

# How to configure monitoring firewall device Pfsense using Zabbix Agent

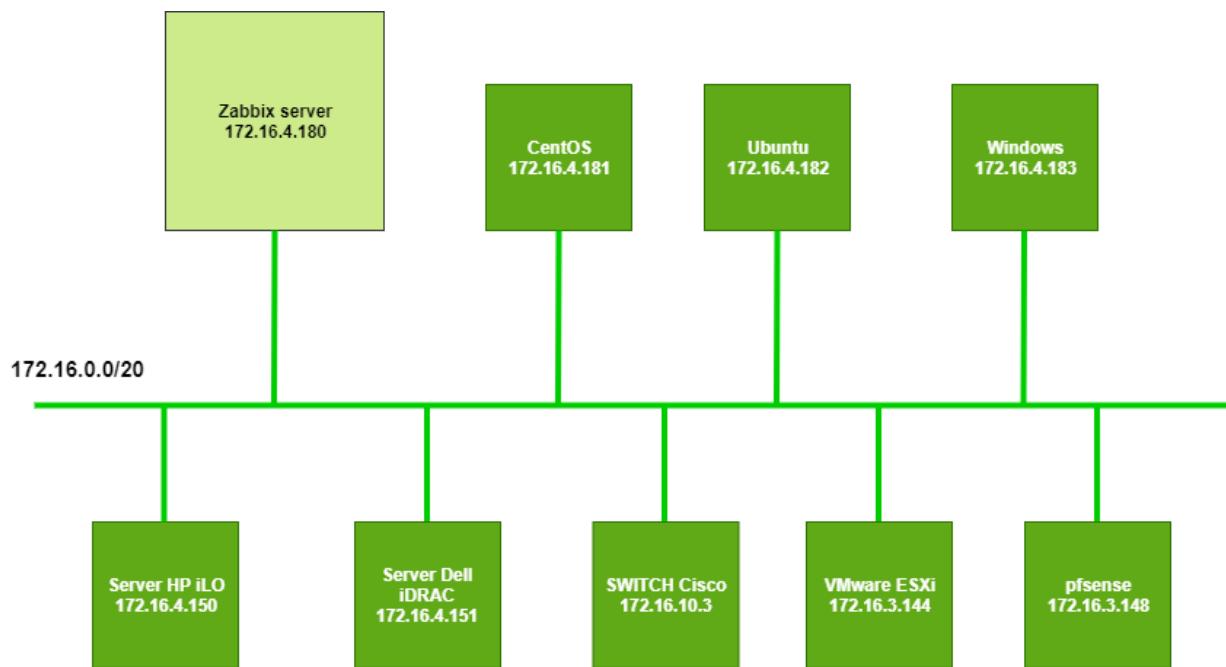
June 25, 2020 Vincent Security 0



## Overview

For small to medium-sized systems, the use of Pfsense firewall is heavily used in various network models, easy to configure and management. And monitoring the operation of the Pfsense firewall is also import. Article guide How to user Zabbix for monitoring

## Diagram



## How to configure

- Log in to PfSense by Admin account

The screenshot shows the pfSense Status / Dashboard page. The top navigation bar includes links for System, Interfaces, Firewall, Services, VPN, Status, Diagnostics, and Help. The main content area is divided into two sections: 'System Information' and 'Netgate Services And Support'.

**System Information**

Name	NH-pfSense.localdomain
User	admin@172.16.3.188 (Local Database)
System	VMware Virtual Machine Netgate Device ID: ce437c7c9bb09728e644
BIOS	Vendor: Phoenix Technologies LTD Version: 6.00 Release Date: Mon Sep 21 2015
Version	2.4.4-RELEASE-p3 (amd64) built on Wed May 15 18:53:44 EDT 2019 FreeBSD 11.2-RELEASE-p10
CPU Type	Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz 4 CPUs: 2 package(s) x 2 core(s) AES-NI CPU Crypto: Yes (inactive)

**Netgate Services And Support**

Contract type: Community Support  
Community Support Only

NETGATE AND pfSense COMMUNITY SUPPORT RESOURCES

If you purchased your pfSense gateway firewall appliance from Netgate and elected **Community Support** at the point of sale or installed pfSense on your own hardware, you have access to various community support resources. This includes the **NETGATE RESOURCE LIBRARY**.

