

How To Monitor GlassFish in Nagios XI 2024

Purpose

This document will cover how to monitor GlassFish servers using the GlassFish wizard and `check_jvm.jar` plugin within Nagios XI, so that users may be notified when GlassFish applications are behaving unexpectedly.

Prerequisites

This document assumes you have the following:

- A remote GlassFish server
- A Nagios XI server with a network route to the GlassFish server

The `check_jvm.jar` monitoring plugin is executed either on the Nagios XI server or the GlassFish server. Either method requires some prerequisite steps to be followed first which are outlined below.

Plugin Executed from Nagios XI Server

If you intend to run the plugin from the XI server, you'll need to install Java on the Nagios XI server. At the time of this writing, any Java 7+ implementation should work with the `check_jvm.jar` plugin, but only Oracle Java and OpenJDK have been tested. The following commands require you to establish a terminal session to your Nagios XI server as the root user.

CentOS / RHEL / Oracle Linux

To install OpenJDK 8 on CentOS / RHEL / Oracle Linux execute the following command:

```
yum install -y java-1.8.0-openjdk-devel
```

Debian / Ubuntu

To install OpenJDK 8 on Debian 9 / Ubuntu 16,18, 20 execute the following commands:

```
apt-get update  
apt-get install -y openjdk-8-jdk
```

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OpenJDK 8 is not included in Debian 10 packages. To install OpenJDK 8 on Debian 10, input these commands:

```
sudo apt-get update
```

```
sudo apt-get install software-properties-common
```

```
sudo apt update
```

```
sudo apt install apt-transport-https ca-certificates wget  
dirmngr gnupg software-properties-common
```

```
wget -qO - https://adoptopenjdk.jfrog.io/adoptopenjdk/api/gpg/key/public | sudo apt-  
key add -
```

```
sudo add-apt-repository --yes https://adoptopenjdk.jfrog.io/adoptopenjdk/deb/
```

```
sudo apt update
```

```
sudo apt install adoptopenjdk-8-hotspot
```

Once these steps have been performed, please proceed to the Configuration Wizard section of this document.

Plugin Executed from Remote GlassFish Server

If the plugin is to be remotely executed on the GlassFish server, NCPA will need to be installed on the GlassFish server as per the [Installing NCPA](#) documentation.

Once installed you will need to download the `check_jvm.jar` plugin to the NCPA's plugins folder. The plugin can be downloaded directly from the Nagios XI server, in the following commands replace `xi_address` with the IP address of your Nagios XI server. In a terminal session on the GlassFish server execute the following commands:

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```
cd /usr/local/ncpa/plugins/  
wget http://xi\_address/nagiosxi/includes/configwizards/java-as/plugins/check\_jvm.jar
```

The `check_jvm.jar` is a Java file that NCPA cannot run by default. To have NCPA associate `.jar` files with Java you will need to add a line to the `/usr/local/ncpa/etc/ncpa.cfg` file.

To edit the `ncpa.cfg` file execute the following command:

```
sudo vi /usr/local/ncpa/etc/ncpa.cfg
```

When using `vi`, to make changes press `i` on the keyboard first to enter insert mode and press **Esc** to exit insert mode.

Locate the [plugin directives] section by typing this command in:

```
/[plugin
```

Scroll down a few lines and find the following line:

```
.py = python $plugin_name $plugin_args
```

Insert the following line after the `.py` line:

```
.jar = java -jar $plugin_name $plugin_args
```

When you have finished, save the changes in `vi` by typing

```
:wq
```

and press **Enter**.

The last step required is to restart the `ncpa_listener` service. The command to do this may vary depending on your operating system (full details can be found in the Installing NCPA documentation). In this example to restart the service on CentOS 7 would be:

