How to Monitor Docker Containers in Nagios XI 2024

Purpose

This document describes how to use the Docker Configuration Wizard to monitor your containers' status and resource usage with Nagios XI 2024.

Overview

The Docker configuration wizard allows two methods for monitoring Docker. It is highly recommended to make use of Docker's Remote API, if this is not possible then a plugin can be executed on the Docker server using the Nagios Cross-Platform Agent (NCPA). Either method requires some prerequisite steps to be followed first which are outlined below.

Note: In order to check the health of a docker container there must be a health check configured. See How to Add a Health Check to Your Docker Container for more information

Using Docker Remote API

If possible, it is highly recommended to make use of Docker's built-in cURL API by binding the docker socket to a TCP port. At the time of this writing, this is most easily done by adding an additional host to the docker startup command. You can test the connection to the TCP port by executing the following command from your Nagios XI server inside a terminal session (replace ip and port with the relevant values for your docker server):

```
curl -f -g http://ip:port/containers/json?all=true
```

You can also test this by clicking the Populate Containers/Networks button on the first page of the Docker configuration wizard, after entering the relevant information. If the list successfully populates, or the command above returns a JSON object other than `{"message": "page not found"}`, please proceed to the Docker Configuration Wizard section of this document.

Using NCPA

If you're not able to bind the Docker daemon to a TCP port, you will need to install NCPA on your Docker machine. The NCPA download link is available from the Docker Configuration wizard or in the Installing NCPA documentation.

Once installed you will need to download the check_docker.py 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 Docker server execute the following commands:

```
cd /usr/local/ncpa/plugins/
wget http://xi_address/nagiosxi/includes/configwizards/docker/plugins/check_ docker.py
```

You will also need to add the nagios user to the docker group, this will enable the nagios user to read/write to the docker socket, which is necessary for the `check_docker.py` plugin to function. In the same terminal session execute the following command:

```
usermod -a -G docker nagios
```

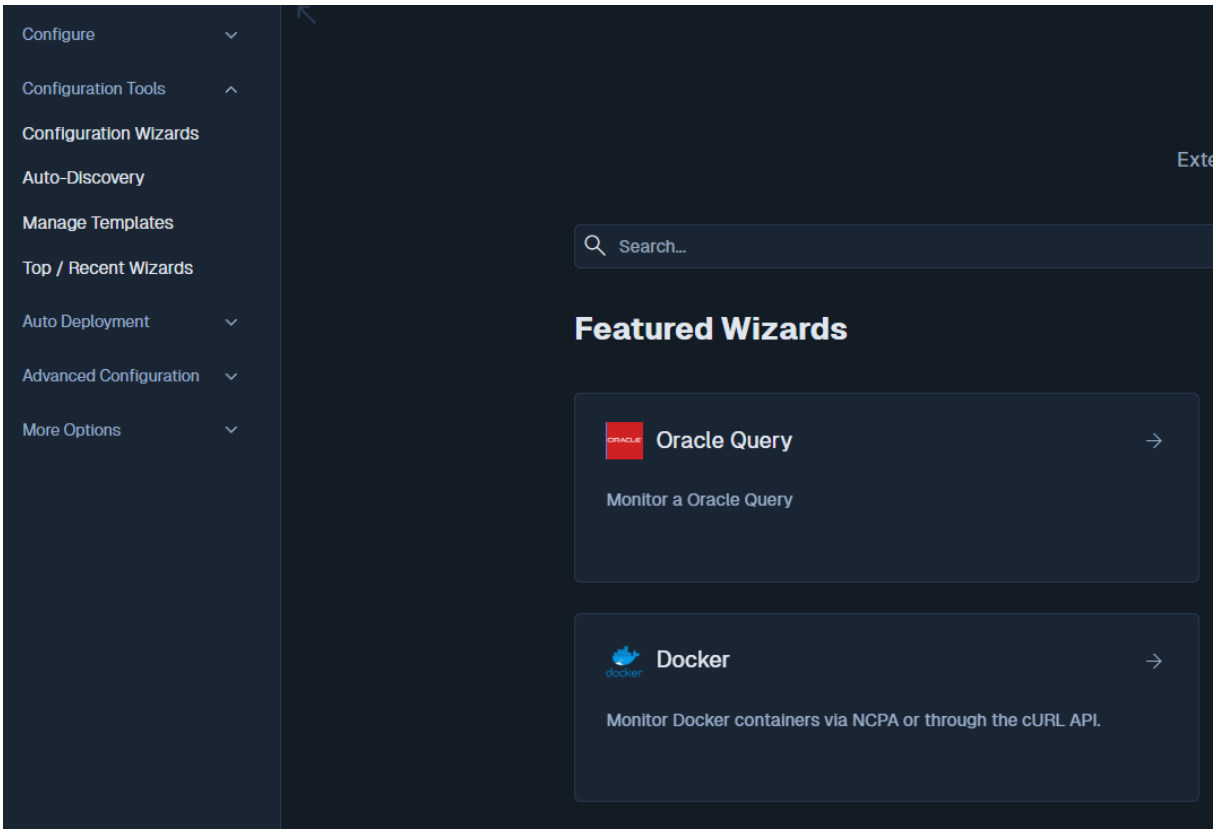
You will then need to restart the machine for the group changes to take effect.

