

# TECHBAST

## TECHNICAL KNOWLEDGE SHARING

# How to configure monitoring firewall device PfSense using Zabbix Agent

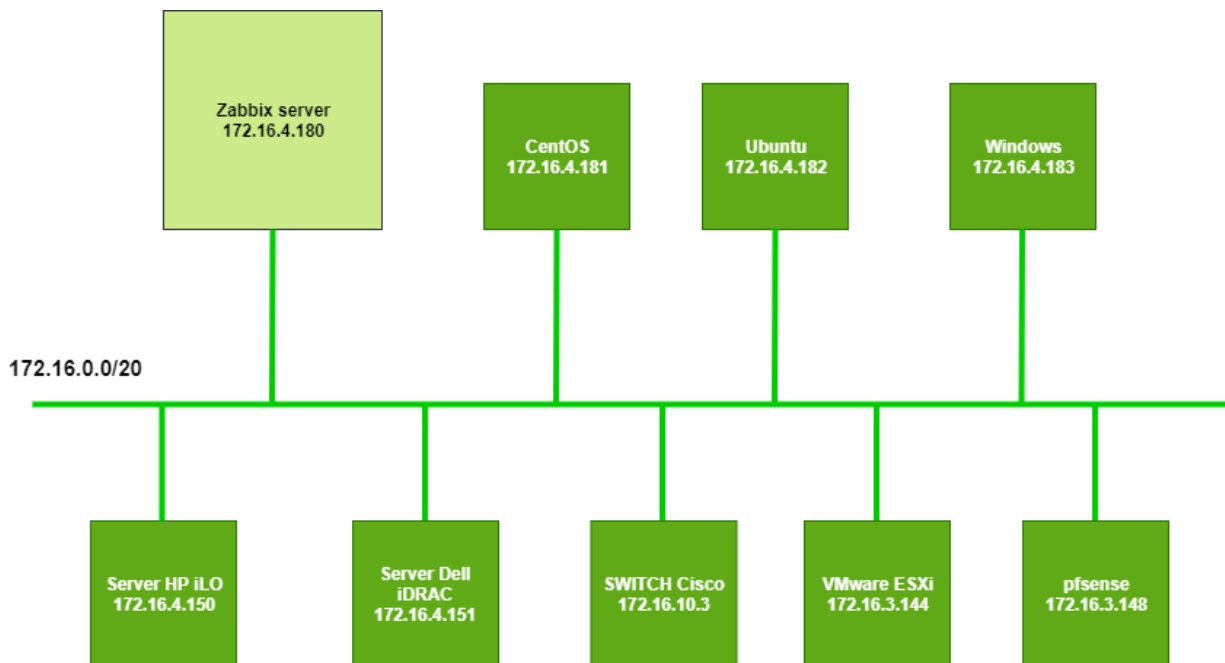
June 25, 2020 [Vincent](#) [Security](#) [0](#)



