



# Red Hat OpenShift GitOps 1.12

## Installing GitOps

Installing the OpenShift GitOps Operator, logging in to the Argo CD instance, and installing the GitOps CLI.



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## Abstract

This document provides information about sizing requirements and prerequisites for installing the OpenShift GitOps Operator. It also discusses how to install the OpenShift GitOps Operator, log in to the Argo CD instance, and install the GitOps CLI.

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# CHAPTER 1. PREPARING TO INSTALL RED HAT OPENSIFT GITOPS

Read the following information about sizing requirements and prerequisites before you install Red Hat OpenShift GitOps on OpenShift Container Platform. Sizing requirements also provides the sizing details for the default ArgoCD instance that is instantiated by the Red Hat OpenShift GitOps Operator.

## 1.1. SIZING REQUIREMENTS FOR GITOPS

Red Hat OpenShift GitOps is a declarative way to implement continuous deployment for cloud-native applications. Through GitOps, you can define and configure the CPU and memory requirements of your application.

Every time you install the Red Hat OpenShift GitOps Operator, the resources on the namespace are installed within the defined limits. If the default installation does not set any limits or requests, the Operator fails within the namespace with quotas. Without enough resources, the cluster cannot schedule ArgoCD related pods. The following table details the resource requests and limits for the default workloads:

| Workload                      | CPU requests | CPU limits | Memory requests | Memory limits |
|-------------------------------|--------------|------------|-----------------|---------------|
| argocd-application-controller | 1            | 2          | 1024M           | 2048M         |
| applicationset-controller     | 1            | 2          | 512M            | 1024M         |
| argocd-server                 | 0.125        | 0.5        | 128M            | 256M          |
| argocd-repo-server            | 0.5          | 1          | 256M            | 1024M         |
| argocd-redis                  | 0.25         | 0.5        | 128M            | 256M          |
| argocd-dex                    | 0.25         | 0.5        | 128M            | 256M          |
| HAProxy                       | 0.25         | 0.5        | 128M            | 256M          |

Optionally, you can also use the ArgoCD custom resource with the **oc** command to see the specifics and modify them:

```
oc edit argocd <name of argo cd> -n namespace
```

## CHAPTER 2. INSTALLING RED HAT OPENSIFT GITOPS

Red Hat OpenShift GitOps uses Argo CD to manage specific cluster-scoped resources, including cluster Operators, optional Operator Lifecycle Manager (OLM) Operators, and user management.

### 2.1. PREREQUISITES

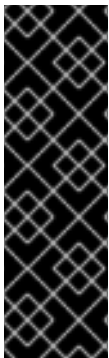
- You have access to the OpenShift Container Platform web console.
- You are logged in as a user with the **cluster-admin** role.
- You are logged in to the OpenShift Container Platform cluster as an administrator.
- Your cluster has the [Marketplace capability](#) enabled or the Red Hat Operator catalog source configured manually.



#### WARNING

If you have already installed the Community version of the Argo CD Operator, remove the Argo CD Community Operator before you install the Red Hat OpenShift GitOps Operator.

This guide explains how to install the Red Hat OpenShift GitOps Operator to an OpenShift Container Platform cluster and log in to the Argo CD instance.



#### IMPORTANT

The **latest** channel enables installation of the most recent stable version of the Red Hat OpenShift GitOps Operator. Currently, it is the default channel for installing the Red Hat OpenShift GitOps Operator.

To install a specific version of the Red Hat OpenShift GitOps Operator, cluster administrators can use the corresponding **gitops-<version>** channel. For example, to install the Red Hat OpenShift GitOps Operator version 1.8.x, you can use the **gitops-1.8** channel.

### 2.2. INSTALLING RED HAT OPENSIFT GITOPS OPERATOR IN WEB CONSOLE

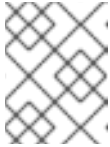
You can install Red Hat OpenShift GitOps Operator from the OperatorHub by using the web console.

