

Cloudera Flow Management Operator 2.8.0

## CFM Operator Installation

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The Cloudera logo is displayed in a bold, orange, sans-serif font. The word "CLOUDERA" is written in all caps, with a stylized 'E' that has a horizontal bar extending to the right.

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## Installation overview

Learn about installing the Cloudera Flow Management (CFM) Operator, the installation artifacts, and where these artifacts are hosted.

Installing the CFM Operator installs NiFi and optionally the NiFi Registry. It also installs the custom resources (CRs) required for deploying NiFi clusters with the CFM Operator after installation.

### Installation artifacts and artifact locations

CFM Operator comes with various installation artifacts. These artifacts are hosted at two locations, the Cloudera Docker registry and the Cloudera Archive.

Both the Cloudera Docker registry and the Cloudera Archive require Cloudera credentials (username and password) for access. These credentials are provided to you as part of your license and subscription agreement and can be used to access both the registry and the archive.

Artifact	Location
CFM Operator Docker image	container.repository.cloudera.com/cloudera/cfm-operator:2.8.0-b94
CFM Tini Docker image	container.repository.cloudera.com/cloudera/cfm-tini:2.8.0-b94
NiFi Docker images	container.repository.cloudera.com/cloudera/cfm-nifi-k8s:2.8.0-b94-nifi_1.25.0.2.3.13.0-36
	container.repository.cloudera.com/cloudera/cfm-nifi-k8s:2.8.0-b94-nifi_2.0.0.4.3.0.0-52
NiFi Registry Docker images	container.repository.cloudera.com/cloudera/cfm-nifiregistry-k8s:2.8.0-b94-nifi_1.25.0.2.3.13.0-36
	container.repository.cloudera.com/cloudera/cfm-nifiregistry-k8s:2.8.0-b94-nifi_2.0.0.4.3.0.0-52
cfmctl binaries	<ul style="list-style-type: none"> <li><a href="https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-amd64">https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-amd64</a></li> <li><a href="https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-arm64">https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-arm64</a></li> <li><a href="https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-amd64">https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-amd64</a></li> <li><a href="https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-arm64">https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-arm64</a></li> <li><a href="https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-amd64">https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-amd64</a></li> <li><a href="https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-arm64">https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-arm64</a></li> </ul>
CFM Operator Helm chart	<a href="https://archive.cloudera.com/p/cfm-operator/cfm-operator-1.0.0.2.8.0-b94-source.tar.gz">https://archive.cloudera.com/p/cfm-operator/cfm-operator-1.0.0.2.8.0-b94-source.tar.gz</a>

## Installing CFM Operator (internet)

You can install CFM Operator after meeting all prerequisites and installing dependencies, either using the cfmctl CLI tool or Helm.

### Before you begin

- You have a Kubernetes cluster up and running.
- You have obtained a license from Cloudera.
- You have valid credentials to access the required artifact repositories.

## Procedure

### 1. Install cert-manager.

#### For OpenShift

Follow the instructions for installing the [cert-manager Operator for RedHat OpenShift](#).

#### For Helm

```
helm install cert-manager jetstack/cert-manager \
--version [***CERT MANAGER VERSION***]\
--namespace cert-manager \
--create-namespace \
--set installCRDs=true
```

Replace **\*\*\*CERT MANAGER VERSION\*\*\*** with the certificate manager version you want to install.



#### Note:

For CFM Operator, there is no specific version requirement.

### 2. Create a namespace for the operator.

```
kubectl create namespace [***CFM OPERATOR NAME***]
```

Replace **\*\*\*CFM OPERATOR NAME\*\*\*** with the desired namespace.

For example:

```
$ kubectl create namespace cfm-operator-system
```

### 3. Create an image pull secret.

```
kubectl create secret docker-registry docker-pull-secret \
--namespace [***CFM OPERATOR NAMESPACE***] \
--docker-server container.repository.cloudera.com \
--docker-username [***USERNAME***] \
--docker-password [***PASSWORD***]
```

Replace:

- **\*\*\*USERNAME\*\*\*** and **\*\*\*PASSWORD\*\*\*** with your Cloudera credentials.
- **\*\*\*CFM OPERATOR NAMESPACE\*\*\*** with the desired operator installation namespace, typically cfm-operator-system.