## 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

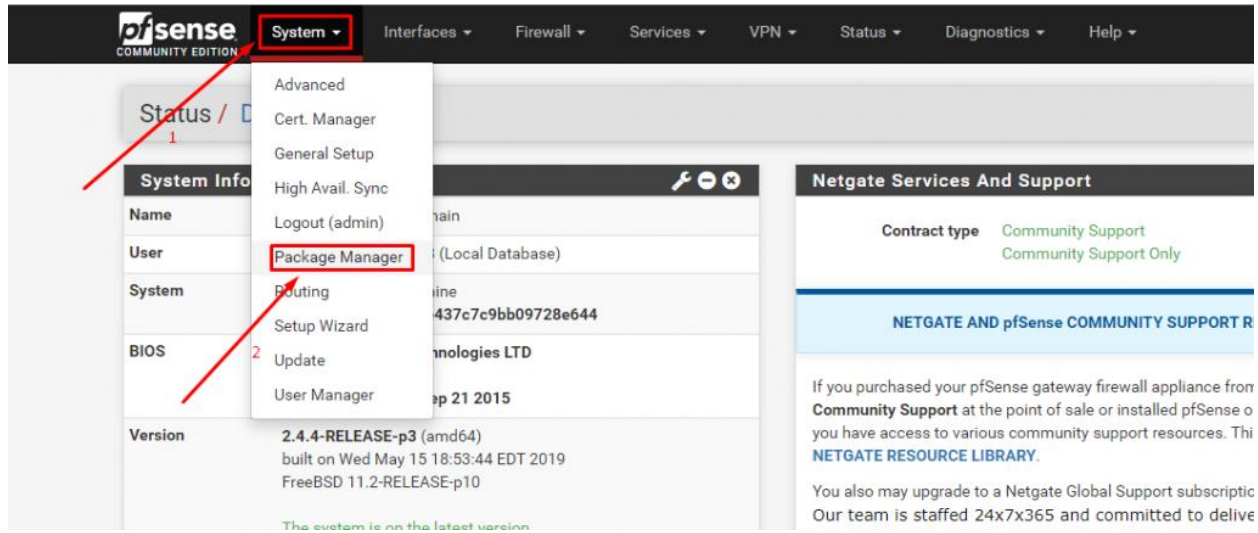
- Log in to Pfsense by Admin account

The screenshot shows the pfSense Community Edition dashboard. The top navigation bar includes links for System, Interfaces, Firewall, Services, VPN, Status, Diagnostics, and Help. The main content area is titled "Status / Dashboard" and contains two panels. The left panel, "System Information", displays details about the system, including the name (NH-pfSense.localdomain), user (admin@172.16.3.188), system (VMware Virtual Machine), BIOS (Phoenix Technologies LTD), version (2.4.4-RELEASE-p3), and CPU type (Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz). The right panel, "Netgate Services And Support", shows the contract type (Community Support) and provides links to Netgate and pfSense community support resources.

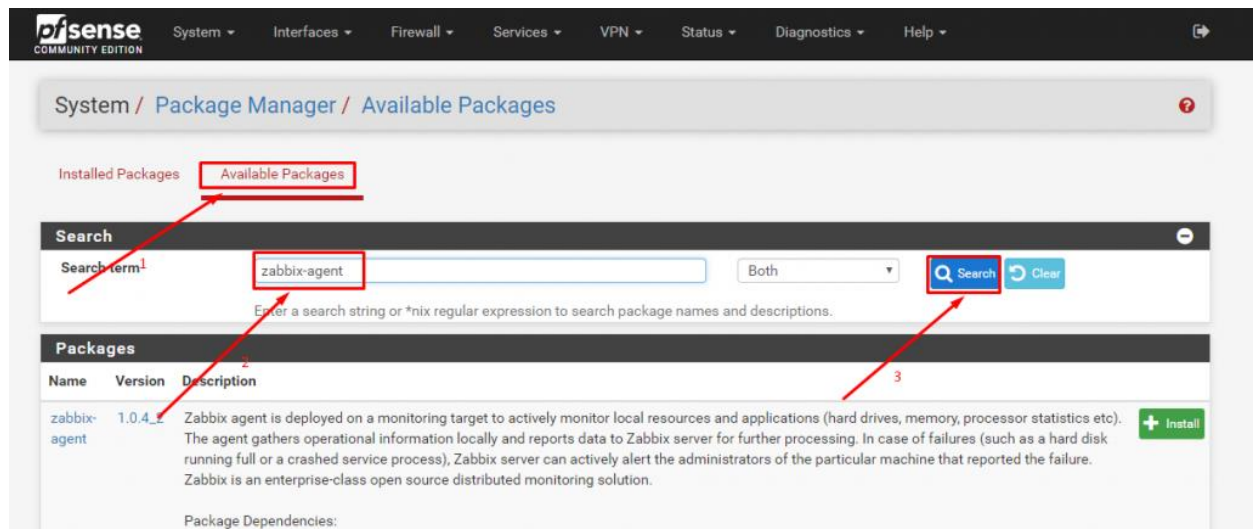
System Information	
Name	NH-pfSense.localdomain
User	admin@172.16.3.188 (Local Database)
System	VMware Virtual Machine Netgate Device ID: ce437c7c9bb09728e644
BIOS	Vendor: Phoenix Technologies LTD Version: 6.00 Release Date: Mon Sep 21 2015
Version	2.4.4-RELEASE-p3 (amd64) built on Wed May 15 18:53:44 EDT 2019 FreeBSD 11.2-RELEASE-p10  The system is on the latest version. Version information updated at Wed Nov 13 21:18:00 +07 2019
CPU Type	Intel(R) Xeon(R) CPU E5-2670 0 @ 2.60GHz 4 CPUs: 2 package(s) x 2 core(s) AES-NI CPU Cnvto: Yes (inactive)