You also may upgrade to a Netgate Global Support subscription. We're always on! Our team is staffed 24x7x365 and committed to delivering enterprise-class, worldwide support at a price point that is more than competitive when compared to others in our space.

- Upgrade Your Support
- Community Support Resources
- Netgate Global Support FAQ
- Official pfSense Training by Netgate

- Go to System -> Choose Package Manager

The screenshot shows the pfSense web interface. A red arrow labeled '1' points to the 'System' dropdown menu in the top navigation bar. Another red arrow labeled '2' points to the 'Package Manager' option in the dropdown menu. The main content area displays 'System Info' with various system details like Name, User, System, BIOS, and Version. To the right, there's a 'Netgate Services And Support' section.

- In Available packages -> Enter zabbix-agent to Search item

The screenshot shows the 'Available Packages' page of the pfSense Package Manager. A red arrow labeled '1' points to the 'Available Packages' tab. Another red arrow labeled '2' points to the 'Search term' input field where 'zabbix-agent' is typed. A third red arrow labeled '3' points to the 'Search' button. The search results table shows one package: 'zabbix-agent' version 1.0.4. The table includes columns for Name, Version, and Description. The description for 'zabbix-agent' states: 'Zabbix agent is deployed on a monitoring target to actively monitor local resources and applications (hard drives, memory, processor statistics etc). The agent gathers operational information locally and reports data to Zabbix server for further processing. In case of failures (such as a hard disk running full or a crashed service process), Zabbix server can actively alert the administrators of the particular machine that reported the failure. Zabbix is an enterprise-class open source distributed monitoring solution.' A green '+ Install' button is visible next to the package entry.

## ▪ Install zabbix-agent version 4.4

zabbix-agent 1.0.4\_2 Zabbix agent is deployed on a monitoring target to actively monitor local resources and applications (hard drives, memory, processor statistics etc). The agent gathers operational information locally and reports data to Zabbix server for further processing. In case of failures (such as a hard disk running full or a crashed service process), Zabbix server can actively alert the administrators of the particular machine that reported the failure. Zabbix is an enterprise-class open source distributed monitoring solution. + Install

Package Dependencies: zabbix4-agent-4.0.0

zabbix-agent 1.0.4\_2 Zabbix agent is deployed on a monitoring target to actively monitor local resources and applications (hard drives, memory, processor statistics etc). The agent gathers operational information locally and reports data to Zabbix server for further processing. In case of failures (such as a hard disk running full or a crashed service process), Zabbix server can actively alert the administrators of the particular machine that reported the failure. Zabbix is an enterprise-class open source distributed monitoring solution. + Install

Package Dependencies: zabbix42-agent-4.2.1

zabbix-agent 1.0.4\_2 Zabbix agent is deployed on a monitoring target to actively monitor local resources and applications (hard drives, memory, processor statistics etc). The agent gathers operational information locally and reports data to Zabbix server for further processing. In case of failures (such as a hard disk running full or a crashed service process), Zabbix server can actively alert the administrators of the particular machine that reported the failure. Zabbix is an enterprise-class open source distributed monitoring solution. + Install

Package Dependencies: zabbix44-agent-4.4.0

pfSense COMMUNITY EDITION System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Help ▾

System / Package Manager / Package Installer

Installed Packages Available Packages Package Installer

Confirmation Required to install package pfSense-pkg-zabbix-agent44.