```
systemctl restart ncpa_listener.service
```

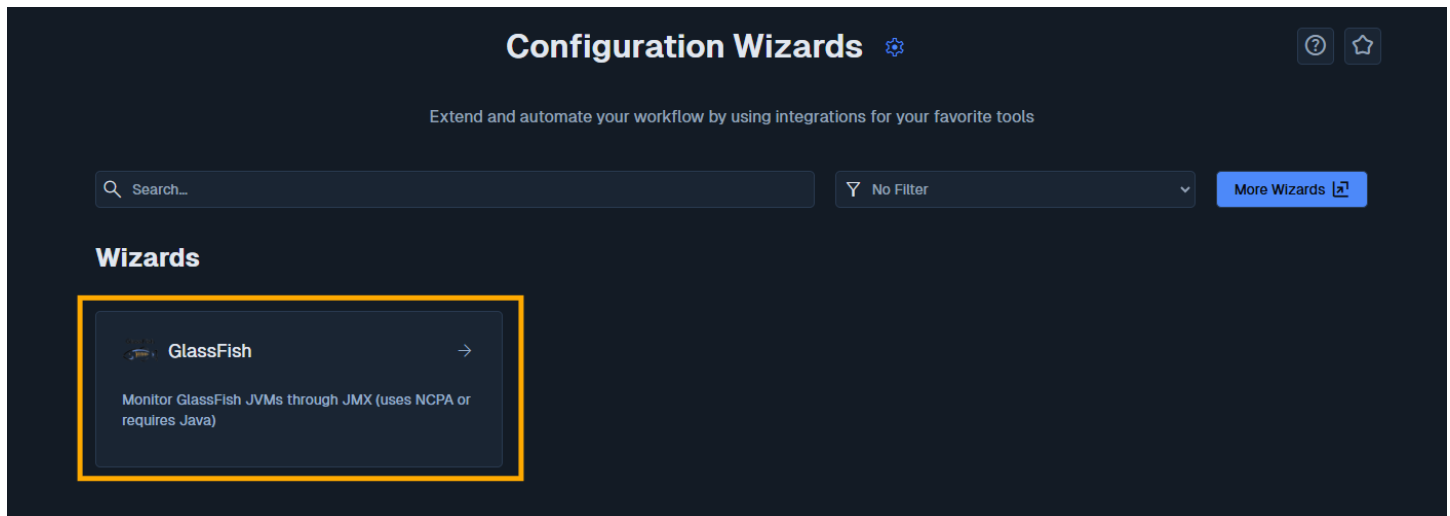
Once these steps have been performed, please proceed to the Configuration Wizard section of this document.

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The GlassFish Configuration Wizard

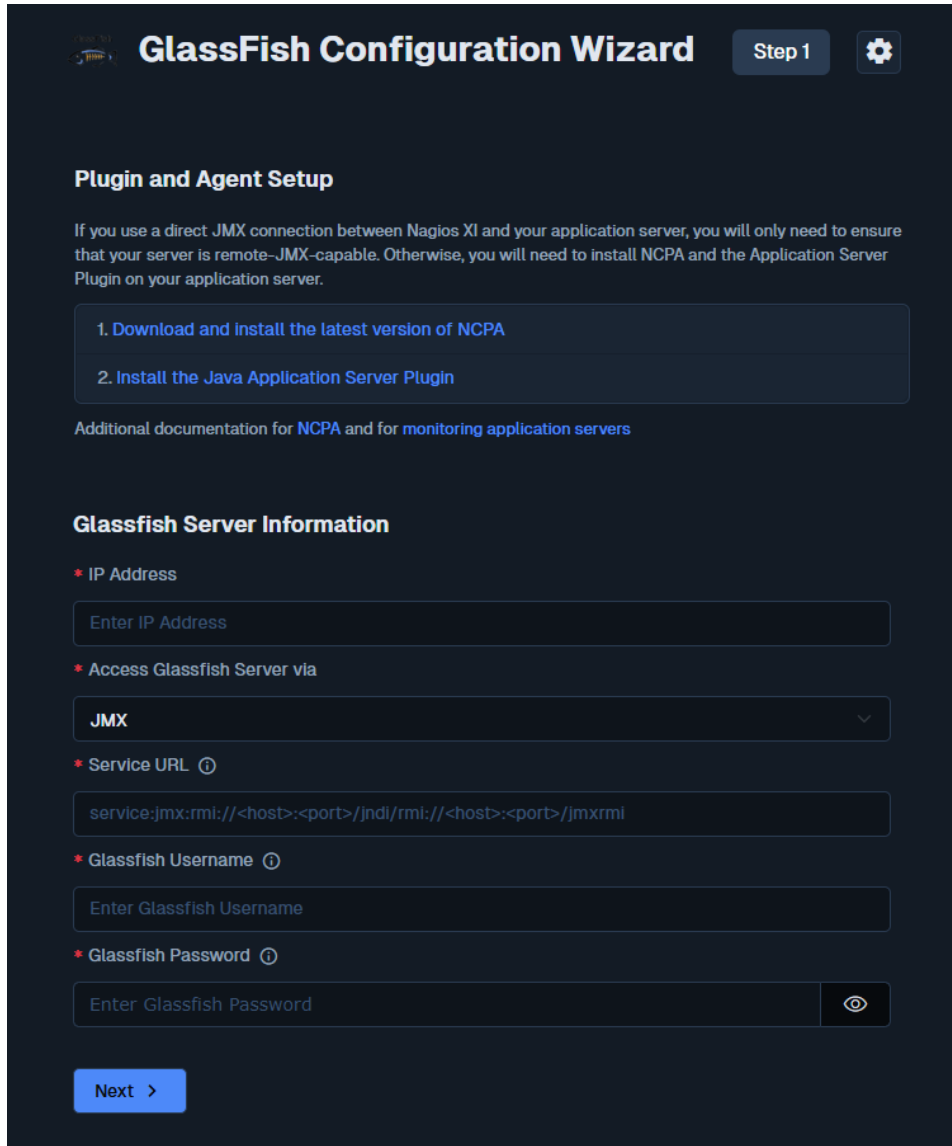
The GlassFish config wizard uses JMX to retrieve JVM and system statistics and compare them to the thresholds you set in the wizard. Checks can either be combined into one service or separated.

To begin using the GlassFish configuration wizard, navigate via the top bar to **Configure > Configuration Wizards**. Then, select the GlassFish wizard. In the following screenshot you can see how the search field allows you to quickly find a wizard.



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1. **Step 1** requires you to provide the details for the Nagios XI server to connect to **GlassFish** via **JMX**.

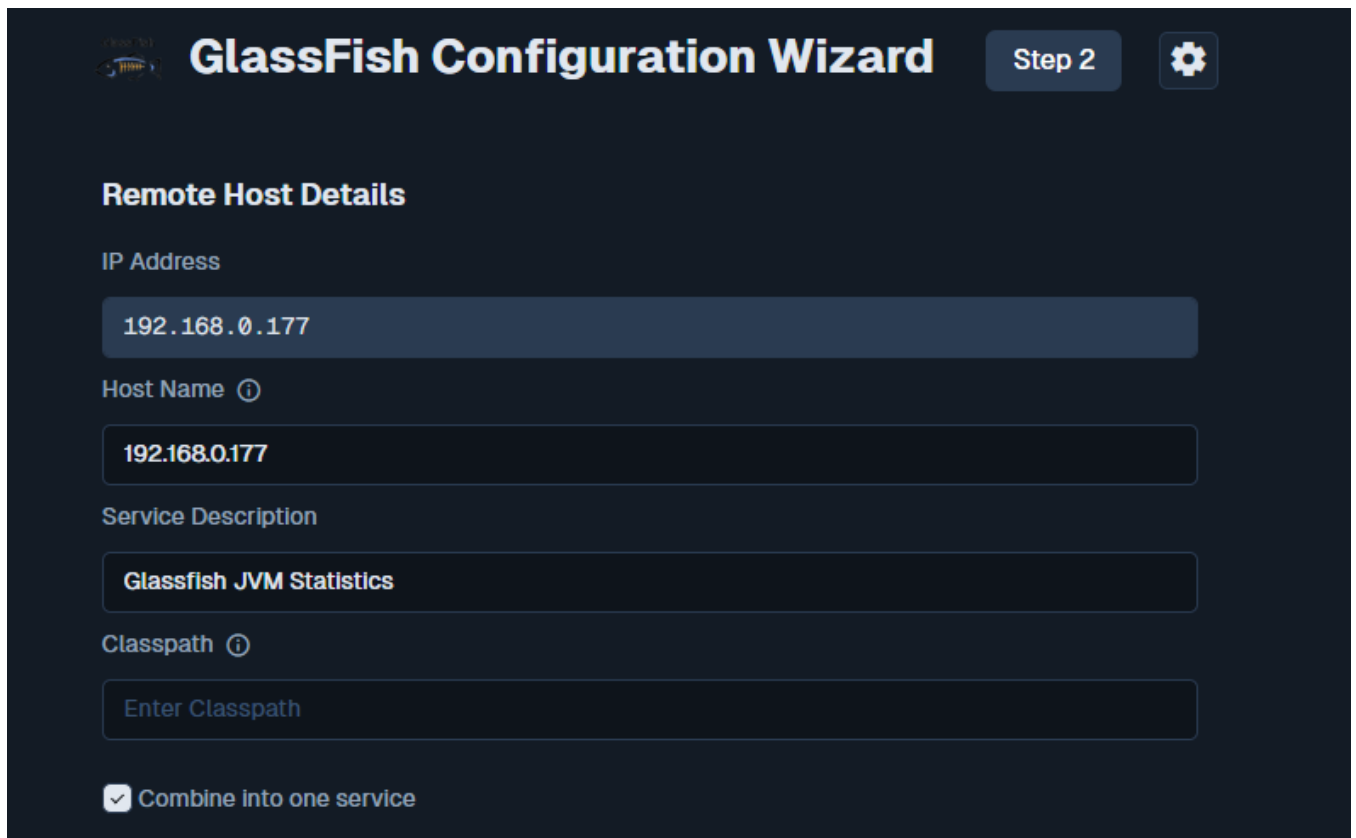


The screenshot shows the 'GlassFish Configuration Wizard' interface, specifically 'Step 1'. The title bar includes the Nagios XI logo, the text 'GlassFish Configuration Wizard', a 'Step 1' indicator, and a settings gear icon. The main heading is 'Plugin and Agent Setup'. Below this, there is a paragraph of text explaining the connection requirements: 'If you use a direct JMX connection between Nagios XI and your application server, you will only need to ensure that your server is remote-JMX-capable. Otherwise, you will need to install NCPA and the Application Server Plugin on your application server.' This is followed by a numbered list