For example:

```
kubectl create secret docker-registry docker-pull-secret \
--namespace cfm-operator-system \
--docker-server container.repository.cloudera.com \
--docker-username my-username \
--docker-password my-password
```

#### 4. Install the cfctl CLI tool.

a) Download the CLI tool. Select the version appropriate for your environment..

- <https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-amd64>
- <https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-arm64>
- <https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-amd64>
- <https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-arm64>
- <https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-amd64>
- <https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-arm64>

b) Copy and run it in the CFM installation directory.

c) Make the tool executable.

```
chmod +x [***CFMCTL FILE***]
```

Replace [\*\*\*CFMCTL FILE\*\*\*] with the name of the executable file that you have downloaded.

The cfctl tool allows you to:

- Manage your environment
- Check the current state and existence of prerequisites in an environment
- Install and uninstall the operator
- Quickstart install NiFi clusters
- Perform common configuration tasks using flags, with the ability to provide a helmvalues.yaml file
- Install using default image location without the need to provide it manually

#### 5. Install CFM Operator.

##### For cfctl

Install CFM Operator using the `cfctl install` command:

```
./cfctl install --license [***LICENSE***] \
--image-repository "[***IMAGE REPOSITORY***]" \
--image-tag "[***OPERATOR VERSION***]" \
-values [***VALUES.YAML***] \
--namespace [***CFM OPERATOR NAMESPACE***]
```

Replace

- [\*\*\*LICENSE\*\*\*] with the license file. This flag is mandatory.
- [\*\*\*IMAGE REPOSITORY\*\*\*] Defaults to “container.repository.cloudera.com/cloudera/cfm-operator” unless a Helm values.yaml is provided. This flag is optional.
- [\*\*\*OPERATOR TAG\*\*\*] Defaults to “latest” unless a Helm values.yaml is provided. This flag is optional.
- [\*\*\*VALUES.YAML\*\*\*] with a Helm values.yaml file to supply any variables to the underlying helm chart that is not available through cfctl command flags. This flag is optional.
- [\*\*\*CFM OPERATOR NAMESPACE\*\*\*] with the desired operator installation namespace. Defaults to “cfm-operator-system”.

This command installs the CustomResourceDefinitions and Helm chart for the operator, and starts the operator.

```
$ ./cfctl install --license ./license.txt --image-repository "container
.repository.cloudera.com/cloudera/cfm-operator" --image-tag "2.8.0-b94"
2024-06-11T21:22:19.678+0200 INFO cli.install cmd/install.go:90 install
ing chart {"namespace": "cfm-operator-system"}
2024-06-11T21:22:23.820+0200 INFO cli.install.helmclient cmd/install.
go:162 creating 1 resource(s)
```

```

2024-06-11T21:22:24.601+0200 INFO cli.install.helmclient cmd/install.g
o:162 creating 18 resource(s)
2024-06-11T21:22:26.063+0200 INFO cli.install.helmclient cmd/install.g
o:162 beginning wait for 18 resources with timeout of 10m0s
2024-06-11T21:22:26.697+0200 INFO cli.install.helmclient cmd/install.go:
162 Deployment is not ready: cfm-operator-system/cfm-operator. 0 out of
1 expected pods are ready
...
2024-06-11T21:24:28.414+0200 INFO cli.install.helmclient cmd/install.go:
162 release installed successfully: cfm-operator/cfm-operator-0.0.0-dev

```

### For Helm

- a. Create your license secret.

```
kubectl create secret generic cfm-operator-license --from-file=licen
se.txt=[***PATH/TO/LICENSE.TXT***]
```

Replace `[***PATH/TO/LICENSE.TXT***]` with the relative path to the license file

- b. Run Helm install.

```
helm install cfm-operator ./charts/cfm-operator \
  --create-namespace \
  --namespace [***CFM OPERATOR NAMESPACE***] \
  --set installCRDs=true \
  --set image.repository=[***IMAGE REPOSITORY***] \
  --set image.tag=[***CFM OPERATOR VERSION***] \
  --set licenseSecret=cfm-operator-license
```

Replace

- `[***CFM OPERATOR NAMESPACE***]` with the desired operator installation namespace, for example "cfm-operator-system".
- `[***IMAGE REPOSITORY***]` with your target repository.
- `[***CFM OPERATOR VERSION***]` with your desired operator version.