Confirm

pfSense COMMUNITY EDITION System ▾ Interfaces ▾ Firewall ▾ Services ▾ VPN ▾ Status ▾ Diagnostics ▾ Help ▾

System / Package Manager / Package Installer

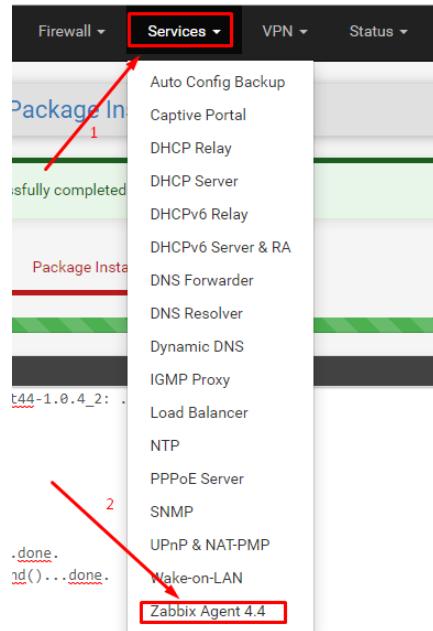
pfSense-pkg-zabbix-agent44 installation successfully completed.

Installed Packages Available Packages Package Installer

Package Installation

```
[2/2] Extracting pfSense-pkg-zabbix-agent44-1.0.4_2: ..... done
Saving updated package information...
done.
Loading package configuration... done.
Configuring package components...
Loading package instructions...
Custom commands...
Executing custom_php_install_command()...done.
Executing custom_php_resync_config_command()...done.
Menu items... done.
```

- Configure zabbix agent -> Choose **Services** -> Click **Zabbix Agent 4.4**



- Set up the parameters of the **Zabbix Agent Settings**
  - Server:** IP address of Zabbix Server
  - Server Active:** IP address of Zabbix Server
  - Hostname:** Name the PfSense firewall hostname
  - Listen IP:** Enter **0.0.0.0**
  - Listen Port:** Enter **10050**

Zabbix Agent Settings	
Enable	<input checked="" type="checkbox"/> Enable Zabbix Agent service.
Server	172.16.4.180 List of comma delimited IP addresses (or hostnames) of ZABBIX servers.
Server Active	172.16.4.180 List of comma delimited IP:port (or hostname:port) pairs of Zabbix servers for active checks.
Hostname	NH-pfSense.localdomain Unique, case sensitive hostname. Required for active checks and must match hostname as configured on the Zabbix server.
Listen IP	0.0.0.0 Listen IP for connections from the server. (Default: 0.0.0.0 - all interfaces)
Listen Port	10050 Listen port for connections from the server. (Default: 10050)
Refresh Active Checks	120 The agent will refresh list of active checks once per this number of seconds. (Default: 120)
Timeout	3 Do not spend more than N seconds on getting requested value. Note: The agent does not kill timeouted User Parameters processes! (Default: 3. Valid range: 1-30)

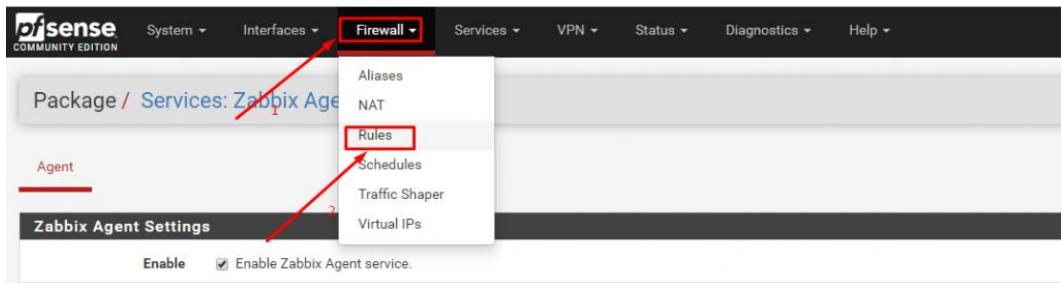
- Set up the parameters of **TLS-RELATED Parameters**
  - In **TLS Connect**: Choose **psk**
  - In **TLS Accept**: Choose **psk**
  - In **TLS PSK Identity**: Enter name for key
  - In **PSK**: Enter key