of two steps: '1. Download and install the latest version of NCPA' and '2. Install the Java Application Server Plugin'. Below the list is a link for 'Additional documentation for NCPA and for monitoring application servers'. The next section is 'Glassfish Server Information', which contains several fields: '* IP Address' with a text input field containing 'Enter IP Address'; '* Access Glassfish Server via' with a dropdown menu set to 'JMX'; '* Service URL' with a text input field containing a template 'service:jmx:rmi://<host>:<port>/jndi/rmi://<host>:<port>/jmxrmi'; '* Glassfish Username' with a text input field containing 'Enter Glassfish Username'; and '* Glassfish Password' with a text input field containing 'Enter Glassfish Password' and a toggle icon. At the bottom left of the form is a blue 'Next >' button.

- a. In GlassFish Server Information, specify the following:
 - i. **IP Address:** is the network address of the GlassFish server
 - ii. **Access GlassFish Server via:** asks you how to access GlassFish statistics. **JMX** is when Nagios XI connects instead of using NCPA to execute the plugin remotely.

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- iii. **NCPA Listener Port** and **NCPA Token only** appear when you select the NCPA access method. You defined these options when installing NCPA earlier.
 - iv. **Service URL:** is the URL required to form the JMX connection, this will be of the form of
`service:jmx:rmi://<host>:<port>/jndi/rmi://<host>:<port>/jmxrmi`
 - v. GlassFish Username and GlassFish Password are the credentials required to access the JVM's internal statistics
