Purpose

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

Target Audience

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

Prerequisites

This document is assumes you have the following:

- A remote Jetty server with JMX enabled
- A Nagios XI server with a network route to the Jetty server

The `check_jvm.jar` monitoring plugin is executed either on the Nagios XI server or the Jetty 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 8 / Ubuntu 14

To install OpenJDK 7 on Debian 8 / Ubuntu 14 execute the following commands:

```
apt-get update
apt-get install -y openjdk-7-jdk
```

Debian 9 / Ubuntu 16,18

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 Jetty Server

If the plugin is to be remotely executed on the Jetty server, NCPA will need to be installed on the Jetty 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 Jetty 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
```

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:

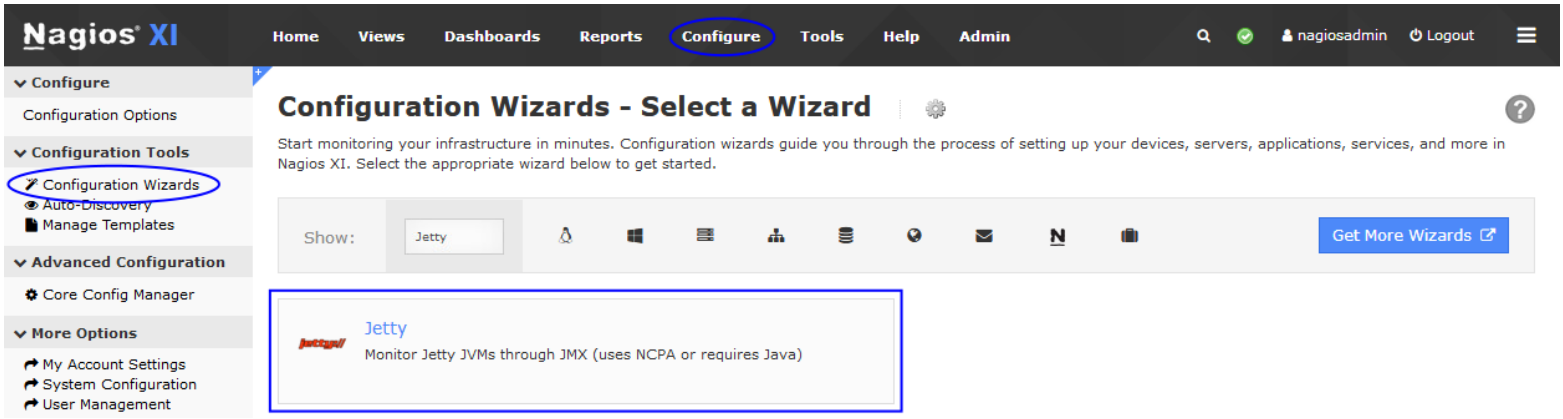
```
systemctl restart ncpa_listener.service
```

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

The Jetty Configuration Wizard

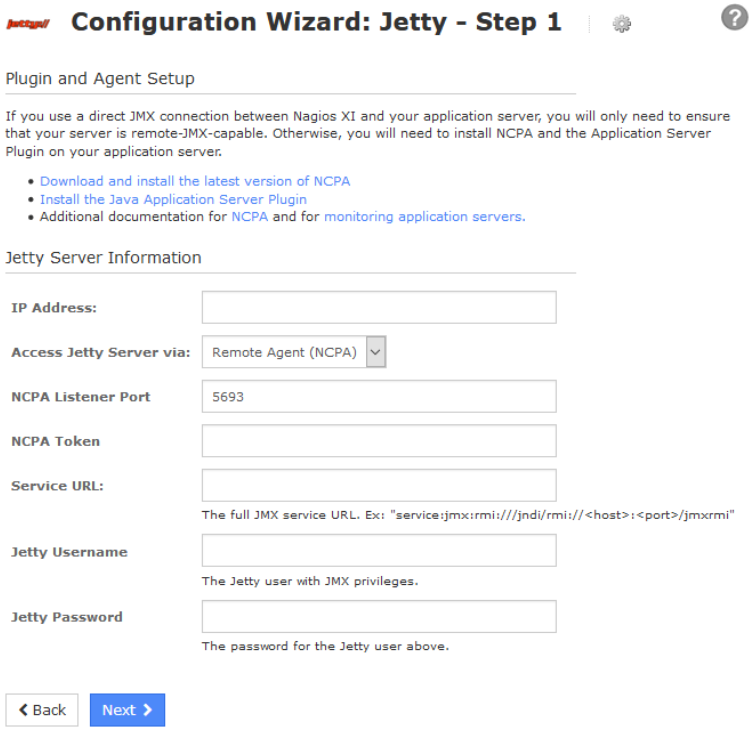
The Jetty config wizard uses JMX to retrieve JVM and system statistics and compare them to the thresholds you set in the wizard. Checks can either be combined into one service or separated.