<b>TLS Connect</b>	<input type="text" value="psk"/>	How the agent should connect to server or proxy. Used for active checks. Only one value can be specified: <b>unencrypted</b> - connect without encryption <b>psk</b> - connect using TLS and a pre-shared key <b>cert</b> - connect using TLS and a certificate
<b>TLS Accept</b>	<input type="text" value="unencrypted&lt;br/&gt;psk&lt;br/&gt;cert"/>	What incoming connections to accept. Multiple values can be specified: <b>unencrypted</b> - connect without encryption <b>psk</b> - connect using TLS and a pre-shared key <b>cert</b> - connect using TLS and a certificate
<b>TLS CA</b>	<input type="text" value="none"/>	Top-level CA certificate for peer certificate verification.
<b>TLS CA System</b>	<input type="checkbox"/> Use the CA certificate list from the operating system. This option overrides prior option.	
<b>TLS CRL</b>	<input type="text" value="none"/>	List of revoked certificates.
<b>TLS Cert</b>	<input type="text" value="none"/>	Agent certificate.
<b>TLS PSK Identity</b>	<input type="text" value="key-pfsense-01"/>	
<b>TLS PSK</b>	<input type="text" value="fb6616cd582a2fa0aa161cab3423a9ca640c931b21c8c2e3b713&lt;br/&gt;2d6db75aadff"/>	

-> Click **Save**

<b>TLS CRL</b>	<input type="text" value="none"/>	List of revoked certificates.
<b>TLS Cert</b>	<input type="text" value="none"/>	Agent certificate.
<b>TLS PSK Identity</b>	<input type="text" value="key-pfsense-01"/>	
<b>TLS PSK</b>	<input type="text" value="fb6616cd582a2fa0aa161cab3423a9ca640c931b21c8c2e3b713&lt;br/&gt;2d6db75aadff"/>	
<input style="border: 2px solid red; color: white; background-color: #007bff; padding: 5px 10px; margin-right: 10px;" type="button" value="Save"/> <input type="button" value="Show Advanced Options"/>		

- Create firewall rules



- In **Action**: Choose **Pass**
- In **Interface**: Choose **WAN**
- In **Address Family**: Choose **IPv4**
- In **Protocol**: Choose **TCP**

The screenshot shows the 'Edit Firewall Rule' form. At the top, it says 'Edit Firewall Rule'. Below that, there are several fields:
 

- Action:** Set to 'Pass'.
- Disabled:** Has an unchecked checkbox for 'Disable this rule'.
- Interface:** Set to 'WAN'.
- Address Family:** Set to 'IPv4'.
- Protocol:** Set to 'TCP'.

 Each field has a descriptive hint below it. The entire form is contained within a light gray box with a black header bar.

- In **Source**: Choose **any**

The screenshot shows the 'Source' configuration form. It has a header 'Source' and a sub-header 'Source'. There are several input fields and controls:
 

- 'Source' dropdown set to 'any'.
- 'Invert match.' checkbox.
- 'Source Address' field with a '/' separator and a dropdown arrow.
- 'Display Advanced' button.
- A note at the bottom: 'The Source Port Range for a connection is typically random and almost never equal to the destination port. In most cases this setting must remain at its default value, any.'

- In Destination

- **Destination:** Choose **WAN address**
- **Destination Port Range:** Form **(other)** Custom **(10050)** To **(other)** Custom **(10050)**



States	Protocol	Source	Port	Destination	Port	Gateway	Queue	Schedule	Description	Actions
0 / 0 B	IPv4 TCP	*	*	WAN address	10050	*	none			

