

How To Monitor Linux Using SNMP in Nagios XI 2024

Purpose

This document describes how to monitor Linux machines with Nagios XI 2024 using SNMP.

Install SNMP On The Remote Linux Machine

Before you can monitor a Linux machine using SNMP, you'll need to install and configure the necessary. First, you'll need to install the `net-snmp` package on the Linux machine. Login to the Linux machine as the root user to complete the next steps.

On RHEL / CentOS / Oracles systems use the following command:

```
yum install net-snmp
```

On Debian / Ubuntu based systems use the following command:

```
sudo apt-get install snmpd libsnmp-dev
```

Configure SNMP Access On The Remote Linux Machine

Now you must configure access permissions for SNMP on the Linux machine. This guide will focus on SNMP v2c and SNMP v3.

- SNMP v2c
 - Access is granted using a permission, community string and address
 - This documentation will use the following values:
 - Permission: `rocommunity`
 - Community String: `Str0ngC0mmunity`
 - Address: `10.25.5.12`
 - This address is the Nagios XI server address
- SNMP v3
 - Access is granted with a username, permission, security level, authentication and privacy passphrases
 - More complicated but also more secure
 - This documentation will use the following values:

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- Username: nagios
- Permission: rouser
- Security Level: authPriv
- Authentication Protocol: SHA
- Authentication Passphrase: Str0ng@uth3ntic@ti0n
- Privacy Protocol: AES
- Privacy Passphrase: Str0ngPriv@cy

SNMP v2c

Using the values defined earlier, the following line will be added to the `/etc/snmp/snmpd.conf` file:

```
rocommunity Str0ngC0mmunity 10.25.5.12
```

The following commands will create a backup of the original file and create a new config file with that line.

On RHEL / CentOS / Oracle Linux systems execute the following commands:

```
cp /etc/snmp/snmpd.conf /etc/snmp/snmpd.bak  
echo 'rocommunity Str0ngC0mmunity 10.25.5.12' > /etc/snmp/snmpd.conf
```

On Debian / Ubuntu systems execute the following commands:

```
sudo cp /etc/snmp/snmpd.conf /etc/snmp/snmpd.bak  
sudo sh -c "echo 'rocommunity Str0ngC0mmunity 10.25.5.12' > /etc/snmp/snmpd.conf"
```

Now restart the snmpd service using one of the following commands.

On RHEL / CentOS / Oracle Linux systems execute the following commands:

```
systemctl restart snmpd.service
```

On Debian and Ubuntu systems execute the following commands:

```
sudo systemctl restart snmpd.service
```

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SNMP v3

Using the values defined earlier, the following command will create the SNMP v3 user and be added to the `/etc/snmp/snmpd.conf` file AND the `/var/lib/net-snmp/snmpd.conf` file. The following commands will create a backup of the original files, create a new config file with that line, add the SNMP v3 user and then restart the service.

On RHEL / CentOS / Oracle Linux systems execute the following commands:

```
cp /etc/snmp/snmpd.conf /etc/snmp/snmpd.bak
systemctl stop snmpd.service
echo ' ' > /etc/snmp/snmpd.conf
net-snmp-create-v3-user -ro -a SHA -A Str0ng@uth3ntic@ti0n -x AES -X Str0ngPriv@cy nagios
sudo systemctl start snmpd.service
```

On Debian and Ubuntu systems execute the following commands:

```
sudo cp /etc/snmp/snmpd.conf /etc/snmp/snmpd.bak
sudo systemctl stop snmpd.service
sudo sh -c "echo ' ' > /etc/snmp/snmpd.conf"
sudo net-snmp-create-v3-user -ro -a SHA -A Str0ng@uth3ntic@ti0n -x AES -X Str0ngPriv@cy nagios
sudo systemctl start snmpd.service
```

Configure Inbound Firewall Rules On The Remote Linux Machine

If you have the operating system firewall enabled, you'll need to allow UDP port 161 inbound. The commands for this vary depending on your operating system.