Please proceed to the Docker Configuration Wizard section of this document

Docker Configuration Wizard

The Docker Configuration Wizard communicates with your Docker installation through the Docker UNIX socket. Each check will retrieve the relevant metrics from your Docker installation and compare them to thresholds you set in the wizard.

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



Step 1 is split up into two sections, Docker Server Information and Checks to Run. The **Docker Server Information** section has different options depending on how you are accessing Docker.

Remote Agent (NCPA)

- **IP Address** is the IP address of the machine which is running Docker
- **NCPA Listener Port** is the port that NCPA is configured to listen on
- **NCPA Token** is the Token that allows access to NCPA
- **Docker Socket** is the location of the Docker socket, normally `/var/run-/docker.sock`
- Docker API Base URL is the URL to access Docker, this will normally be closely related to your API version, i.e. `http:/v1.30/` for an installation running API version 1.30

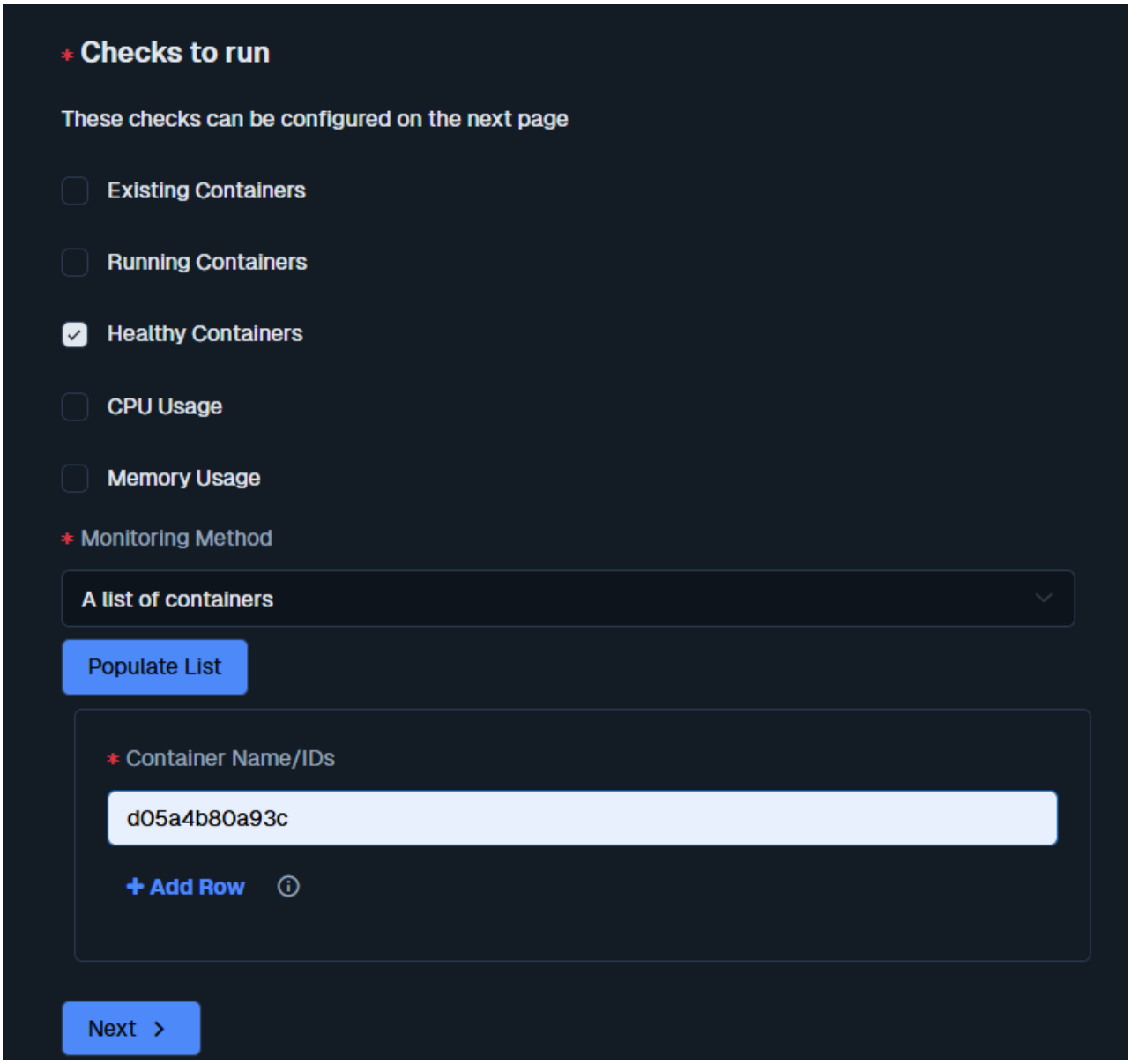
Remote API

- IP Address is the IP address of the machine which is running Docker