- On Zabbix Server -> Check information from Pfsense firewall

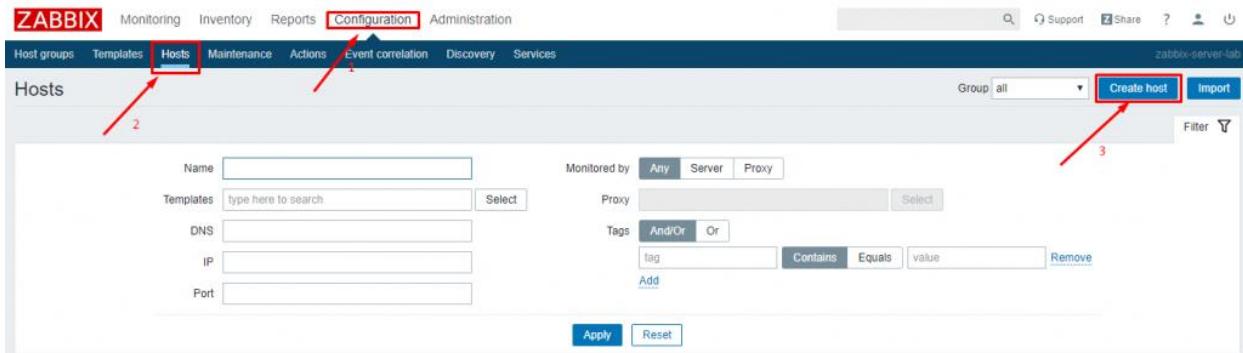
```
touch /tmp/key-pfsense-01
vi /tmp/key-pfsense-01
```

- Add key on firewall Pfsense to **/tmp/key-pfsense-01**
- Use check command

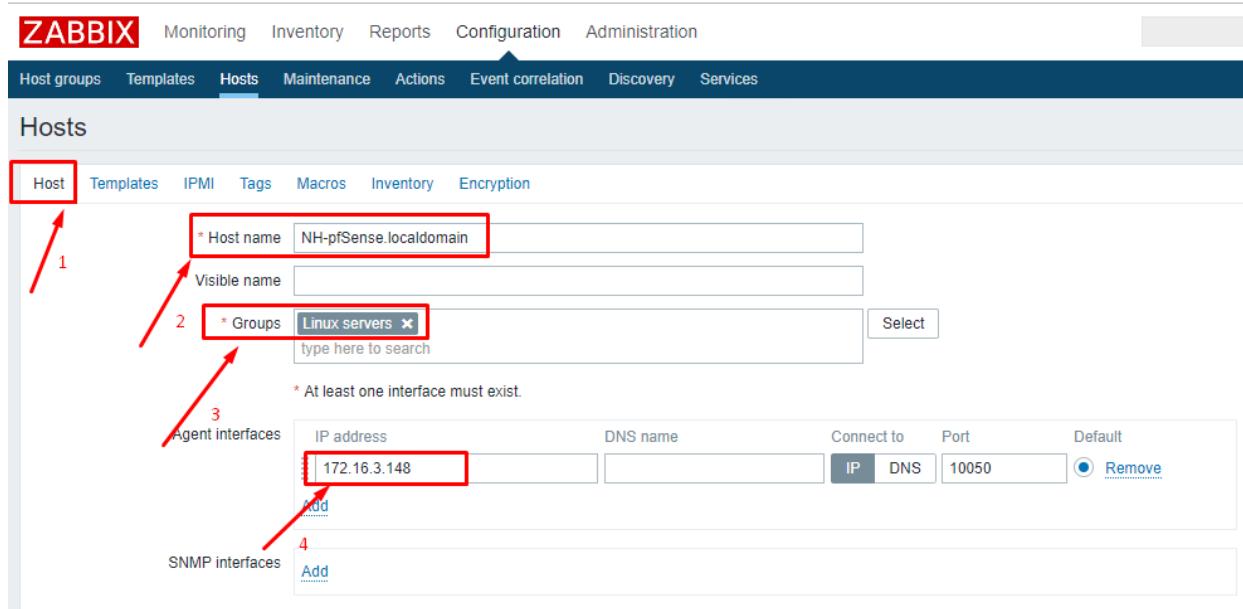
```
zabbix_get -s 172.16.3.148 -k "agent.version" --tls-connect=psk --tls-psk-identity="key-pfsense-01" --tls-psk-file=/tmp/key-pfsense-01
```

```
[root@zabbix-server-lab ~]# zabbix_get -s 172.16.3.148 -k "agent.version" --tls-connect=psk --tls-psk-identity="key-pfsense-01" --tls-psk-file=/tmp/key-pfsense-01
4.4.0
```

