How To Set Up Kubernetes for Monitoring via NCPA with Nagios XI

Purpose

This document outlines how to configure the NCPA agent on Kubernetes nodes to enable metric collection with Nagios XI.

Important Note: the Kubernetes wizard is one of Nagios XI's Premium features, so requires active support and maintenance benefits to function. For questions about renewing your benefits if they have lapsed, please email sales@nagios.com so we can assist you further.

Requirements

NCPA has been installed at a minimum on the Kubernetes control-plane, or preferably on all nodes in the cluster. Instructions for installing NCPA can be found in the Installing NCPA and Automatic Agent Deployment documentation.

Configure NCPA Access to Kubernetes

Since NCPA is installed on the K8/3s control-plane/master node, along with the Kubernetes plugin, there are four methods to give NCPA, the `nagios` user and the `check_kubernetes.sh` plugin access to the Kubernetes/K3 control-plane/master node's API or kubectl tool. Please choose the method appropriate for the security concerns of your organization.

Method 1: Set Up a Service Account and Token

1. Copy the file `serviceaccount-nagios.yaml` from the XI server to the Kubernetes control plane/master node (note that this is a single long command)

```
scp /usr/local/nagiosxi/includes/configwizards/kubernetes-ncpa/serviceaccount-
nagios.yaml <admin account>@<control plane/master node>:/tmp
```

2. Create the service account by running this command.

```
kubectl apply -f /tmp/serviceaccount-nagios.yaml
```

3. Store the token, for use by the plugin, using this command (note that this is a single long command) :

```
kubectl -n monitoring get secret monitoring -o "jsonpath={.data.token}" | openssl enc -
d -base64 -A > /usr/local/ncpa/etc/<kube-server-identifier>.yaml
```

4. List the service accounts.

```
kubectl get serviceaccount --all-namespaces
```

Or, to get just the “monitoring” service accounts:

```
kubectl get serviceaccounts --namespace=monitoring
```

Method 2a: sudo and kubectl

For this method you will need to modify the NCPA configuration file and the sudoers file.

1. Edit the `ncpa.cfg` file with vi or your preferred editor. The default location for the `ncpa.cfg` file is `/usr/local/ncpa/etc/ncpa.cfg.`

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

2. In the `ncpa.cf`g file, find the line that starts with `run_with_sudo`.

Turn on sudo for the `check_kubernetes.sh` plugin, by adding the name of the plugin to the `run_with_sudo` configuration key:

```
run_with_sudo = check_kubernetes.sh
```

3. Edit the sudoers file using visudo, or the appropriate tool for your operating system.

```
visudo
```

Add the following to the end of the sudoers file. This allows NCPA to run the Kubernetes plugin with sudo and without a password prompt.

```
nagios ALL = NOPASSWD:/bin/sh /usr/local/ncpa/plugins/*
```

Note: NCPA has rules to determine which syntax to use when it executes plugin files. NCPA looks at the extension of the plugin and applies the appropriate rule. For example, files with the “.sh” extension, will be executed with the following syntax.

```
/bin/sh <plugin dir>/<plugin name>.sh
```

This rule is why the sudoers entry specifies `/bin/sh`. If the plugin is a different type, the sudoers entry will need to be added/changed as appropriate.

4. Install kubectl, if it has not already been installed.

Method 2b: kubectl with read access

1. Either give read access to a group that includes the `nagios` user or set permissions like `644` on the Kubernetes/k3s config file.

- **Kubernetes example**

```
chmod 644 ~/.kube/config
```

- **K3s example**

```
echo 'write-kubeconfig-mode: "0644"' >> /etc/rancher/k3s/config.yaml

systemctl restart k3s.service
```

Method 3: kubectl with a copy of the Kubernetes configuration file

1. On the K8s control-plane/master node, copy the configuration file to a location available to the nagios user. Here are example commands:

- **Kubernetes**

```
cp ~/.kube/config /usr/local/ncpa/etc/<filename>.yaml
chown nagios:nagios /usr/local/ncpa/etc/<filename>.yaml
chmod u+r /usr/local/ncpa/etc/<filename>.yaml
```

- **K3s**

```
cp /etc/rancher/k3s/k3s.yaml /usr/local/ncpa/etc/<filename>.yaml
chown nagios:nagios /usr/local/ncpa/etc/<filename>.yaml
chmod u+r /usr/local/ncpa/etc/<filename>.yaml
```

Set Up the Plugin

As a final step, you'll need to copy over and set up the Kubernetes check plugin.

1. Copy the `check_kubernetes.sh` plugin from your Nagiox XI server to the ncpa plugins directory on your Kubernetes server. By default it is located in the following directory on your Nagios XI server:

```
/usr/local/nagiosxi/html/includes/configwizards/kubernetes-ncpa/plugins/ncpa-plugins/check_kubernetes.sh
```

Here is an example command which would be run from your Nagios XI server to shuffle the file over via scp. Replace `<usr>` and `<k8s-control-node>` with the details of your Kubernetes server, and note that this is a single long command:

```
scp /usr/local/nagiosxi/html/includes/configwizards/kubernetes-ncpa/plugins/ncpa-plugins/check_kubernetes.sh <user>@<K8s-control-node>:/usr/local/ncpa/plugins
```

2. On the control-plane/master node, change the ownership of the plugin.

```
chown nagios:nagios /usr/local/ncpa/plugins/check_kubernetes.sh
```

Install Kubectl

The kubectl command may already be installed on the Kubernetes Control Plane/Master Node. If not, it can be installed using one of the following commands, depending on the OS of the machine.

Fedora | Red Hat | Derivative Systems

```
sudo yum install kubectl
```

Debian | Ubuntu | Derivative Systems

```
sudo apt install kubectl
```

Snap Method

```
sudo snap install kubectl
```

Using the Kubernetes with NCPA Wizard

Now that you've completed Kubernetes setup, you can proceed to the documentation on using the Wizard to configure monitoring:

Monitoring Kubernetes Clusters with Nagios XI and NCPA

Finishing Up

This completes the documentation on Setting Up Kubernetes for Monitoring with NCPA. 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