Netgate Services And Support	
Contract type	Community Support Community Support Only
<b>NETGATE AND pfSense COMMUNITY SUPPORT RESOURCES</b>	
If you purchased your pfSense gateway firewall appliance from Netgate and elected <b>Community Support</b> at the point of sale or installed pfSense on your own hardware, you have access to various community support resources. This includes the <b>NETGATE RESOURCE LIBRARY</b> .	
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.	
<ul style="list-style-type: none"><li>Upgrade Your Support</li><li>Netgate Global Support FAQ</li><li>Netgate Professional Services</li></ul>	<ul style="list-style-type: none"><li>Community Support Resources</li><li>Official pfSense Training by Netgate</li><li>Visit Netgate.com</li></ul>

- Go to **System** -> Choose **Package Manager**



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



- Install **zabbix-agent version 4.4**

The screenshot shows the pfSense Package Manager interface with three Zabbix agent packages listed:

- zabbix-agent4** (1.0.4\_2): Package Dependencies: `zabbix4-agent-4.0.0`
- zabbix-agent42** (1.0.4\_2): Package Dependencies: `zabbix42-agent-4.2.1`
- zabbix-agent44** (1.0.4\_2): Package Dependencies: `zabbix44-agent-4.4.0`

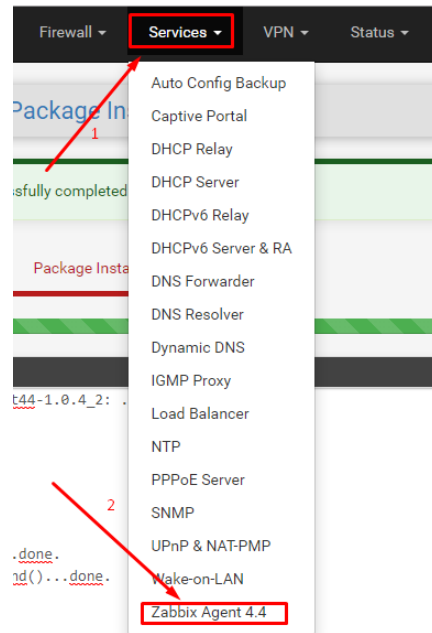
The **zabbix-agent44** package is highlighted with a red box, and its **+ Install** button is also highlighted with a red box and a red arrow pointing to it.

The screenshot shows the pfSense Package Manager interface with the **Confirmation Required to install package pfSense-pkg-zabbix-agent44.** dialog box. The **Confirm** button is highlighted with a red box and a red arrow pointing to it.

The screenshot shows the pfSense Package Manager interface with the **pfSense-pkg-zabbix-agent44** installation successfully completed. The **Package Installation** section shows the progress of the 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	
<b>Enable</b>	<input checked="" type="checkbox"/> Enable Zabbix Agent service.
<b>Server</b>	<input type="text" value="172.16.4.180"/> List of comma delimited IP addresses (or hostnames) of ZABBIX servers.
<b>Server Active</b>	<input type="text" value="172.16.4.180"/> List of comma delimited IP:port (or hostname:port) pairs of Zabbix servers for active checks.
<b>Hostname</b>	<input type="text" value="NH-pfSense.localdomain"/> Unique, case sensitive hostname. Required for active checks and must match hostname as configured on the Zabbix server.
<b>Listen IP</b>	<input type="text" value="0.0.0.0"/> Listen IP for connections from the server. (Default: 0.0.0.0 - all interfaces)
<b>Listen Port</b>	<input type="text" value="10050"/> Listen port for connections from the server. (Default: 10050)
<b>Refresh Active Checks</b>	<input type="text" value="120"/> The agent will refresh list of active checks once per this number of seconds. (Default: 120)
<b>Timeout</b>	<input type="text" value="3"/> Do not spend more that 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**

