

How To Monitor GlassFish With Nagios XI

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. If you are using Nagios XI 2024, refer to the [updated document](#).

Target Audience

This document is intended for use by Nagios XI Administrators who want to monitor their GlassFish instances.

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
```

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Debian / Ubuntu

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

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

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:

```
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
```

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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:

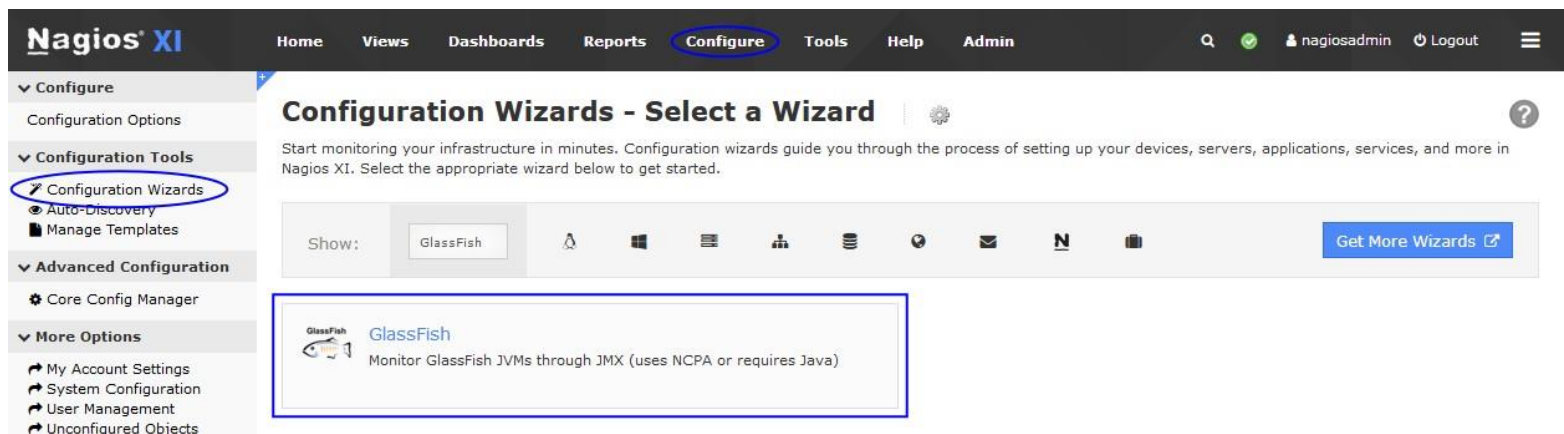
```
systemctl restart ncpa_listener.service
```

Once these steps have been performed, please proceed to the [Configuration Wizard](#) section of this document.

The GlassFish Configuration Wizard

The GlassFish configuration 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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Step 1: Provide details for the Nagios XI server to connect to GlassFish via JMX. In **GlassFish Server Information**, specify the following:

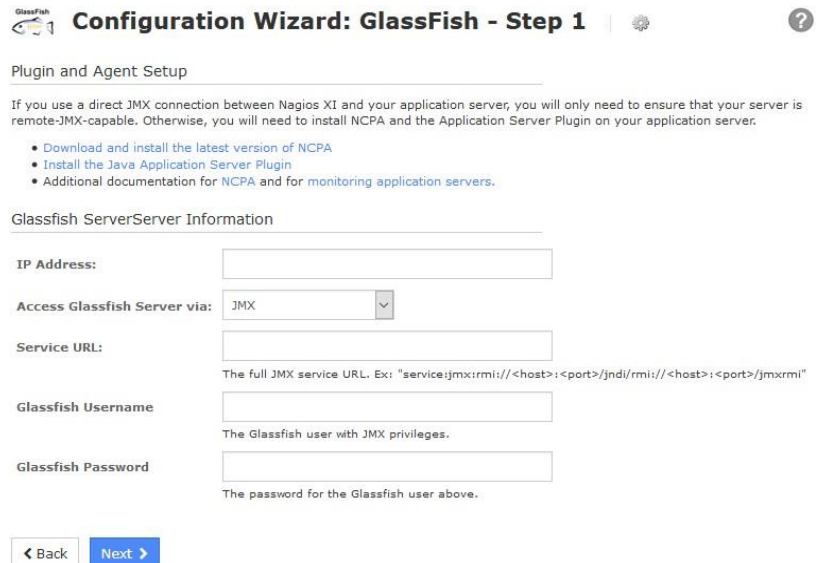
- **IP Address** is the network address of the GlassFish server
- **Access GlassFish Server via** asks you how to access GlassFish statistics. **JMX** is when Nagios XI connects instead of using NCPA to execute the plugin remotely.
- **NCPA Listener Port** and **NCPA Token** only appear when you select the NCPA access method. You defined these options when installing NCPA earlier.
- **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`
- **GlassFish Username** and **GlassFish Password** are the credentials required to access the JVM's internal statistics

After making all your selections click **Next** to proceed to **Step 2**.

Step 2: Provides you with multiple monitoring options.

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

- If you have selected **NCPA** then the **Classpath** field will not be displayed.











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- If you are using **JMX** then you can optionally define the **Classpath** field.

Step 3: The **Heap-Allocated Memory** and **Non-Heap-Allocated Memory**, 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:

- ☒ **Heap-Allocated Memory**
Measures the memory usage of the entire heap.
 
- ☐ **Eden Space**
Measures the memory usage of objects which haven't yet seen garbage collection.
 
- ☐ **Survivor/Tenured Space**
Measures the memory usage of the objects which have survived at least one garbage collection cycle.
 
- ☐ **Old Gen**
Measures the memory usage of the objects which have been moved out of Survivor Space but are still in use.
 

Non-Heap-Allocated Memory

Measure these statistics in:

- ☐ **Simple Non-Heap-Allocated Memory**
Measures the memory usage of everything not on the heap.
 
- ☐ **Code Cache**
Measures the memory usage of the JIT-compiled code.
 
- ☐ **Compressed Class Space**
Measures the memory usage of the compressed classes in your Tomcat instance.
 
- ☒ **Metaspace**
Measures the memory usage of the class metadata in your Tomcat instance.
 

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Step 4: The Other System Statistics, simply check and un-check the relevant boxes to determine which checks to run and enter your desired warning and critical thresholds.

- Click **Next** and then complete the wizard by choosing the required options in Step 3 – Step 5.
- To finish up, click on **Finish** in the final step of the wizard.

Other System Statistics

☒ **JVM CPU Usage**
Measures the CPU Usage incurred by the JVM alone (values are between 0 and 100)
⚠ 50 % 🔴 70 %

☒ **System CPU Usage**
Measures the CPU Usage of the system as a whole (values are between 0 and 100).
⚠ 70 % 🔴 90 %

☒ **Uptime**
Measures the uptime of the JVM in seconds.
⚠ 1500: 🔴 300:

☐ **Class Count**
Measures the number of currently-loaded classes in the JVM.
⚠ 10000 🔴 50000

☐ **Thread Count**
Measures the number of active threads in the JVM.
⚠ 150 🔴 190

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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
GlassFish	Glassfish JVM Statistics	Ok	12s	1/5	2018-06-15 14:14:04	OK: 5 checks returned OK

Finishing Up

This completes the documentation on **How To Monitor GlassFish 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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