / hdgfreenas.deeztek.com Enabled ZBX SNMP JMX IPMI Applications 8 Items 306 Triggers 64 Graphs 138 Disc

Host Templates IPMI Tags Macros Inventory Encryption

Linked templates

Name	Action
Template Module ICMP Ping	<a href="#">Unlink</a> <a href="#">Unlink and clear</a>
Template SNMP FreeNAS 11	<a href="#">Unlink</a> <a href="#">Unlink and clear</a>

Link new templates

type here to search Select

Update Clone Full clone Delete Cancel

- Wait 10-15 minutes before Zabbix starts pulling data from the FreeNAS server. If successful, **Monitoring --> Hosts** should show the FreeNAS server listed with **SNMP** turned green (**Figure 15**)

**Figure 15**



# Enable Zabbix VMware Monitoring

Original Guide URL:

<https://bestmonitoringtools.com/vmware-monitoring-with-zabbix-esxi-vcenter-vm-vsphere/>

- Enable (Remove the # from front of each line) on the following entries in **/opt/zabbix-docker/.env\_srv** and save the file:

```
ZBX_STARTVMWARECOLLECTORS=3  
ZBX_VMWAREFREQUENCY=60  
ZBX_VMWAREPERFFREQUENCY=60  
ZBX_VMWARECACHESIZE=128M  
ZBX_VMWARETIMEOUT=120
```

Restart the Zabbix docker stack:

```
cd /opt/zabbix-docker && docker-compose down  
cd /opt/zabbix-docker && docker-compose up -d
```

- Navigate to **Configuration --> Hosts --> Create Host**
- In the **Host** tab, fill out the **Host name** of your Vcenter/VMware server, and select **groups**. Do not fill out the IP address field, leave it to default **127.0.0.1** (**Figure 16**)

**Figure 16**

## Hosts

Host	Templates	IPMI	Tags	Macros	Inventory	Encryption
vcenter						

Visible name:

\* Groups:

\* Interfaces

Type	IP address	DNS name	Connect to	Port	Default
Agent	127.0.0.1		IP	10050	<input type="radio"/>

Add

Description:

Monitored by proxy:

- Click the **Templates** tab and select **Template VM VMware** and **Template Module ICMP Ping** templates (**Figure 17**)

**Figure 17**

## Hosts

Host Templates IPMI Tags Macros Inventory Encryption

Linked templates Name Action

Link new templates

Template VM VMware × Template Module ICMP Ping ×  
Select

Add Cancel

- Click the **Macros** tab and then click **Inherited and host macros**.
- Click the **Change** link next to each of the following fields and fill out the value of each field with the Password, URL (<https://vcenter/sdk>) and Username of your Vcenter/VMware server and click the **Add** button (**Figure 18**):

```
{$VMWARE.PASSWORD}
{$VMWARE.URL}
{$VMWARE.USERNAME}
```

**Figure 18**

## Hosts

Host Templates IPMI Tags Macros Inventory Encryption

Host macros Inherited and host macros

Macro	Effective value	Template value
{\$ICMP_LOSS_WARN}	20	T Change ← Template Module ICMP Ping: "20"
description		
{\$ICMP_RESPONSE_TIME_WARN}	0.15	T Change ← Template Module ICMP Ping: "0.15"
description		
{\$SNMP_COMMUNITY}	public	T Change
description		
{\$VMWARE.PASSWORD}	1234567890	T Remove ← Template VM VMware macros: ""
VMware service {\$USERNAME} user password		
{\$VMWARE.URL}	https://vcenter:10000/sdk	T Remove ← Template VM VMware macros: ""
VMware service (vCenter or ESX hypervisor) SDK URL ( <a href="https://servername/sdk">https://servername/sdk</a> )		
{\$VMWARE.USERNAME}	zabbix@vsphere.local	T Remove ← Template VM VMware macros: ""
VMware service user name		

Add

- VMware/Vcenter discovery can take hours to complete.
- Navigate to **Configuration --> Templates**. In the **Name** field enter **Template Vm Vmware** and click the **Apply** button to locate the **Template Vm Vmware** template (Figure 19):

**Figure 19**

The screenshot shows the 'Templates' section of a configuration interface. At the top, there are search fields for 'Host groups' and 'Linked templates', and a 'Tags' filter section. Below these are buttons for 'Select', 'And/Or', 'Or', and 'Add'. A search bar for 'Name' has 'Template Vm Vmware' entered and is circled in red. To the right of the search bar are buttons for 'Contains', 'Equals', and 'Remove'. Below the search area is an 'Apply' button, which is also circled in red. The main list displays several template entries:

Name	Hosts	Applications	Items	Triggers	Graphs	Screens	Discovery	Web	Linked templates	Linked to templates
Template VM VMware	3	1	3	1	Graphs	Screens	4	Web	Template VM VMware macros	
Template VM VMware Guest	57	1	19	1	Graphs	Screens	3	Web	Template VM VMware macros	
Template VM VMware Hypervisor	7	1	21	5	Graphs	Screens	1	Web	Template VM VMware macros	
Template VM VMware macros	7	1	3	5	Graphs	Screens	1	Web	Template VM VMware, Template VM VMware Guest, Template VM VMware Hypervisor	Template VM VMware, Template VM VMware Guest, Template VM VMware Hypervisor

- On the **Template Vm Vmware** entry click on the **Discovery** link (Figure 20):

**Figure 20**

This screenshot shows the 'Discovery' tab for the 'Template VM VMware' entry from Figure 19. The tabs at the top include 'Hosts', 'Applications', 'Items', 'Triggers', 'Graphs', 'Screens', 'Discovery', 'Web', 'Linked templates', and 'Linked to templates'. The 'Discovery' tab is highlighted with a red circle. Below the tabs, the entry details are shown: Hosts 3, Applications 1, Items 3, Triggers 1, Graphs, Screens, Discovery 4, Web, and Linked templates 'Template VM VMware macros'.

- On the **Discovery rules** screen, click on the **Enabled** link on the **Discover Vmware VMs** entry to change the status to **Disabled** (Figure 21):

**Figure 21**

The screenshot shows the 'Discovery rules' page. At the top, there is a message 'Discovery rule disabled' with a checkmark icon. Below this are navigation links: 'All templates / Template VM VMware', 'Applications 1', 'Items 3', 'Triggers', 'Graphs', 'Screens', 'Discovery rules 4', 'Web scenarios', and a 'Create discovery rule' button. A 'Filter' dropdown is also present. The main area contains search and filter fields for 'Host groups', 'Hosts', 'Name', and 'Key', along with buttons for 'Apply' and 'Reset'. The table below lists discovery rules:

Host	Name	Items	Triggers	Graphs	Hosts	Key	Interval	Type	Status	Info
Template VM VMware	Discover VMware clusters	Item prototypes 1	Trigger prototypes	Graph prototypes	Host prototypes	vmware.cluster.discovery[{\$VMWARE.URL}]	1h	Simple check	Enabled	
Template VM VMware	Discover VMware datastores	Item prototypes 4	Trigger prototypes	Graph prototypes	Host prototypes	vmware.datastore.discovery[{\$VMWARE.URL}]	1h	Simple check	Enabled	
Template VM VMware	Discover VMware hypervisors	Item prototypes	Trigger prototypes	Graph prototypes	Host prototypes 1	vmware.hv.discovery[{\$VMWARE.URL}]	1h	Simple check	Enabled	
Template VM VMware	Discover VMware VMs	Item prototypes	Trigger prototypes	Graph prototypes	Host prototypes 1	vmware.vm.discovery[{\$VMWARE.URL}]	1h	Simple check	Disabled	

At the bottom right of the table, it says 'Displaying 4 of 4 found'.

- Next, click on the **Trigger prototypes** on the **Discover VMware datastores** entry (**Figure 22**):

**Figure 22**

The screenshot shows the 'Discovery rules' interface. At the top, there are search and filter fields for Host groups, Hosts, Name, and Key. Below these are dropdowns for Type (all), Update interval, and Status (all). A large table lists discovery prototypes. The columns include Host, Name, Items, Triggers, Graphs, Hosts, Key, Interval, Type, and Status. The 'Triggers' column for the second row contains 'Trigger prototypes', which is circled in red. The table shows four rows of data.

Host	Name	Items	Triggers	Graphs	Hosts	Key	Interval	Type	Status
Template VM VMware	Discover VMware clusters	Item prototypes 1	Trigger prototypes	Graph prototypes	Host prototypes	vmware.cluster.discovery[{\$VMWARE URL}]	1h	Simple check	Enabled
Template VM VMware	Discover VMware datastores	Item prototypes 4	Trigger prototypes	Graph prototypes	Host prototypes	vmware.datastore.discovery[{\$VMWARE.URL}]	1h	Simple check	Enabled
Template VM VMware	Discover VMware hypervisors	Item prototypes	Trigger prototypes	Graph prototypes	Host prototypes 1	vmware.hv.discovery[{\$VMWARE.URL}]	1h	Simple check	Enabled
Template VM VMware	Discover VMware VMs	Item prototypes	Trigger prototypes	Graph prototypes	Host prototypes 1	vmware.vm.discovery[{\$VMWARE.URL}]	1h	Simple check	Disabled

- On the **Trigger prototypes** screen, click the **Create trigger prototype** button (**Figure 23**):

**Figure 23**

The screenshot shows the 'Trigger prototypes' screen. At the top, there are navigation links: All templates / Template VM VMware / Discovery list / Discover VMware datastores / Item prototypes 4 / Trigger prototypes (which is highlighted in blue) / Graph prototypes / Host prototypes. Below this is a table with columns: Severity, Name, Operational data, Expression, Create enabled, Discover, and Tags. The table shows one row with the expression '{Template VM VMware:vmware.datastore.size[{\$VMWARE.URL},{#DATASTORE},pfree].max(15m)}<5'. At the bottom, there are buttons for Create enabled, Create disabled, Mass update, and Delete, along with a message 'No data found.' and a note 'Displaying 0 of 0 found'.