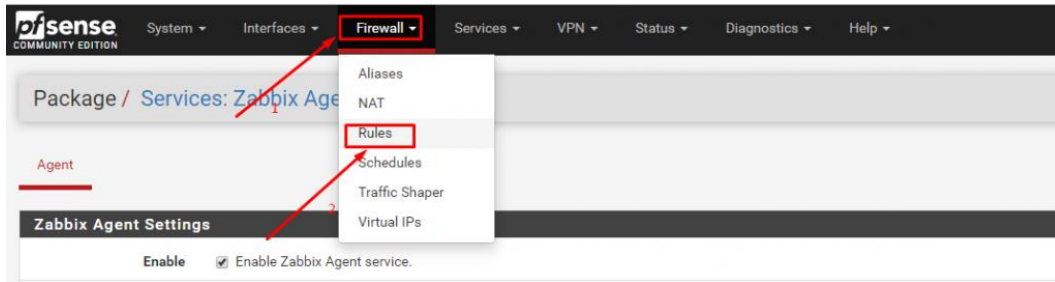
<b>TLS Connect</b>	psk
How the agent should connect to server or proxy. Used for active checks. Only one value can be specified: <b>unencrypted</b> - connect without encryption <b>psk</b> - connect using TLS and a pre-shared key <b>cert</b> - connect using TLS and a certificate	
<b>TLS Accept</b>	unencrypted psk 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>	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>	none
List of revoked certificates.	
<b>TLS Cert</b>	none
Agent certificate.	
<b>TLS PSK Identity</b>	key-pfsense-01
Unique, case sensitive string used to identify the pre-shared key.	
<b>TLS PSK</b>	fb6616cd582a2fa0aa161cab3423a9ca640c931b21c8c2e3b713 2d6db75aadff

-> Click **Save**

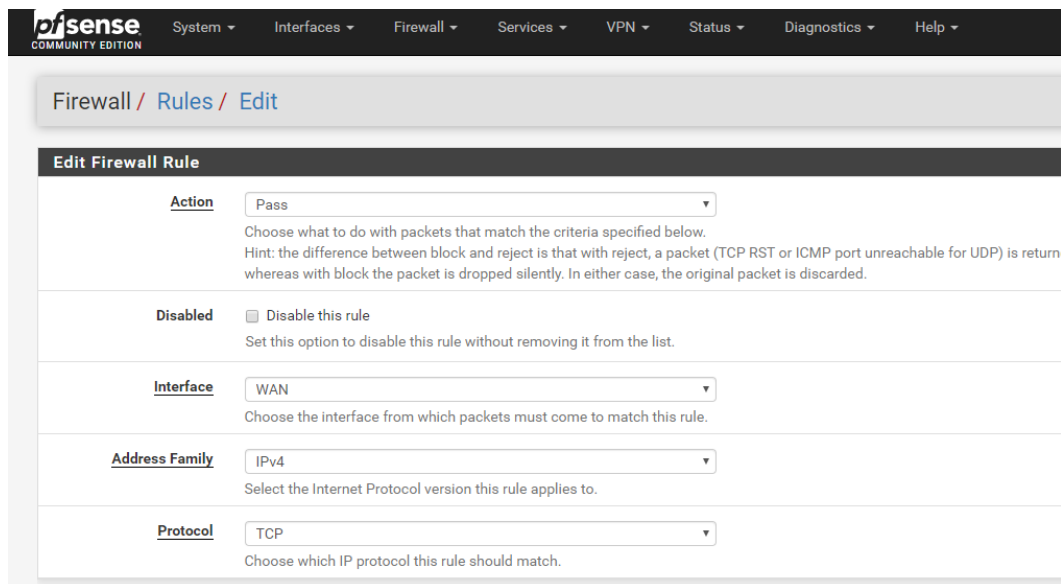
<b>TLS CRL</b>	none
List of revoked certificates.	
<b>TLS Cert</b>	none
Agent certificate.	
<b>TLS PSK Identity</b>	key-pfsense-01
Unique, case sensitive string used to identify the pre-shared key.	
<b>TLS PSK</b>	fb6616cd582a2fa0aa161cab3423a9ca640c931b21c8c2e3b713 2d6db75aadff