On RHEL / CentOS / Oracle Linux systems execute the following commands:

```
firewall-cmd --zone=public --add-port=161/udp
firewall-cmd --zone=public --add-port=161/udp --permanent
```

On Ubuntu systems execute the following commands:

```
sudo ufw allow snmp
sudo ufw reload
```

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On Debian systems execute the following commands:

```
iptables -I INPUT -p udp --destination-port 161 -j ACCEPT
apt-get install iptables-persistent
Answer yes to saving existing rules.
```

Note: On some systems you may need to add the address of your Nagios server to the allowed hosts file `/etc/hosts.allow`.

Configure The SNMP Daemon To Start On Boot

Configure the SNMP daemon to automatically start when the Linux machine reboots.

On RHEL / CentOS / Oracle Linux systems execute the following commands:

```
systemctl enable snmpd.service
```

On Debian and Ubuntu systems execute the following commands:

```
sudo systemctl enable snmpd.service
```

Testing SNMP Communication

Before you continue, you'll need to make sure that the Nagios XI server can communicate with the remote Linux server using SNMP.

To do this, establish a terminal session to your Nagios XI server and execute the following commands to run a test query. The examples here are targeting the Linux server `10.25.13.38` and they are using the values defined above:

```
cd /usr/local/nagios/libexec
```

SNMP v2c

```
./check_snmp_storage.pl -H 10.25.13.37 -C Str0ngC0mmunity -m "^/$" -w 2 -c 4
```

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SNMP v3 (note that this is a single long command)

```
./check_snmp_storage.pl -H 10.25.13.37 -l nagios -x  
Str0ng@uth3ntic@ti0n -X Str0ngPriv@cy -L SHA,AES -m "^/$" -w 2 -c 4
```

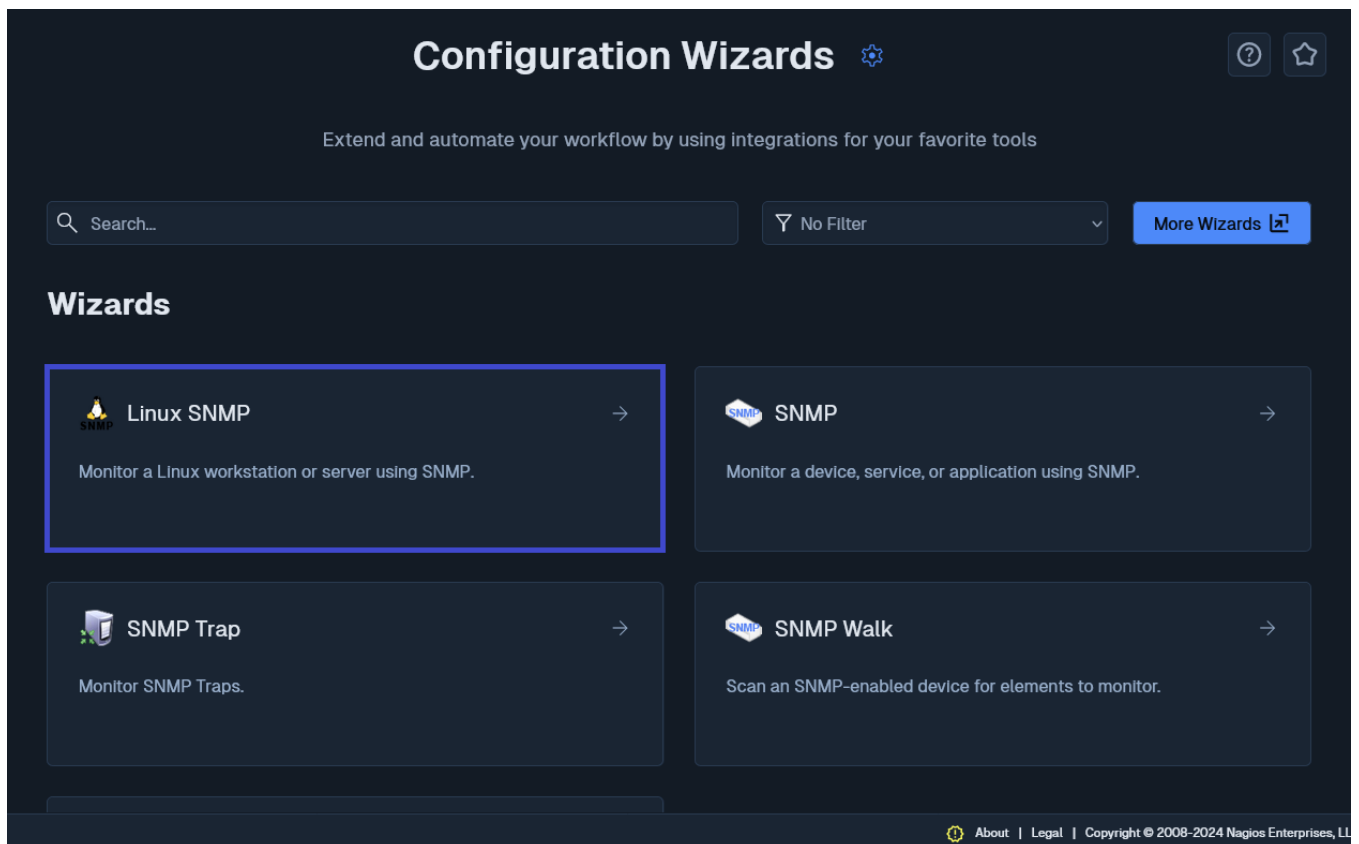
This check should return disk usage information from the remote Linux server, something like:

```
/: 11%used(1550MB/13892MB) (>4%) : CRITICAL
```