#### Procedure

1. Open the **Administrator** perspective of the web console and go to **Operators → OperatorHub**.
2. Search for **OpenShift GitOps**, click the **Red Hat OpenShift GitOps** tile, and then click **Install**.
3. On the **Install Operator** page:



- a. Select an **Update channel**.
- b. Select a GitOps **Version** to install.
- c. Choose an **Installed Namespace**. The default installation namespace is **openshift-gitops-operator**.

**NOTE**

For the GitOps version 1.10 and later, the default namespace changed from **openshift-operators** to **openshift-gitops operator**.

- d. Select the **Enable Operator recommended cluster monitoring on this Namespace** checkbox to enable cluster monitoring.

**NOTE**

You can enable cluster monitoring on any namespace by applying the **openshift.io/cluster-monitoring=true** label:

```
$ oc label namespace <namespace> openshift.io/cluster-monitoring=true
```

**Example output**

```
namespace/<namespace> labeled
```

4. Click **Install** to make the GitOps Operator available on the OpenShift Container Platform cluster.  
Red Hat OpenShift GitOps is installed in all namespaces of the cluster.
5. Verify that the Red Hat OpenShift GitOps Operator is listed in **Operators → Installed Operators**. The **Status** should resolve to **Succeeded**.

After the Red Hat OpenShift GitOps Operator is installed, it automatically sets up a ready-to-use Argo CD instance that is available in the **openshift-gitops** namespace, and an Argo CD icon is displayed in the console toolbar. You can create subsequent Argo CD instances for your applications under your projects.

## 2.3. INSTALLING RED HAT OPENSIFT GITOPS OPERATOR USING CLI

You can install Red Hat OpenShift GitOps Operator from the OperatorHub by using the CLI.

**NOTE**

For the GitOps version 1.10 and later, the default namespace changed from **openshift-operators** to **openshift-gitops operator**.

**Procedure**

1. Create a **openshift-gitops-operator** namespace:

```
$ oc create ns openshift-gitops-operator
```

## Example output

```
namespace/openshift-gitops-operator created
```



### NOTE

You can enable cluster monitoring on **openshift-gitops-operator**, or any namespace, by applying the **openshift.io/cluster-monitoring=true** label:

```
$ oc label namespace <namespace> openshift.io/cluster-monitoring=true
```

### Example output

```
namespace/<namespace> labeled
```

2. Create a **OperatorGroup** object YAML file, for example, **gitops-operator-group.yaml**:

## Example OperatorGroup

```
apiVersion: operators.coreos.com/v1
kind: OperatorGroup
metadata:
  name: openshift-gitops-operator
  namespace: openshift-gitops-operator
spec:
  upgradeStrategy: Default
```

3. Apply the **OperatorGroup** to the cluster:

```
$ oc apply -f gitops-operator-group.yaml
```

## Example output

```
operatorgroup.operators.coreos.com/openshift-gitops-operator created
```

4. Create a **Subscription** object YAML file to subscribe a namespace to the Red Hat OpenShift GitOps Operator, for example, **openshift-gitops-sub.yaml**:

## Example Subscription

```
apiVersion: operators.coreos.com/v1alpha1
kind: Subscription
metadata:
  name: openshift-gitops-operator
  namespace: openshift-gitops-operator
spec:
  channel: latest 1
  installPlanApproval: Automatic
  name: openshift-gitops-operator 2
  source: redhat-operators 3
  sourceNamespace: openshift-marketplace 4
```

- 1 Specify the channel name from where you want to subscribe the Operator.
- 2 Specify the name of the Operator to subscribe to.
- 3 Specify the name of the CatalogSource that provides the Operator.
- 4 The namespace of the CatalogSource. Use **openshift-marketplace** for the default OperatorHub CatalogSources.