- Login to web interface of Zabbix Server -> Choose **Configuration** -> Choose **Hosts** -> Click **Create host**



- In **Hostname**: Enter hostname
- In **Groups**: Choose **Linux servers**
- In **Agent interface**: Enter IP Address of Pfsense



- Go to **Templates**: Choose **Template OS FreeBSD** -> Click **Add**

ZABBIX Monitoring Inventory Reports Configuration Administration

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services

Hosts

Host **Templates** IPMI Tags Macros Inventory Encryption

Linked templates Name Action  
Template OS FreeBSD Unlink

Add Add Cancel

- Go to **Encryption**
  - In **Connections to host**: Choose **PSK**
  - In **Connections from host**: Choose **PSK**
  - In **PSK Identity**: Enter name
  - In **PSK**: Enter key

-> Click **Add**

ZABBIX Monitoring Inventory Reports Configuration Administration

Host groups Templates Hosts Maintenance Actions Event correlation Discovery Services

Hosts

Host Templates IPMI Tags Macros Inventory **Encryption**

Connections to host No encryption **PSK** Certificate

Connections from host  No encryption  PSK  Certificate

\* PSK identity key-pfsense-01  
\* PSK fb6616cd582a2fa0aa161cab3423a9ca640c931b21c8c2e3b7132d6db75aadff

Add Cancel

- When added successfully

NH-pfSense localdomain		Filesystems (10 items)		
<input type="checkbox"/>	Free disk space on /	2019-11-13 23:39:49	66.67 GB	<a href="#">Graph</a>
<input type="checkbox"/>	Free disk space on / (percentage)	2019-11-13 23:39:51	98.4621 %	<a href="#">Graph</a>
<input type="checkbox"/>	Free disk space on /var/run	2019-11-13 23:39:50	3.04 MB	<a href="#">Graph</a>
<input type="checkbox"/>	Free disk space on /var/run (percentage)	2019-11-13 23:39:52	97.0075 %	<a href="#">Graph</a>
<input type="checkbox"/>	Free inodes on / (percentage)	2019-11-13 23:39:47	99.806 %	<a href="#">Graph</a>
<input type="checkbox"/>	Free inodes on /var/run (percentage)	2019-11-13 23:39:48	96.771 %	<a href="#">Graph</a>
<input type="checkbox"/>	Total disk space on /			<a href="#">Graph</a>
<input type="checkbox"/>	Total disk space on /var/run			<a href="#">Graph</a>
<input type="checkbox"/>	Used disk space on /	2019-11-13 23:39:55	1.04 GB	<a href="#">Graph</a>
<input type="checkbox"/>	Used disk space on /var/run	2019-11-13 23:39:56	96 KB	<a href="#">Graph</a>
NH-pfSense localdomain		General (5 items)		
<input type="checkbox"/>	Host boot time	2019-11-13 23:33:45	2019-11-13 23:23:13	<a href="#">Graph</a>
<input type="checkbox"/>	Host local time	2019-11-13 23:39:57	2019-11-13 23:39:57	+00:01:00 <a href="#">Graph</a>
<input checked="" type="checkbox"/>	Host name 	2019-11-13 23:33:56	NH-pfSense localdomain	<a href="#">History</a>
<input type="checkbox"/>	System information 	2019-11-13 23:34:01	FreeBSD NH-pfSense.locald...	<a href="#">History</a>
<input type="checkbox"/>	System uptime	2019-11-13 23:34:02	00:10:49	+00:05:09 <a href="#">Graph</a>
NH-pfSense localdomain		Memory (5 items)		
<input type="checkbox"/>	Available memory 	2019-11-13 23:40:05	5.56 GB	-60 KB <a href="#">Graph</a>

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