Important: If the command doesn't return data, it likely means that SNMP is not configured properly, or that a firewall issue exists on the remote server. In that case, go through the steps in the previous section to ensure everything is configured properly.

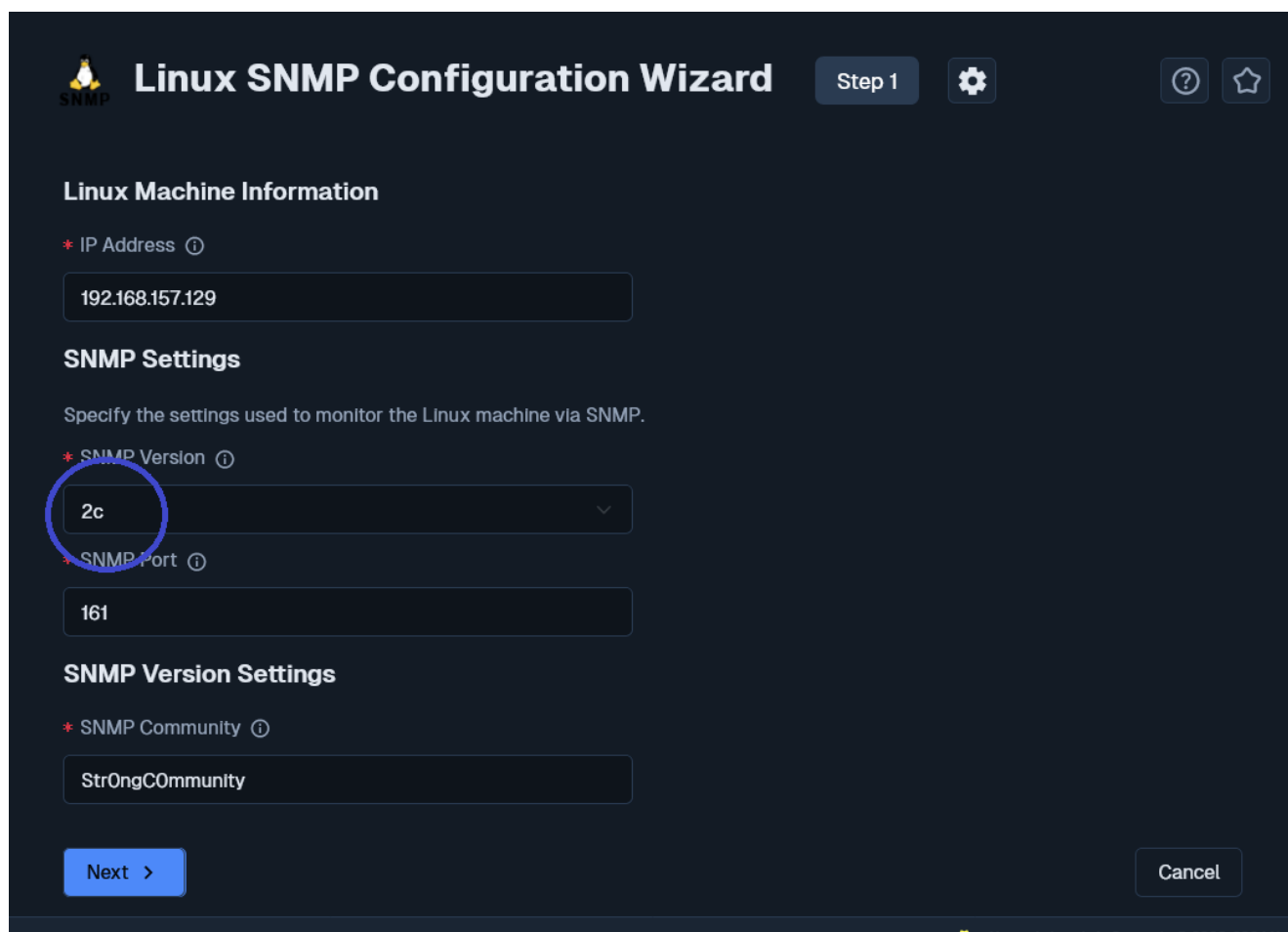
Using The Linux SNMP Wizard

1. To begin using the Linux SNMP wizard navigate via the top menu bar to **Configure > Run a configuring wizard** and select the **Linux SNMP wizard**. In the following screenshot you can see how the search field allows you to quickly find a wizard.