6. Validate your installation.

- a) Check if CustomResourceDefinitions for NiFi were installed or updated:

```
kubectl get crds | grep nifi
```

```
nifiregistries.cfm.cloudera.com 2024-01-25T21:31:28Z
nifis.cfm.cloudera.com 2024-01-25T21:31:29Z
```

- b) Check if a CFM Operator pod is up and running:

```
kubectl get pods -n cfm-operator-system
```

NAME	READY	STATUS	RESTARTS	AGE
cfm-operator-545bfb96b-sx4jt	2/2	Running	0	18m

### What to do next

With the operator installed and running, you can create and manage instances of NiFi and NiFi Registry by manipulating the Kubernetes object definitions.

## Installing CFM Operator (airgap)

You can install CFM Operator after meeting all prerequisites and installing dependencies, either using the `cfmctl` CLI tool or Helm.

### About this task

Complete these steps to install CFM Operator if your Kubernetes cluster does not have internet access, or if you want to install it from a self-hosted registry. Installing CFM Operator installs the applications and resources that enable you to deploy and manage NiFi in Kubernetes.

### Before you begin

- You have a Kubernetes cluster up and running.
- You have obtained a license from Cloudera.
- You have valid credentials to access the required artifact repositories.

### Procedure

1. Create a secret to access installation images.

```
kubectl create secret docker-registry docker-pull-secret \
  --namespace [***NAMESPACE***] \
  --docker-server container.repository.cloudera.com \
  --docker-username [***USERNAME***] \
  --docker-password [***PASSWORD***]
```

2. Move the installation artifacts to a local registry using the `docker pull`, `docker tag`, and `docker push` commands.

```
docker pull container.repository.cloudera.com/cloudera/cfm-operator:[***OPERATOR VERSION***] \
docker tag container.repository.cloudera.com/cloudera/cfm-operator:[***OPERATOR VERSION***] [***PRIVATE REGISTRY[:PORT]/PATH/TAG:OPERATOR VERSION***] \
docker push us-centrall-docker.pkg.dev/nifi-testing/cfm-k8s/cfm-operator:[***OPERATOR VERSION***]
```

For example:

```
docker pull container.repository.cloudera.com/cloudera/cfm-operator:2.8.0-b94 \
docker tag container.repository.cloudera.com/cloudera/cfm-operator:2.8.0-b94 us-centrall-docker.pkg.dev/nifi-testing/cfm-k8s/cfm-operator:2.8.0-b94 \
docker push us-centrall-docker.pkg.dev/nifi-testing/cfm-k8s/cfm-operator:2.8.0-b94
```



#### Note:

If Kubernetes is running on a different architecture than your local machine, you may need to specify a `--platform` option for your `docker pull`.

For more information on pulling, pushing, and tagging Docker images, see the Docker documentation.



### 3. Create a namespace for the operator.

```
kubectl create namespace [***CFM OPERATOR NAMESPACE***]
```

Replace `[***CFM OPERATOR NAMESPACE***]` with the desired namespace.

For example:

```
kubectl create namespace cfm-operator-system
```

### 4. Install cert-manager.

#### For OpenShift

Follow the instructions for installing the [cert-manager Operator for RedHat OpenShift](#).

#### For Helm

```
helm install cert-manager jetstack/cert-manager \
--version [***CERT MANAGER VERSION***]\
--namespace cert-manager \
--create-namespace \
--set installCRDs=true
```

Replace `***CERT MANAGER VERSION***` with the certificate manager version you want to install.



#### Note:

For CFM Operator there is no specific version requirement.