 Save
 Show Advanced Options

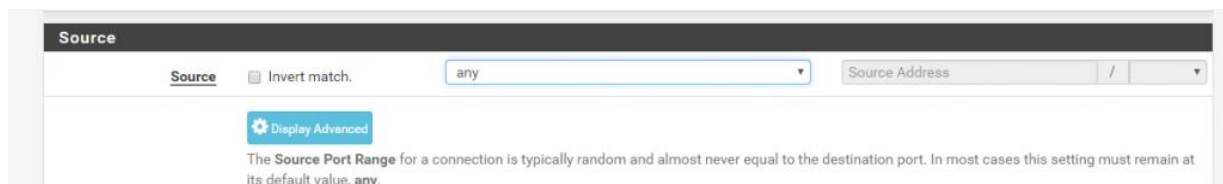
- Create firewall rules



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

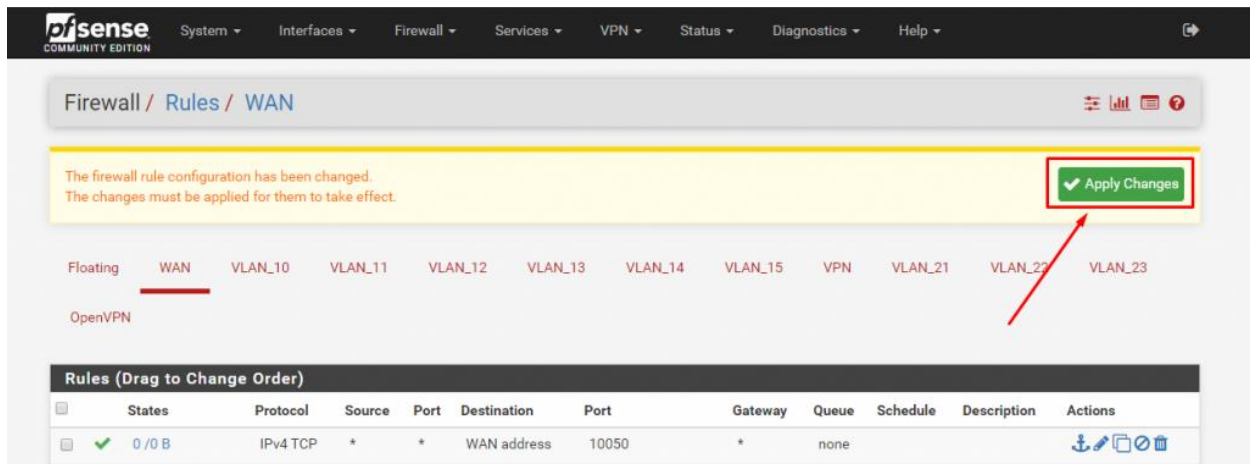


- In **Source**: Choose **any**





- 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
```



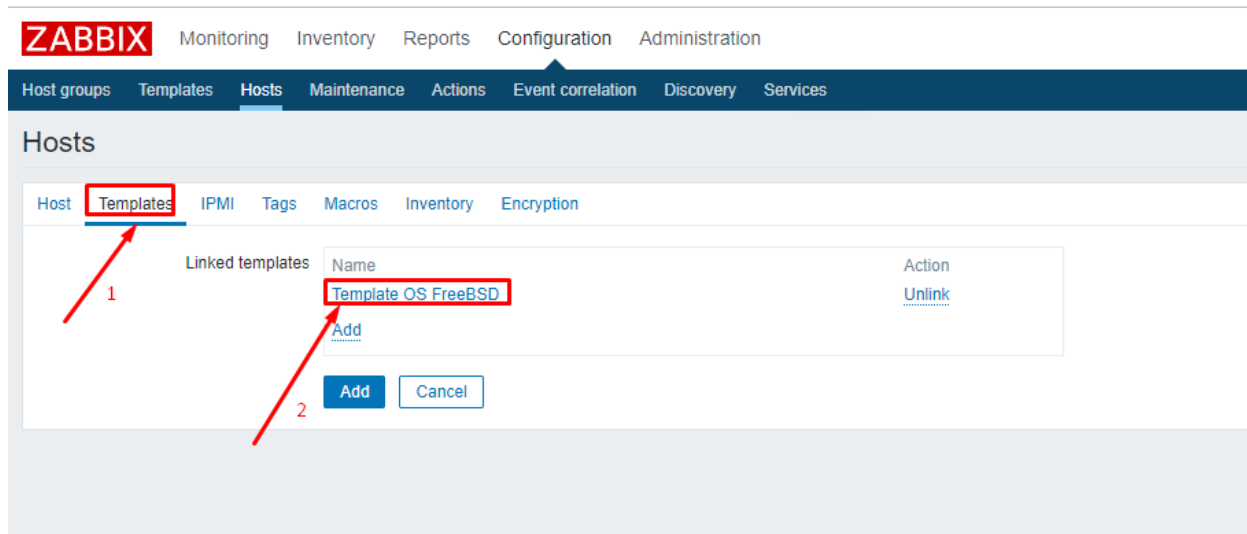
- Login to web interface of Zabbix Server -> Choose **Configuration** -> Choose **Hosts** -> Click **Create host**

The screenshot shows the Zabbix web interface. The top navigation bar includes 'Monitoring', 'Inventory', 'Reports', 'Configuration', and 'Administration'. The 'Configuration' menu is highlighted. Below it, the 'Hosts' tab is selected in the left sidebar. The 'Create host' button is highlighted in the top right. The form fields for creating a host are visible, including Name, Templates, DNS, IP, Port, Monitored by, Proxy, and Tags.

