



Red Hat AMQ 2021.Q2

Creating AMQ Interconnect sites using the operator

For Use with AMQ Interconnect 2.0 TECHNOLOGY PREVIEW

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Abstract

This guide describes how to use the Skupper operator.

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PREFACE

Making open source more inclusive

Red Hat is committed to replacing problematic language in our code, documentation, and web properties. We are beginning with these four terms: master, slave, blacklist, and whitelist. Because of the enormity of this endeavor, these changes will be implemented gradually over several upcoming releases. For more details, see [our CTO Chris Wright's message](#).



IMPORTANT

AMQ Interconnect 2.0 Technology Preview features are not supported with Red Hat production service level agreements (SLAs) and might not be functionally complete. Red Hat does not recommend using them in production.

These features provide early access to upcoming product features, enabling customers to test functionality and provide feedback during the development process. For more information about the support scope of Red Hat Technology Preview features, see <https://access.redhat.com/support/offerings/techpreview>.

CHAPTER 1. USING THE SKUPPER OPERATOR ON OPENSIFT

The Skupper Operator creates and manages AMQ Interconnect sites in OpenShift.

There are two options when deploying the Skupper Operator:

All namespaces

All Skupper sites created in the cluster share a common **site controller** pod for co-ordination.

A specific namespace

A site controller pod is created in each namespace that you apply the **site** ConfigMap. This is equivalent to the **skupper init** as described in [Configuring AMQ Interconnect sites using the CLI](#).

You can deploy the Skupper Operator using any of the following methods:

- [Section 1.1, “Installing the Operator using the CLI”](#).
- [Section 1.2, “Installing the Skupper Operator using the OpenShift console”](#).



NOTE

Installing an Operator requires administrator-level privileges for your OpenShift cluster.

After installing the Operator, you can create a site by deploying a ConfigMap as described in [Section 1.3, “Creating a site using the Skupper Operator”](#)



NOTE

Because OpenShift Container Platform is a certified Kubernetes distribution, you can use the supported **kubectrl** binaries that ship with OpenShift as described in this documentation, or you can use the **oc** binary.

See the [OpenShift documentation](#) for more information about **oc** and **kubectrl**.

1.1. INSTALLING THE OPERATOR USING THE CLI

The steps in this section show how to use the **kubectrl** command-line interface (CLI) to install and deploy the latest version of the Skupper Operator in a given OpenShift cluster.

Procedure

1. Log in to OpenShift as a cluster administrator. For example:

```
$ kubectrl login -u system:admin
```

2. Complete the steps described in [Red Hat Container Registry Authentication](#).
3. To create a operator subscription for all namespaces:
 - a. Create a file named **subscription.yaml** with the following:

```
apiVersion: operators.coreos.com/v1alpha1
kind: Subscription
metadata:
```



```

name: skupper-operator
namespace: openshift-operators
spec:
  channel: alpha
  installPlanApproval: Automatic
  name: skupper-operator
  source: redhat-operators
  sourceNamespace: openshift-marketplace
  startingCSV: skupper-operator.v0.6.0

```

- b. Apply the subscription YAML:

```
$ kubectl apply -f subscription.yaml
```

4. To create a operator subscription for a specific namespace, you must create an Operator group in that namespace and then create the subscription:

- a. Create a file named **operator-group.yaml** with the following:

```

kind: OperatorGroup
apiVersion: operators.coreos.com/v1
metadata:
  name: skupper-operator
  namespace: my-namespace
spec:
  targetNamespaces:
    - my-namespace

```

where **my-namespace** is the name of the namespace you want to create the site.

- b. Apply the Operator group YAML:

```
$ kubectl apply -f operator-group.yaml
```

- c. Create a file named **subscription.yaml** with the following:

```

apiVersion: operators.coreos.com/v1alpha1
kind: Subscription
metadata:
  name: skupper-operator
  namespace: my-namespace
spec:
  channel: alpha
  installPlanApproval: Automatic
  name: skupper-operator
  source: redhat-operators
  sourceNamespace: openshift-marketplace
  startingCSV: skupper-operator.v0.6.0

```

where **my-namespace** is the name of the namespace you want to create the site.

- d. Apply the subscription YAML:

```
$ kubectl apply -f subscription.yaml
```

Next steps

- [Section 1.3, "Creating a site using the Skupper Operator"](#)

1.2. INSTALLING THE SKUPPER OPERATOR USING THE OPENSIFT CONSOLE

The procedures in this section show how to use the OperatorHub to install and deploy the latest version of the Skupper Operator in a given OpenShift namespace.

In OpenShift 4.1 and later, the *Operator Lifecycle Manager* (OLM) helps users install, update, and generally manage the lifecycle of all Operators and their associated services running across their clusters. It is part of the Operator Framework, an open source toolkit designed to manage Kubernetes native applications (Operators) in an effective, automated, and scalable way.

Prerequisites

- Access to an OpenShift 4.1 cluster using a **cluster-admin** account.

Procedure

1. In the OpenShift web console, navigate to **Operators** → **OperatorHub**.
2. Choose **Skupper Operator** from the list of available Operators, and then click **Install**.
3. On the **Operator Installation** page, two **Installation mode** options are available:
 - **All namespaces on the cluster**
 - **A specific namespace on the cluster**
For this example, choose **A specific namespace on the cluster**
4. Select the namespace into which you want to install the Operator, and then click **Install**. The **Installed Operators** page appears displaying the status of the Operator installation.
5. Verify that the AMQ Interconnect Operator is displayed and wait until the **Status** changes to **Succeeded**.
6. If the installation is not successful, troubleshoot the error:
 - a. Click **Skupper Operator** on the **Installed Operators** page.
 - b. Select the **Subscription** tab and view any failures or errors.

For more information about installing Operators, see the [OpenShift Documentation](#)

Next steps

- [Section 1.3, "Creating a site using the Skupper Operator"](#)

1.3. CREATING A SITE USING THE SKUPPER OPERATOR

1. Create a YAML file defining the ConfigMap of the site you want to create.
For example, create **skupper-site.yaml**:

```

apiVersion: v1
kind: ConfigMap
metadata:
  name: skupper-site
  namespace: my-namespace

```

You can later retrieve the console credentials as described in [Monitoring AMQ Interconnect sites using the console](#) or specify them now by adding the username and optionally the password to **skupper-site.yaml** as follows:

```

data:
  console-user: "admin"
  console-password: "changeme"

```

2. Apply the YAML to create a ConfigMap named **skupper-site** in the namespace you want to use:

```
$ kubectl apply -f skupper-site.yaml
```

3. Verify that the site is created by checking that the Skupper router and service controller pods are running:

```
$ kubectl get pods
```

NAME	READY	STATUS	RESTARTS	AGE
skupper-router-8c6cc6d76-27562	1/1	Running	0	40s
skupper-service-controller-57cdbb56c5-vc7s2	1/1	Running	0	34s



NOTE

If you deployed the Operator to a single namespace, an additional site controller pod is also running.

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