### 5. Create image pull secret.

```
kubectl create secret docker-registry docker-pull-secret \
--namespace [***CFM OPERATOR NAMESPACE***] \
--docker-server [***CONTAINER REGISTRY***] \
--docker-username [***USERNAME***] \
--docker-password [***PASSWORD***]
```

Replace:

- `[***USERNAME***]` and `[***PASSWORD***]` with your internal registry credentials.
- `[***CFM OPERATOR NAMESPACE***]` with the desired operator installation namespace, typically `cfm-operator-system`.
- Replace `[***CONTAINER REGISTRY***]` with your internal registry URL.

## 6. Install the cfctl CLI tool.

- a) Download the CLI tool. Select the version appropriate for your environment..
  - <https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-amd64>
  - <https://archive.cloudera.com/p/cfm-operator/cfmctl-darwin-arm64>
  - <https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-amd64>
  - <https://archive.cloudera.com/p/cfm-operator/cfmctl-linux-arm64>
  - <https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-amd64>
  - <https://archive.cloudera.com/p/cfm-operator/cfmctl-windows-arm64>
- b) Copy and run it in the CFM installation directory.
- c) Make the tool executable.

```
chmod +x [***CFMCTL FILE***]
```

Replace `[***CFMCTL FILE***]` with the name of the executable file that you have downloaded.

The cfctl tool allows you to:

- Manage your environment
- Check the current state and existence of prerequisites in an environment
- Install and uninstall the operator
- Quickstart install NiFi clusters
- Perform common configuration tasks using flags, with the ability to provide a helmvalues.yaml file
- Install using default image location without the need to provide it manually

## 7. Install CFM Operator.

### For cfctl

Install CFM Operator using the `cfctl install` command:

```
$ ./cfctl install --license [***LICENSE***] \
--image-repository "[***IMAGE REPOSITORY***]" \
--image-tag "[***OPERATOR VERSION***]" \
-values [***VALUES.YAML***] \
--namespace [***CFM OPERATOR NAMESPACE***]
```

Replace

- `[***LICENSE***]` with the license file. This flag is mandatory.
- `[***IMAGE REPOSITORY***]` Defaults to “container.repository.cloudera.com/cloudera/cfm-operator” unless a Helm values.yaml is provided. This flag is optional.
- `[***OPERATOR TAG***]` Defaults to “latest” unless a Helm values.yaml is provided. This flag is optional.
- `[***VALUES.YAML***]` with a Helm values.yaml file to supply any variables to the underlying helm chart that is not available through cfctl command flags. This flag is optional.
- `[***CFM OPERATOR NAMESPACE***]` with the desired operator installation namespace. Defaults to `cfm-operator-system`.

This command installs the CustomResourceDefinitions and Helm chart for the operator, and starts the operator.

```
$ ./cfctl install --license ./license.txt --image-repository "us-centra
ll-docker.pkg.dev/nifi-testing/cfm-k8s/cfm-operator" --image-tag "2.8.0-
b94"
2024-01-25T14:12:29.684-0800 INFO cli.install cmd/install.go:154 instal
ling CRDs
2024-01-25T14:12:29.684-0800 INFO cli.install cmd/install.go:172 insta
lling {"CustomResourceDefinition": "nifiregistries.cfm.cloudera.com"}
```

```

2024-01-25T14:12:29.691-0800 INFO cli.install cmd/install.go:175 already
installed {"CustomResourceDefinition": "nifiregistries.cfm.cloudera.c
om"}
2024-01-25T14:12:29.695-0800 INFO cli.install cmd/install.go:184 updati
ng {"CustomResourceDefinition": "nifiregistries.cfm.cloudera.com"}
2024-01-25T14:12:29.709-0800 INFO cli.install cmd/install.go:199 ready
{"CustomResourceDefinition": "nifiregistries.cfm.cloudera.com"}
2024-01-25T14:12:29.709-0800 INFO cli.install cmd/install.go:172 insta
lling {"CustomResourceDefinition": "nifis.cfm.cloudera.com"}
2024-01-25T14:12:29.721-0800 INFO cli.install cmd/install.go:175 already
installed {"CustomResourceDefinition": "nifis.cfm.cloudera.com"}
2024-01-25T14:12:29.727-0800 INFO cli.install cmd/install.go:184 upda
ting {"CustomResourceDefinition": "nifis.cfm.cloudera.com"}
2024-01-25T14:12:29.757-0800 INFO cli.install cmd/install.go:199 ready {
"CustomResourceDefinition": "nifis.cfm.cloudera.com"}
2024-01-25T14:12:29.757-0800 INFO cli.install cmd/install.go:80 instal
ling chart {"namespace": "cfm-operator-system"}
2024-01-25T14:12:30.045-0800 INFO cli.install.helmclient cmd/install.go:
124 creating 1 resource(s)
2024-01-25T14:12:30.066-0800 INFO cli.install.helmclient cmd/install.
go:124 creating 16 resource(s)
2024-01-25T14:12:30.127-0800 INFO cli.install.helmclient cmd/install.
go:124 beginning wait for 16 resources with timeout of 10m0s
2024-01-25T14:12:30.150-0800 INFO cli.install.helmclient cmd/install.go
:124 Deployment is not ready: cfm-operator-system/cfm-operator. 0 out of
1 expected pods are ready
2024-01-25T14:13:30.173-0800 INFO cli.install.helmclient cmd/install.
go:124 Deployment is not ready: cfm-operator-system/cfm-operator. 0 out
of 1 expected pods are ready
2024-01-25T14:14:20.180-0800 INFO cli.install.helmclient cmd/install.go
:124 Deployment is not ready: cfm-operator-system/cfm-operator. 0 out of
1 expected pods are ready
2024-01-25T14:14:22.219-0800 INFO cli.install.helmclient cmd/install.
go:124 release installed successfully: cfm-operator/cfm-operator-0.0.0-d
ev