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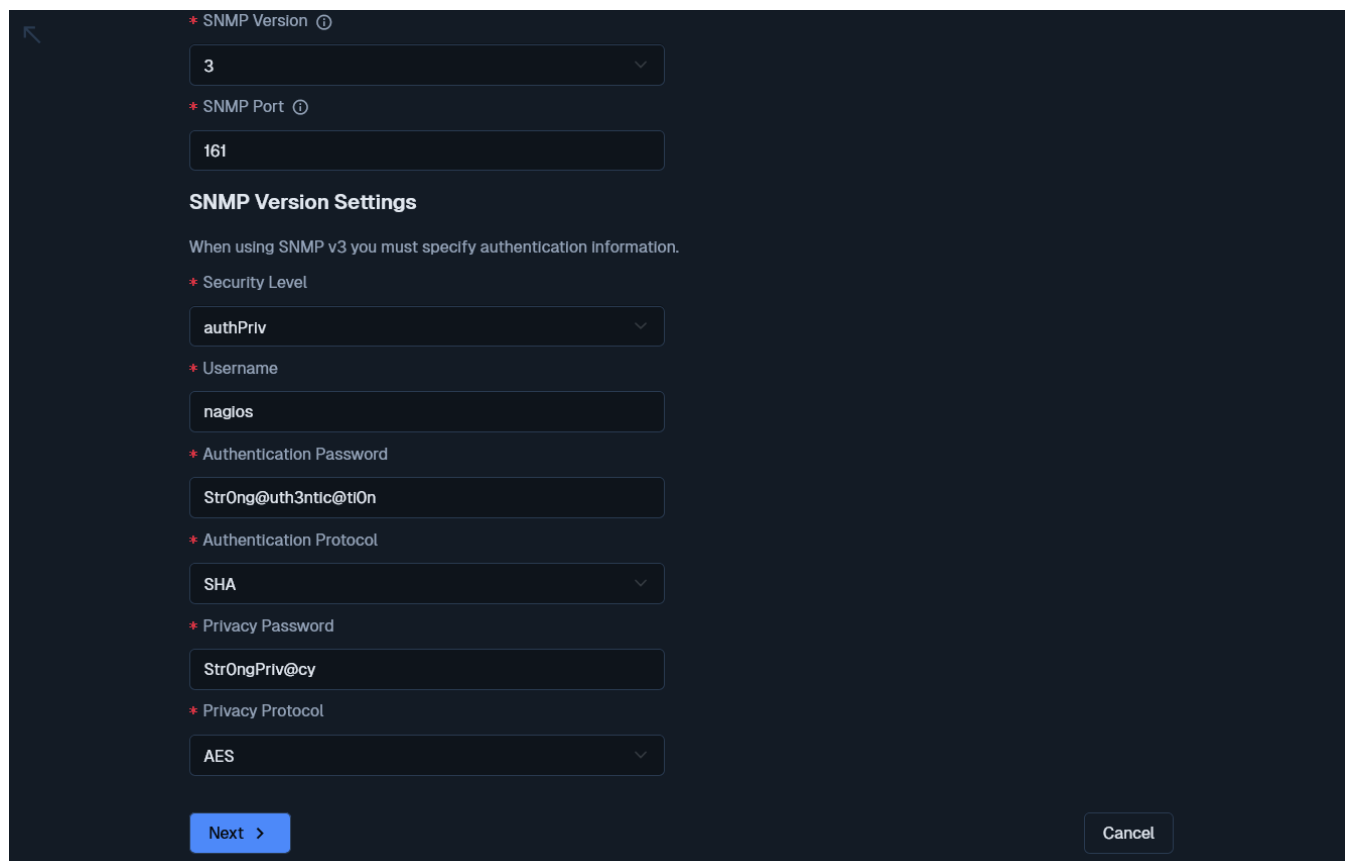
2. On **Step 1** you will be asked to supply the address of the server you will monitor via SNMP.
3. You will also have to provide the appropriate **SNMP Settings**. This screenshot shows **SNMP v2c** settings.



The screenshot displays the 'Linux SNMP Configuration Wizard' interface. At the top, it shows 'Step 1' and navigation icons. The main content is divided into three sections: 'Linux Machine Information', 'SNMP Settings', and 'SNMP Version Settings'. In the 'Linux Machine Information' section, the 'IP Address' field contains '192.168.157.129'. The 'SNMP Settings' section includes a dropdown for 'SNMP Version' set to '2c', a text field for 'SNMP Port' with '161', and a text field for 'SNMP Community' with 'StrOngCCommunity'. A blue circle highlights the '2c' option in the dropdown menu. At the bottom, there are 'Next >' and 'Cancel' buttons.

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4. This screenshot shows SNMP v3 settings



The screenshot displays the configuration interface for SNMP v3 in Nagios XI. The settings are as follows:

- SNMP Version:** 3
- SNMP Port:** 161
- SNMP Version Settings:**
 - Security Level:** authPriv
 - Username:** nagios
 - Authentication Password:** StrOng@uth3ntic@t!0n
 - Authentication Protocol:** SHA
 - Privacy Password:** StrOngPriv@cy
 - Privacy Protocol:** AES

At the bottom of the form, there are two buttons: "Next >" and "Cancel".

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5. Click **Next** to progress to **Step 2**.

Linux SNMP Configuration Wizard Step 2

Linux Machine Details

IP Address
192.168.157.129

Host Name ⓘ
192.168.157.129

Legacy Performance Data Order ⓘ

Server Metrics

Specify which services you would like to monitor for the Linux machine.

