

Install KumoScale Operators with a Kubernetes Cluster

This page explains how to install KumoScale operators for use with your cluster and consists of a single step detailed on this page. It also includes information on how to use operators for provisioning.

The KumoScale Control Plane consists of two operators:

- **ks-install-operator** handles the lifecycle of the KumoScale Provisioner and CSI services.
- **ks-config-operator** enables the configuration of the KumoScale license, storage nodes, Syslog, and telemetry.

This section explains how to install KumoScale operators for use with your cluster and consists of a single step detailed in the next section.

Install the KumoScale Operator software

•Install KumoScale Operators with your Kubernetes Cluster

Step 1 Install the KumoScale Operators software.

The KumoScale Operator Software is delivered as a binary container for Kubernetes and enables you to configure and manage provisioning using KumoScale operators with Custom Resource files. These instructions assume you have completed the preparatory steps for setting up the containers defined in [Download KumoScale Software and Prepare for Installation](#).

To complete the installation:

1. Create a kumo-services namespace with

```
kubectl create ns kumo-services
```

2. Run the certificate manager

```
kubectl apply -f https://github.com/jetstack/cert-manager/releases/download/v1.6.0/cert-manager.yaml
```

Verify changes have been applied correctly with:

```
# kubectl get pods -n cert-manager
```

You should receive a response like:

| NAME | READY | STATUS | RESTARTS | AGE |
|---|-------|---------|-------------|-----|
| cert-manager-74d949c895-28j7s | 1/1 | Running | 4 (26d ago) | 27d |
| cert-manager-cainjector-d9bc5979d-t28pb | 1/1 | Running | 4 (26d ago) | 27d |
| cert-manager-webhook-84b7ddd796-7ftln | 1/1 | Running | 2 (26d ago) | 27d |

3. Edit the KumoScale file **operators-managed-<version>.yaml**, found in the KumoScale_Operator directory. You will need to specify details for both the ks-config-operator and ks-install-operator containers:
 - a. Replace the **REPO** string for the image tag of BOTH **ks-config-operator** and **ks-install-operator** to point to the above repository, and load into the repository according to the tool you are using. For example, replacing REPO with <mylocalregistry> in the specification for ks-install-operator:

```
<...>
spec:
  serviceAccountName: ks-install-operator
  containers:
    - name: ks-install-operator
      # Replace this with the built image name
      image: <mylocalregistry>/ks-install-operator:v3.22-<version>
<...>
```

- b. If your private registry needs authentication, you must create a Kubernetes secret in the **kumo-services** namespace to store the credentials. See <https://kubernetes.io/docs/tasks/configure-pod-container/pull-image-private-registry/> for details on how to create such a secret if you do not already have one. For example, to create a secret called regcred, enter:

```
kubectl -n kumo-services create secret docker-registry regcred --docker-server=<registry-server> --docker-username
```

See <https://kubernetes.io/docs/tasks/configure-pod-container/pull-image-private-registry/> for details on how to inspect the secret.

- c. Change the value of the **imagePullSecrets** tag for BOTH **ks-config-operator** and **ks-install-operator** to use the Kubernetes secret of step b. Confirm that **imagePullSecrets** is at the same level as container. For example, if the name of the Kubernetes secret is **regcred**, for the specification of ks-config-operator:

```
<...>
spec:
  containers:
    - command:
      - ks-config-operator
      env:
      - name: KUBE_NODE_NAME
        valueFrom:
          fieldRef:
            fieldPath: spec.nodeName
        image: <mylocalregistry>/ks-config-operator:v3.22-<version>
        imagePullPolicy: Always
    <...>
  imagePullSecrets:
    - name: regcred
  <...>
```

d. Save your edits and verify that the yaml file is set up correctly:

```
kubect1 apply -f operators-managed-v3.22-<version>.yaml --dry-run=client
```

Resolve any errors in the file before proceeding to the next step.

4. Apply the changes to install the operators in operators-managed-<version>.yaml. For example:

```
kubect1 apply -f operators-managed-3.22-<version>.yaml
```

5. Verify the installation was completed successfully:

```
kubect1 get pods -A | grep operator
```

You should receive a response similar to the one below:

```
kumo-services ks-install-operator -3576911-abcde 1/1 Running 0 18
kumo-services ks-config-operator-controller-manager-1234567-abcde 1/1 Running 0 18
```

Using KumoScale Operators

KumoScale operators are used with **kubectl** to create, modify, and configure custom resource files for provisioning and storage management. The next sections provide high level instructions for configuring the Provisioner and storage nodes using operators. For complete information, see the [KumoScale User Guide](#).

Next installation step: [Install the KumoScale Provisioner](#)

-