- Docker API Base URL is the URL to access your Docker API, i.e. `http://ip:port/`

Security

The security section will be shown when you have selected the Remote API access method, these are only required if you have configured Docker with TLS for additional security. The three options available need to be populated with the locations of the relevant files on your Nagios XI server.

Checks to Run



This section provides a list of monitoring options that you will need to select before proceeding to **Step 2**.

The options **A list of containers** and the containers **on a list of networks** both display the **Populate Container/Network List** button. Clicking the button will provide a list of containers that will be used in **Step 2** of the wizard.

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

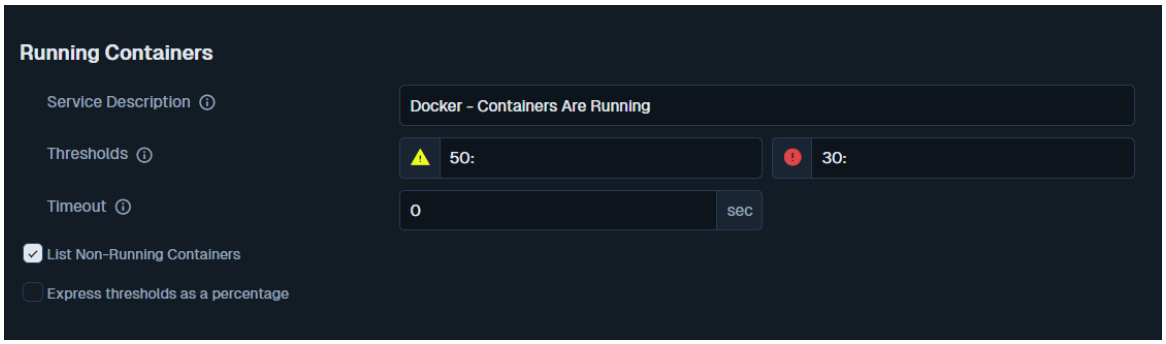
The choices presented to you in **Step 2** will depend on the checks you selected in **Step 1.**

In **Remote Host Details** you have the choice of defining the Host Name to meet your requirements. All the services created by this wizard will be assigned to this newly created host.