5. Apply the **Subscription** to the cluster:

```
$ oc apply -f openshift-gitops-sub.yaml
```

#### Example output

```
subscription.operators.coreos.com/openshift-gitops-operator created
```

6. After the installation is complete, verify that all the pods in the **openshift-gitops** namespace are running:

```
$ oc get pods -n openshift-gitops
```

#### Example output

| NAME  | READY | STATUS  | RESTARTS | AGE |
|---|-------|---------|----------|-----|
| cluster-b5798d6f9-zr576                                     | 1/1   | Running | 0        | 65m |
| kam-69866d7c48-8nsjv  | 1/1   | Running | 0        | 65m |
| openshift-gitops-application-controller-0                   | 1/1   | Running | 0        | 53m |
| openshift-gitops-applicationset-controller-6447b8dfdd-5ckgh | 1/1   | Running | 0        | 65m |
| openshift-gitops-dex-server-569b498bd9-vf6mr                | 1/1   | Running | 0        | 65m |
| openshift-gitops-redis-74bd8d7d96-49bjf                     | 1/1   | Running | 0        | 65m |
| openshift-gitops-repo-server-c999f75d5-l4rsg                | 1/1   | Running | 0        | 65m |
| openshift-gitops-server-5785f7668b-wj57t                    | 1/1   | Running | 0        | 53m |

7. Verify that the pods in the **openshift-gitops-operator** namespace are running:

```
$ oc get pods -n openshift-gitops-operator
```

#### Example output

| NAME  | READY | STATUS  | RESTARTS | AGE |
|---|-------|---------|----------|-----|
| openshift-gitops-operator-controller-manager-664966d547-vr4vb | 2/2   | Running | 0        | 65m |

## 2.4. LOGGING IN TO THE ARGO CD INSTANCE BY USING THE ARGO CD ADMIN ACCOUNT

Red Hat OpenShift GitOps automatically creates a ready-to-use Argo CD instance that is available in the **openshift-gitops** namespace. Optionally, you can create a new Argo CD instance to manage cluster configurations or deploy applications.

Use the Argo CD admin account to log in to the default ready-to-use Argo CD instance or the newly installed and deployed Argo CD instance.


## Prerequisites

- You have installed the Red Hat OpenShift GitOps Operator on your OpenShift Container Platform cluster.

## Procedure

1. In the **Administrator** perspective of the web console, navigate to **Operators** → **Installed Operators** to verify that the Red Hat OpenShift GitOps Operator is installed.



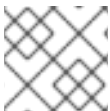
2. Navigate to the  menu → **OpenShift GitOps** → **Cluster Argo CD**. The login page of the Argo CD UI is displayed in a new window.
3. Optional: To log in with your OpenShift Container Platform credentials, ensure you are a user of the **cluster-admins** group and then select the **LOG IN VIA OPENSHIFT** option in the Argo CD user interface.



### NOTE

To be a user of the **cluster-admins** group, use the **oc adm groups new cluster-admins <user>** command, where **<user>** is the default cluster role that you can bind to users and groups cluster-wide or locally.

4. Obtain the password for the Argo CD instance:
  - a. Use the navigation panel to go to the **Workloads** → **Secrets** page.
  - b. Use the **Project** drop-down list and select the namespace where the Argo CD instance is created.
  - c. Select the **<argo\_CD\_instance\_name>-cluster** instance to display the password.
  - d. On the **Details** tab, copy the password under **Data** → **admin.password**.
5. Use **admin** as the **Username** and the copied password as the **Password** to log in to the Argo CD UI in the new window.



### NOTE

You cannot create two Argo CD CRs in the same namespace.

## 2.5. ADDITIONAL RESOURCES

- [Setting up an Argo CD instance](#)

## CHAPTER 3. INSTALLING THE GITOPS CLI



### IMPORTANT

The Red Hat OpenShift GitOps **argocd** CLI tool is a Technology Preview feature only. 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 [Technology Preview Features Support Scope](#).

Use the GitOps **argocd** CLI tool to configure and manage Red Hat OpenShift GitOps and Argo CD resources from the command line. The GitOps **argocd** CLI is designed to make GitOps computing tasks simple and concise. You can install the CLI tool on different platforms.



### NOTE

Both the compressed archives and the RPMs contain the **argocd** executable binary file. If you have an active OpenShift Container Platform subscription on your Red Hat account, install the CLI tool as an RPM by using a package manager, such as **yum** or **dnf**.

## 3.1. INSTALLING THE RED HAT OPENSIFT GITOPS CLI ON LINUX

For Linux distributions, you can download the GitOps **argocd** CLI as a **tar.gz** archive.