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

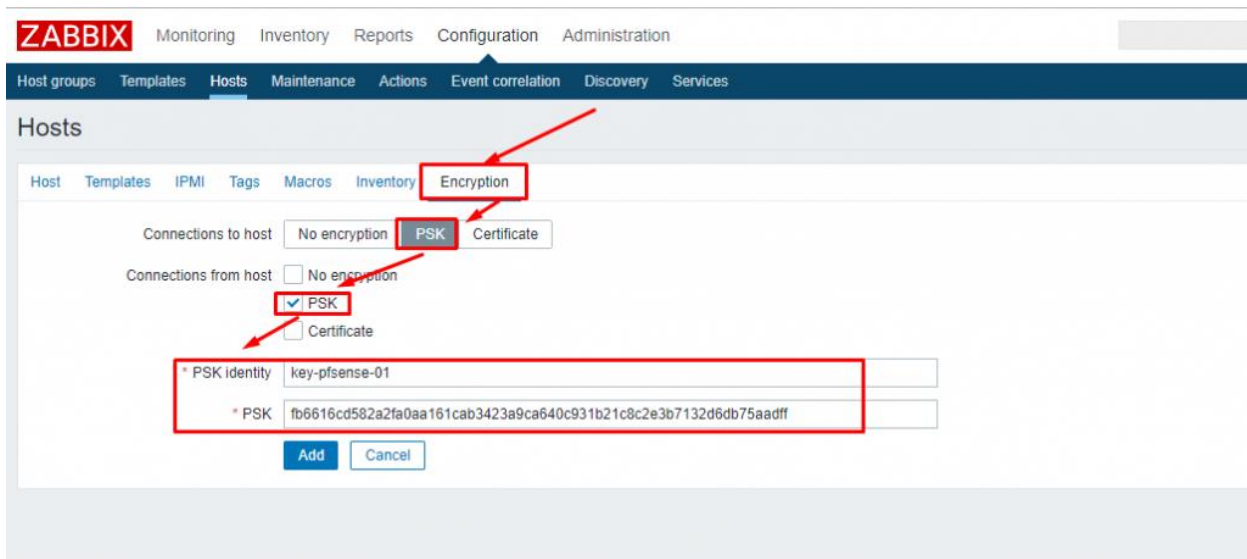
The screenshot shows the Zabbix web interface. The top navigation bar includes 'Monitoring', 'Inventory', 'Reports', 'Configuration', and 'Administration'. The 'Configuration' menu is highlighted. Below it, the 'Hosts' tab is selected in the left sidebar. The 'Host' sub-tab is selected. The form fields for configuring a host are visible, including Host name, Visible name, Groups, Agent interfaces, and SNMP interfaces. The 'Host name' is set to 'NH-pfSense.localdomain', 'Groups' is set to 'Linux servers', and 'Agent interfaces' is set to '172.16.3.148'.

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



- 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**



- When added successfully

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

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