Existing Containers

Service Description is the name you will see associated with this check

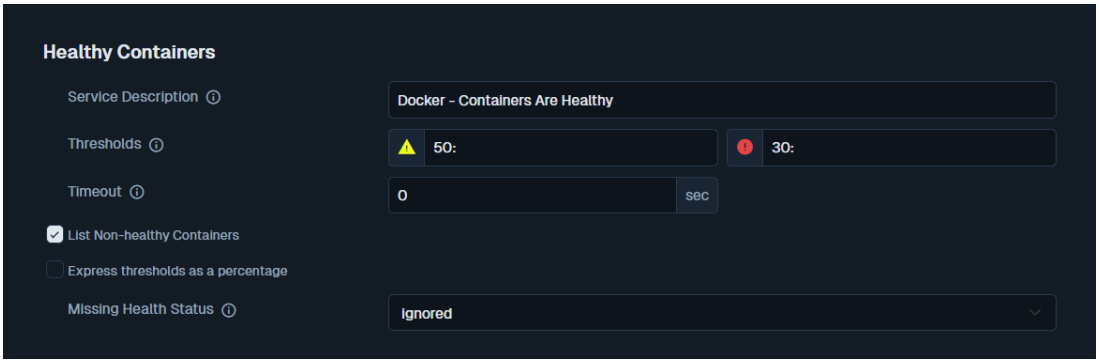
- Thresholds are normal nagios thresholds
- Timeout will tell the check how long it must complete before returning



Running Containers

- **Service Description** is the name you will see associated with this check
- **Thresholds** are normal Nagios thresholds
- **Timeout** will tell the check how long it must complete before returning
- **List Non-Running Containers** will tell the check to give you a list of containers that aren't running in the service output
- **Express thresholds as a percentage** will tell the check to treat your entered thresholds as a percentage, and to output the percent of containers that are running out of those selected, rather than a count.

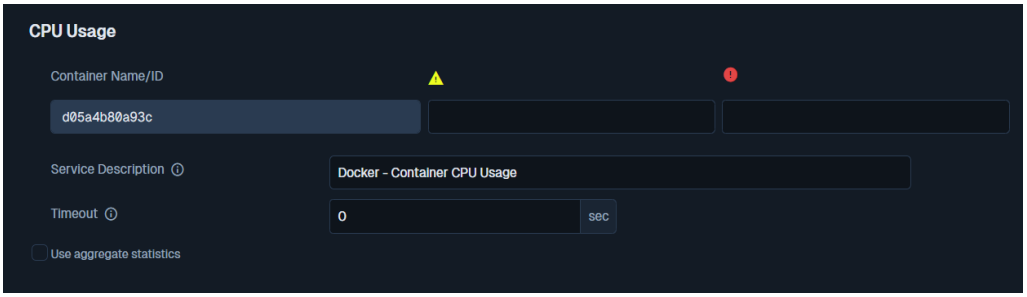
Healthy Containers



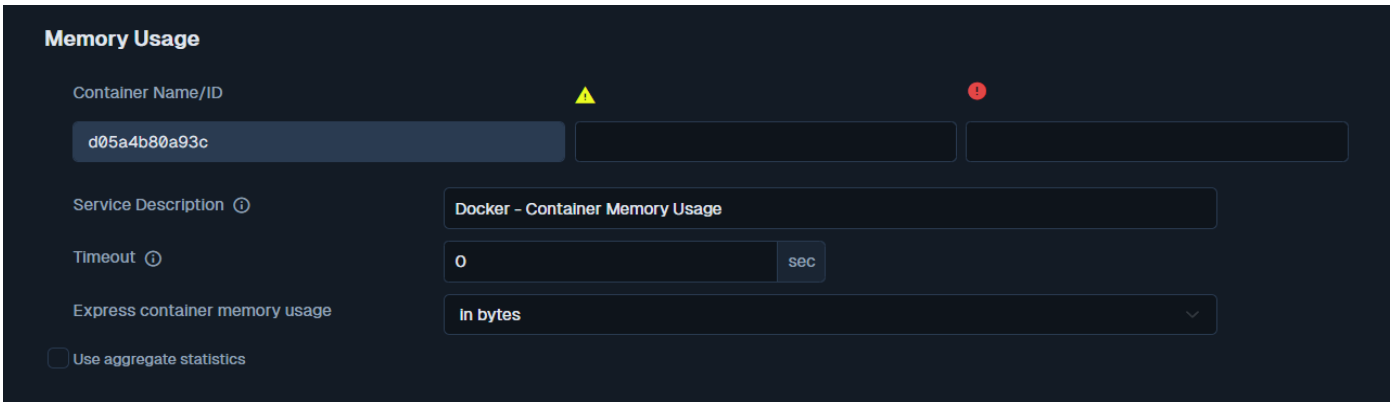
- **Service Description** is the name you will see associated with this check.
- **Thresholds** are normal Nagios thresholds
- **Timeout** will tell the check how long it must complete before returning
- **List Unhealthy Containers** will tell the check to give you a list of containers that aren't healthy in the service output.
- When a container has no health check... will tell the check how to treat containers that have no healthcheck specified. It will default to excluding them from the total count, but if you prefer, you can have these automatically counted as healthy or unhealthy.