- b. After making all your selections click **Next** to proceed to **Step 2**.
2. **Step 2** provides you with multiple monitoring options.



The screenshot shows the 'GlassFish Configuration Wizard' at 'Step 2'. The main heading is 'Remote Host Details'. There are four input fields: 'IP Address' with the value '192.168.0.177', 'Host Name' with the value '192.168.0.177', 'Service Description' with the value 'Glassfish JVM Statistics', and 'Classpath' with the placeholder text 'Enter Classpath'. At the bottom, there is a checked checkbox labeled 'Combine into one service'.

- a. In **Remote Host Details**, you have the choice of defining the **Host Name** to your requirements.
- b. All the services created by this wizard will be assigned to this newly created host.
 - i. You also have the option to combine the checks into one service.









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- ii. If you have selected **NCPA**, then the **Classpath** field will not be displayed.
- iii. If you are using **JMX** then you can optionally define the **Classpath** field.
- c. The **Heap-Allocated Memory** and **Non-Heap-Allocated Memory** options are self-explanatory, simply check and un-check the relevant boxes to determine which checks to run and enter your desired warning and critical thresholds.

Heap-Allocated Memory

Measure these statistics in:









GIB

<input checked="" type="checkbox"/> Heap-Allocated Memory ⓘ	 16	 30
<input type="checkbox"/> Eden Space ⓘ		
<input type="checkbox"/> Survivor/Tenured Space ⓘ		
<input type="checkbox"/> Old Gen ⓘ		

Non-Heap-Allocated Memory

Measure these statistics in:

GIB

<input type="checkbox"/> Simple Non-Heap-Allocated Memory ⓘ		
<input type="checkbox"/> Code Cache ⓘ		
<input type="checkbox"/> Compressed Class Space ⓘ		
<input checked="" type="checkbox"/> Metaspace ⓘ	 32	 64

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- d. The **Other System Statistics** options are self-explanatory, simply check and uncheck the relevant boxes to determine which checks to run and enter your desired warning and critical thresholds.

Option	Warning Threshold	Critical Threshold
<input checked="" type="checkbox"/> JVM CPU Usage ⓘ	50 %	70 %
<input checked="" type="checkbox"/> System CPU Usage ⓘ	70 %	90 %
<input checked="" type="checkbox"/> Uptime ⓘ	1500:	300:
<input type="checkbox"/> Class Count ⓘ	10000	50000
<input type="checkbox"/> Thread Count ⓘ	150	190

- e. Click **Next** and then complete the wizard by choosing the required options in **Step 3 – Step 5**.
3. To finish up, click on **Finish** in the final step of the wizard. Once the wizard applies the configuration, click the **View status details** for <your host> link to see the new service(s) that have been created.

Host ↓	Service ↓	Status ↓	Duration ↓	Attempt ↓	Last Check ↓	Status Information ↓
● 192.168.0.177	🔍 📄 Glassfish JVM Statistics 📄	● Ok	🕒 12h 16m 50s	1/5	2024-12-04 12:10:02	OK: 5 checks returned OK

More Information:

[Using Configuration Wizards](#)

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Finishing Up

This completes the documentation on how to monitor GlassFish in Nagios XI 2024. 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](#)

[Visit Nagios Knowledge Base](#)

[Visit Nagios Library](#)