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



Step 1 requires you to provide the details for the Nagios XI server to connect to Jetty via JMX.
In **Jetty Server Information**, specify the following:

- **IP Address** is the network address of the Jetty server
- **Access Jetty Server via** asks you how to access Jetty 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`
- **Jetty Username** and **Jetty Password** are the credentials required to access the JVM's internal statistics

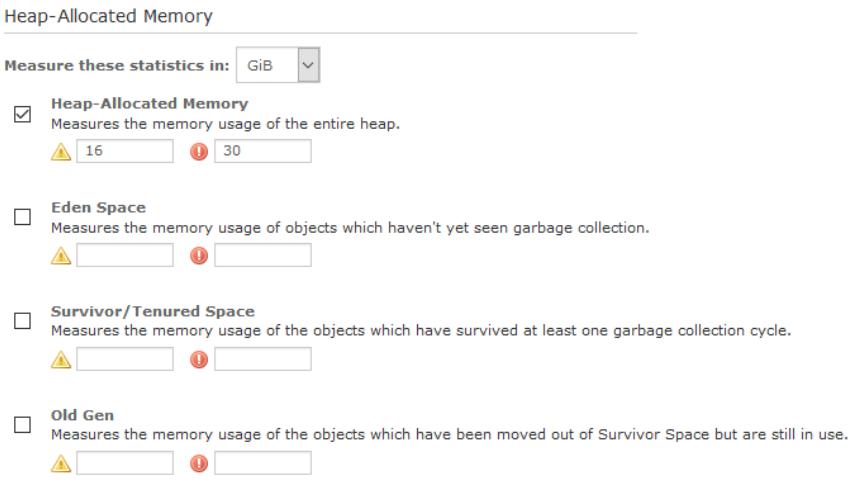
After making all your selections click **Next** to proceed to **Step 2**.

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.

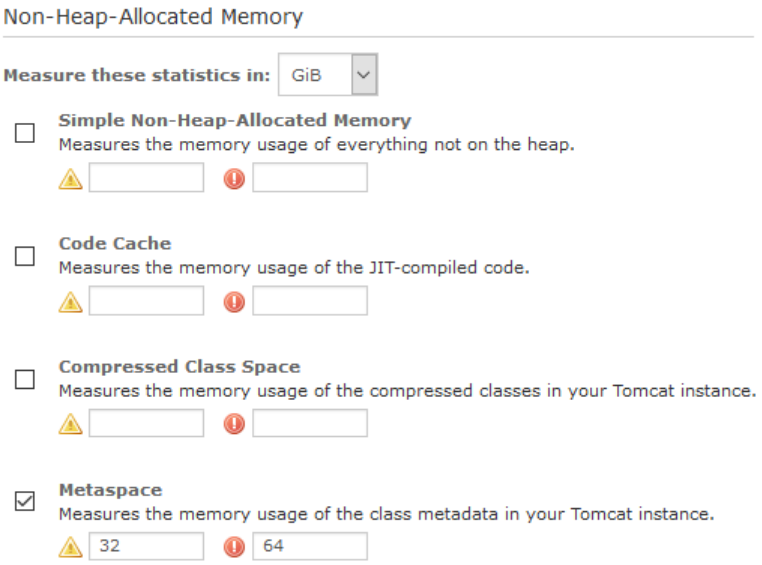
If you have selected **NCPA** then the **Classpath** field will not be displayed.

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

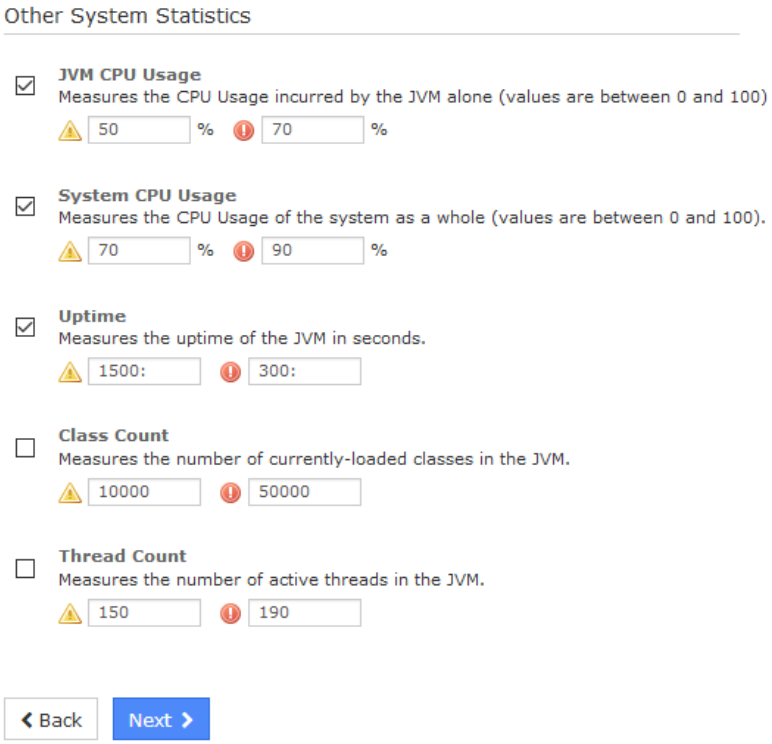


The **Heap-Allocated Memory** options are self explanatory, simply check and un-check the relevant boxes to determine which checks to run, and enter your desired warning and critical thresholds.

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.



The **Other System Statistics** 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.