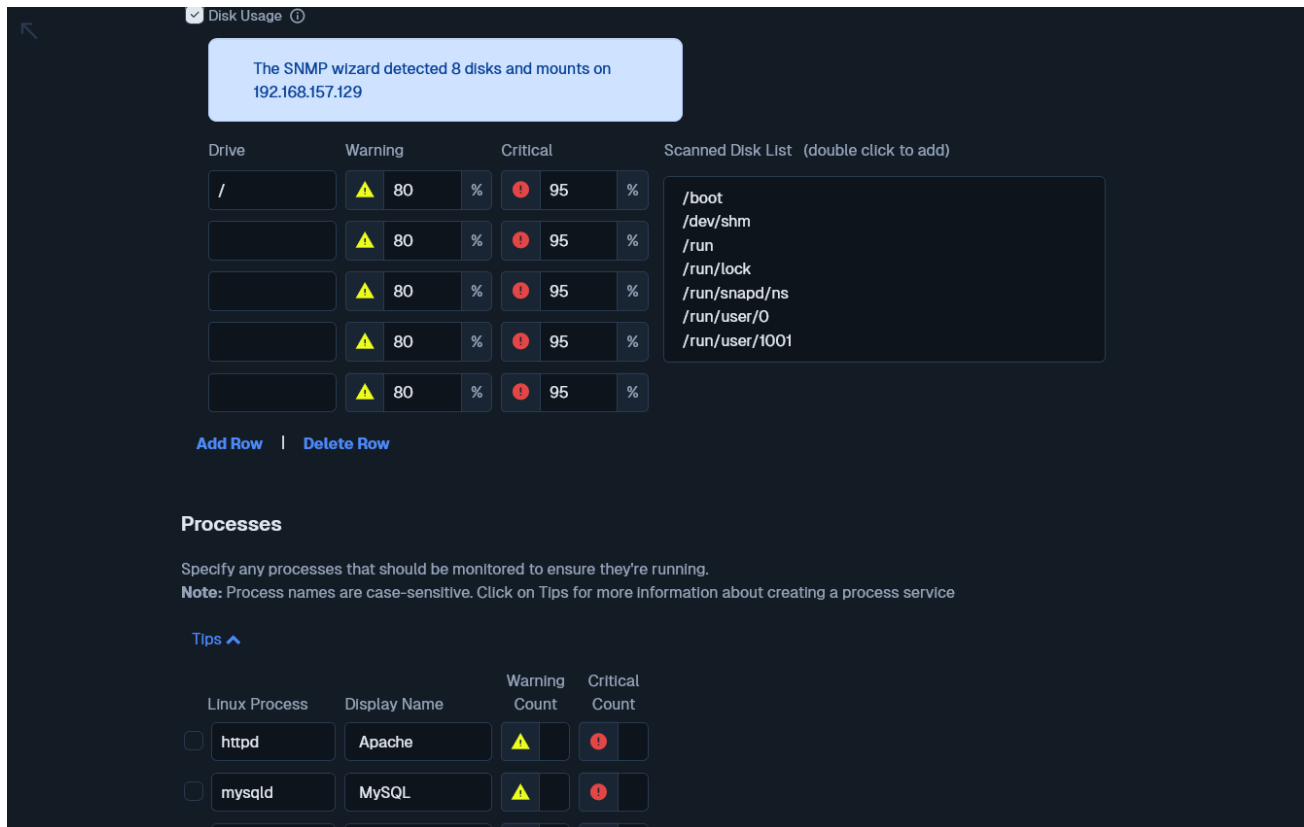
- Ping ⓘ
- CPU ⓘ
⚠ 80 % ⚠ 90 %
- Physical Memory Usage ⓘ
⚠ 80 % ⚠ 90 %
- Swap Usage ⓘ
⚠ 5 % ⚠ 10 %
- Disk Usage ⓘ

The SNMP wizard detected 8 disks and mounts on 192.168.157.129

5. When you proceed to **Step 2**, the wizard will perform an SNMP query against the Linux server to get a list of the available disks and processes.