- On the **Trigger prototype** screen, in the **Name** field enter the following:

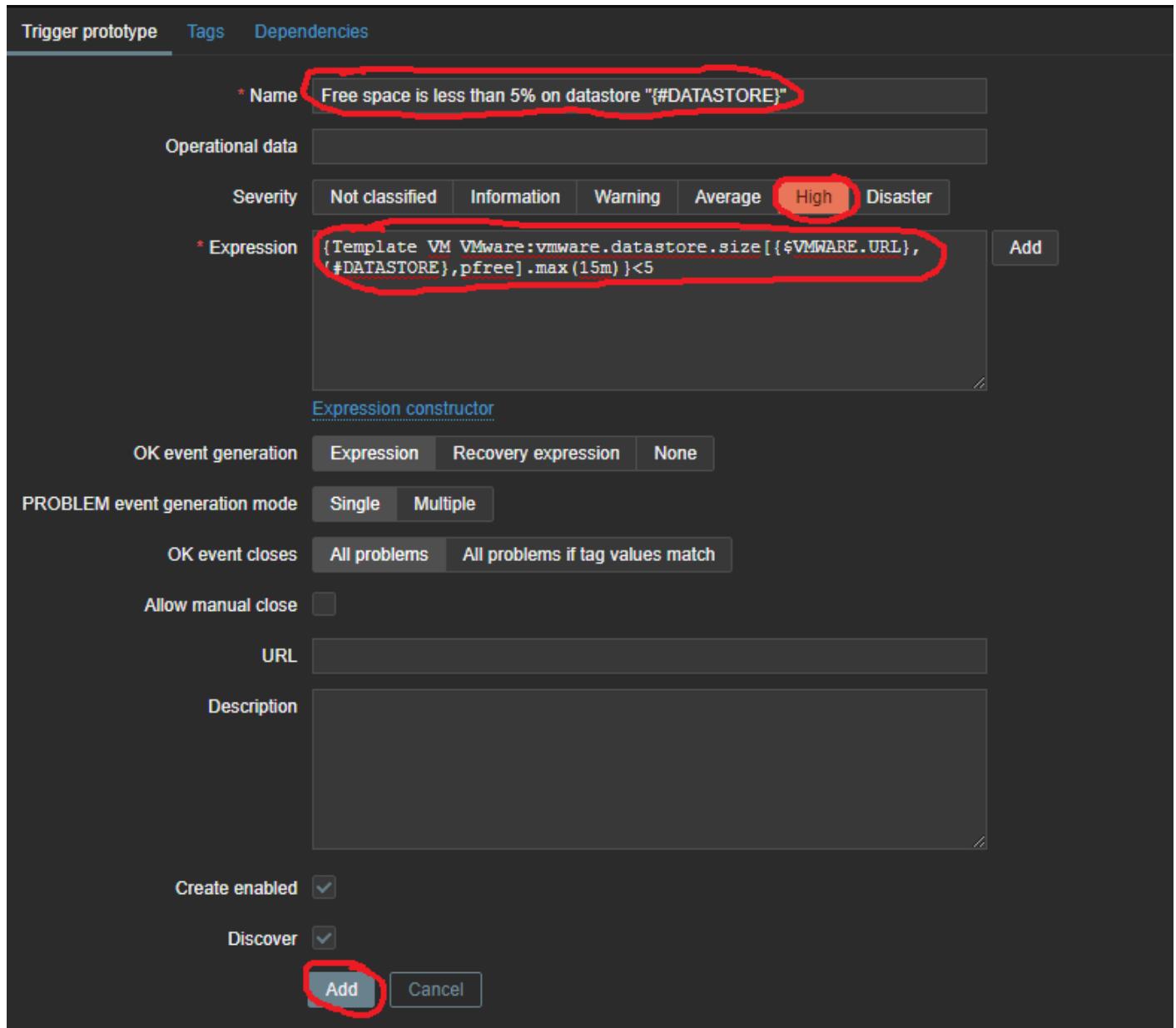
Free space is less than 5% on datastore "{#DATASTORE}"

- In the **Severity** field set it to **High**
- In the **Expression** field enter the following:

{Template VM VMware:vmware.datastore.size[{\$VMWARE.URL},{#DATASTORE},pfree].max(15m)}<5

- Click the **Add** button (**Figure 24**):

**Figure 24**



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