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.

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.

Here is an example of all the checks combined into one service:

Host	Service	Status	Duration	Attempt	Last Check	Status Information
Jetty	Jetty JVM Statistics	Ok	17m 32s	1/5	2018-10-03 14:08:30	OK: 5 checks returned OK

Here is an example of multiple checks:

Host	Service	Status	Duration	Attempt	Last Check	Status Information
Jetty Server	Jetty Server MemoryMetaspace	Ok	7m 35s	1/5	2018-10-03 14:10:41	Metaspace (non-heap) returned OK with 15.2 MiB
	Jetty Server MemorySimpleHeap	Ok	6m 46s	1/5	2018-10-03 14:11:30	Heap-Allocated Memory returned OK with 21.28 MiB
	Jetty Server ProcessCPUUsage	Ok	6m 10s	1/5	2018-10-03 14:12:06	Process CPU usage returned OK with 0.13 %
	Jetty Server SystemCPUUsage	Ok	5m 20s	1/5	2018-10-03 14:12:56	System CPU usage returned OK with 0.2 %
	Jetty Server Uptime	Ok	N/A	1/5	2018-10-03 14:08:41	Uptime returned OK with 2.25 hours

Finishing Up

This completes the documentation on how to monitor Jetty in Nagios XI.

If you have additional questions or other concerns, please visit us at our support forums:

https://support.nagios.com/forum

The Nagios Support Knowledgebase is also a great support resource:

https://support.nagios.com/kb