CPU Usage

- There may be a table that shows up before the service description. If this is present, use these to specify individual (per-network or per-container) thresholds in the regular nagios format.
- A container's CPU Usage will always be collected as a percentage of its host system's CPU Usage.
- **Service Description** is the name you will see associated with this check.
- **Timeout** will tell the check how long it must complete before returning
- **List Containers that are outside of acceptable ranges** will tell the check to give you a list of containers that fail the check in the service output.
- **Using aggregate statistics** will allow you to set additional thresholds based on total and average CPU usage across all selected containers or networks. It will also allow you to discard the individual warning/critical thresholds if you choose.



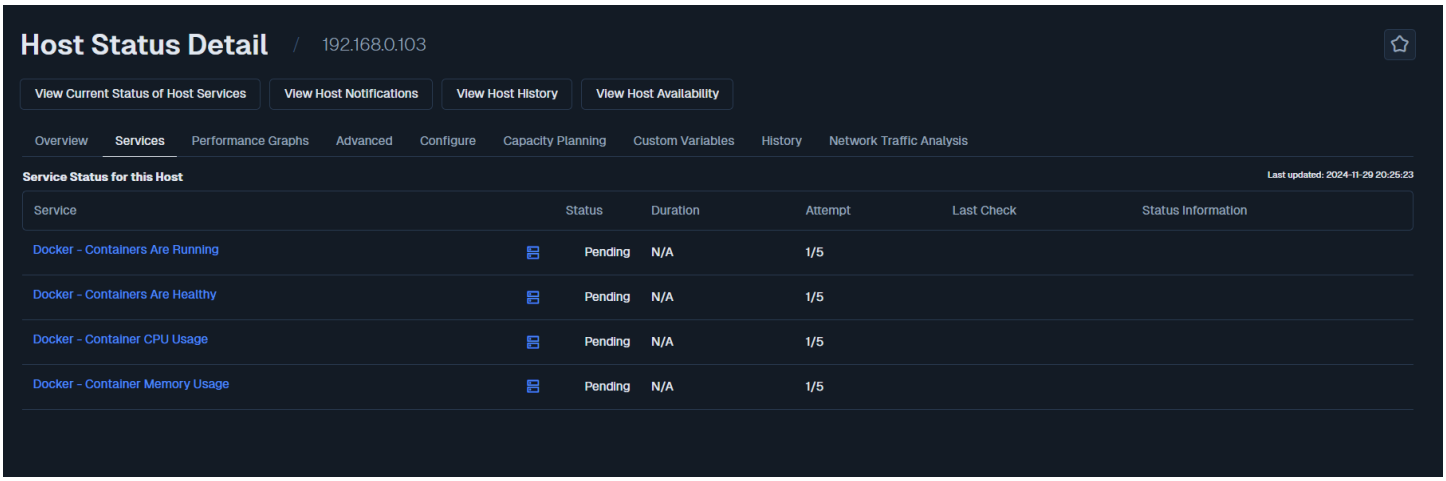
For Memory Usage



- There may be a table that shows up before the service description. If this is present, use these to specify individual (per-network or per-container) thresholds in the regular nagios format.
- A container's Memory Usage is equivalent to its resident set size.
- **Service Description** is the name you will see associated with this check.
- **Timeout** will tell the check how long it has to complete before returning
- **Express a container's memory usage** will let you determine whether the check should compare memory usage to a set quantity (in bytes), or to a percentage of its limit.
- **List Containers that are outside of acceptable ranges** will tell the check to give you a list of containers that fail the check in the service output.
- **Use aggregate statistics** will allow you to set additional thresholds based on total and average memory usage across all selected containers or networks. It will also allow you to discard the individual warning/critical thresholds if you choose.

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 services that have been created.



More Information:

Using Configuration Wizards

Finishing Up

This completes the documentation on monitoring Docker containers in 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 Visit Nagios Knowledge Base Visit Nagios Library