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6. Select the **server metrics** you wish to monitor and adjust the thresholds as required.
7. With the **Disk Usage** checks, double click a **disk** in the **Scanned Disk List** to add it to the **Drive** field. Adjust the thresholds as required.



The screenshot shows the Nagios XI configuration interface for Disk Usage. At the top, a notification states: "The SNMP wizard detected 8 disks and mounts on 192.168.157.129". Below this is a table for configuring disk metrics:

Drive	Warning	Critical	Scanned Disk List (double click to add)
/	80 %	95 %	/boot /dev/shm /run /run/lock /run/snapped/ns /run/user/0 /run/user/1001
	80 %	95 %	
	80 %	95 %	
	80 %	95 %	
	80 %	95 %	

Below the table are links for "Add Row" and "Delete Row".

Processes

Specify any processes that should be monitored to ensure they're running.
Note: Process names are case-sensitive. Click on Tips for more information about creating a process service

Tips ^

Linux Process	Display Name	Warning Count	Critical Count
<input type="checkbox"/> httpd	Apache	Warning icon	Critical icon
<input type="checkbox"/> mysqld	MySQL	Warning icon	Critical icon











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- With the **Processes** checks, double click a **process** in the **Scanned Process List** to add it to the **Linux Process** field. Adjust the thresholds as required.

Processes

Specify any processes that should be monitored to ensure they're running.
Note: Process names are case-sensitive. Click on [Tips](#) for more information about creating a process service

[Tips](#) ^

	Linux Process	Display Name	Warning Count	Critical Count
<input type="checkbox"/>	httpd	Apache		
<input type="checkbox"/>	mysqld	MySQL		
<input checked="" type="checkbox"/>	sshd	SSH	 2	 ,3
<input type="checkbox"/>				
<input type="checkbox"/>				

[Add Row](#) | [Delete Row](#)

Important: When you enter one number in each of the **Warning** and **Critical** fields, a WARNING alert will be generated when the number of processes is below the number specified in the **Warning** field. A CRITICAL alert will be generated when the number of processes is equal to or below the number specified in the **Critical** field.

- Once you've finished selecting all the items you wish to monitor click **Next** and then complete the wizard by choosing the required options in **Step 3 - Step 5**.

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- To finish up, click on **Finish** in the final step of the wizard. This will create the new hosts and services and begin monitoring. Once the wizard applies the configuration, click the **View status details for xxxxx** link to see the new host and services that were created.

Showing 1-6 of 6 total records

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Host ↓	Service ↓	Status ↓	Duration ↓	Attempt ↓	Last Check ↓	Status Information ↓
● 192.168.157.129	/ Disk Usage	● Pending	🕒 N/A	1/5	N/A	Service check is pending... Check is scheduled for 2024-11-24 02:44:36
	CPU Usage	● Pending	🕒 N/A	1/5	N/A	Service check is pending... Check is scheduled for 2024-11-24 02:45:32
	Memory Usage	● Pending	🕒 N/A	1/5	N/A	Service check is pending... Check is scheduled for 2024-11-24 02:46:22
	Ping	● Pending	🕒 N/A	1/5	N/A	Service check is pending... Check is scheduled for 2024-11-24 02:47:12
	SSH	● Pending	🕒 N/A	1/5	N/A	Service check is pending... Check is scheduled for 2024-11-24 02:48:02
	Swap Usage	● Pending	🕒 N/A	1/5	N/A	Service check is pending... Check is scheduled for 2024-11-24 02:48:52

Last Updated: 2024-11-24 02:44:32

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More Information

[Using Configuration Wizards](#)

Finishing Up

This completes the documentation on monitoring Linux using SNMP with Nagios XI. If you have additional questions or other support-related questions, please visit us at our Nagios Support Forum, Nagios Knowledge Base, or Nagios Library:

[Visit Nagios Support Forum](#)

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