```

### For Helm

- a. Create your license secret.

```
kubectl create secret generic cfm-operator-license --from-file=licen
se.txt=[***PATH/TO/LICENSE.TXT***]
```

Replace `[***PATH/TO/LICENSE.TXT***]` with the relative path to the license file

- b. Run Helm install.

```
helm install cfm-operator ./charts/cfm-operator \
  --create-namespace \
  --namespace [***CFM OPERATOR NAMESPACE***] \
  --set installCRDs=true \
  --set image.repository=[***IMAGE REPOSITORY***] \
  --set image.tag=[***CFM OPERATOR VERSION***] \
  --set licenseSecret=cfm-operator-license
```

#### Replace

- `[***CFM OPERATOR NAMESPACE***]` with the desired operator installation namespace, for example "cfm-operator-system".
- `[***IMAGE REPOSITORY***]` with your target repository.
- `[***CFM OPERATOR VERSION***]` with your desired operator version.

## 8. Validate your installation.

- a) Check if CustomResourceDefinitions for NiFi were installed or updated:

```
kubectl get crds | grep nifi
```

```
nifiregistries.cfm.cloudera.com 2024-01-25T21:31:28Z  
nifis.cfm.cloudera.com 2024-01-25T21:31:29Z
```

- b) Check if a CFM Operator pod is up and running:

```
kubectl get pods -n cfm-operator-system
```

NAME	READY	STATUS	RESTARTS	AGE
cfm-operator-545bfb96b-sx4jt	2/2	Running	0	18m

### What to do next

With the operator installed and running, you can create and manage instances of NiFi and NiFi Registry by manipulating the Kubernetes object definitions.

### Related Information

[Docker image pull](#)

[Docker image push](#)

[Docker image tag](#)

## Uninstalling the CFM Operator

You can uninstall CFM Operator using Helm or the cfctl CLI tool.

### About this task

By default, the uninstall command does not remove data containing resources. If you want to delete data containing resources, use the `--delete` flag with no arguments, which deletes NiFi and NiFi Registry instances in addition to uninstalling the operator and CRDs. Use the `--force` flag if the environment is unresponsive, and neither installation nor uninstallation is possible.

To uninstall CFM Operator, run the following command:

#### For cfctl

```
cfctl uninstall --namespace [***CFM OPERATOR NAMESPACE***]
```

Replace `[***CFM OPERATOR NAMESPACE***]` with the namespace where you installed the operator.

#### For Helm

```
helm uninstall cfm-operator --namespace [***CFM OPERATOR NAMESPACE***]
```

Replace `[***CFM OPERATOR NAMESPACE***]` with the namespace where you installed the operator.