### Procedure

1. Download the latest version of the CLI tool from the [content gateway](#) for your operating system and architecture.

| Operating system                        | Architecture   | Tarball                            |
|---|----------------|------------------------------------|
| Linux                                   | x86_64, amd64  | <b>argocd-linux-amd64.tar.gz</b>   |
| Linux on IBM zSystems and IBM® LinuxONE | s390x          | <b>argocd-linux-s390x.tar.gz</b>   |
| Linux on IBM Power                      | ppc64le        | <b>argocd-linux-ppc64le.tar.gz</b> |
| Linux on ARM                            | aarch64, arm64 | <b>argocd-linux-arm64.tar.gz</b>   |



### NOTE

Newer versions of the CLI tool are compatible with the older versions of Red Hat OpenShift GitOps server, but not vice versa.

2. Extract the archive by running the following command:

```
$ tar xvfz <file>
```

3. Move the binary to a directory on your **PATH** environment variable by running the following command:

```
$ sudo mv argocd /usr/local/bin/argocd
```

4. Make the file executable by running the following command:

```
$ sudo chmod +x /usr/local/bin/argocd
```

5. After you install the GitOps **argocd** CLI, verify that it is available by running the following command:

```
$ argocd version --client
```

### Example output

```
argocd: v2.9.5+f943664
BuildDate: 2024-02-15T05:19:27Z
GitCommit: f9436641a616d277ab1f98694e5ce4c986d4ea05
GitTreeState: clean
GoVersion: go1.20.10
Compiler: gc
Platform: linux/amd64
ExtraBuildInfo: openshift-gitops-version: 1.12.0, release: 0015022024 1
```

- 1** The build information of Red Hat OpenShift GitOps built by Red Hat.

## 3.2. INSTALLING THE RED HAT OPENSIFT GITOPS CLI ON LINUX USING AN RPM

For Red Hat Enterprise Linux (RHEL) version 8 or later, you can install the GitOps **argocd** CLI as an RPM by using a package manager, such as **yum** or **dnf**. This allows the GitOps **argocd** CLI version to be automatically managed by the system. For example, using a command such as **dnf upgrade** upgrades all packages, including **argocd**, if a new version is available.

### Prerequisites

- You have an active OpenShift Container Platform subscription on your Red Hat account.
- You have root or **sudo** privileges on your local system.

### Procedure

1. Register with Red Hat Subscription Manager by running the following command:

```
# subscription-manager register
```

2. Pull the latest subscription data by running the following command:

```
# subscription-manager refresh
```

- List the available subscriptions by running the following command:

```
# subscription-manager list --available --matches "*gitops"
```

- In the output for the previous command, find the pool ID for your OpenShift Container Platform subscription, and attach the subscription to the registered system by running the following command:

```
# subscription-manager attach --pool=<pool_id>
```

- Enable the repositories required by Red Hat OpenShift GitOps for RHEL version 8 or later by running the following command:

- Linux (x86\_64, amd64)

```
# subscription-manager repos --enable="gitops-<gitops_version>-for-rhel-<rhel_version>-x86_64-rpms"
```

#### Example command

```
# subscription-manager repos --enable="gitops-1.12-for-rhel-8-x86_64-rpms"
```

- Linux on IBM zSystems and IBM® LinuxONE (s390x)

```
# subscription-manager repos --enable="gitops-<gitops_version>-for-rhel-<rhel_version>-s390x-rpms"
```

#### Example command

```
# subscription-manager repos --enable="gitops-1.12-for-rhel-8-s390x-rpms"
```

- Linux on IBM Power (ppc64le)

```
# subscription-manager repos --enable="gitops-<gitops_version>-for-rhel-<rhel_version>-ppc64le-rpms"
```

#### Example command

```
# subscription-manager repos --enable="gitops-1.12-for-rhel-8-ppc64le-rpms"
```

- Linux on ARM (aarch64, arm64)

```
# subscription-manager repos --enable="gitops-<gitops_version>-for-rhel-<rhel_version>-aarch64-rpms"
```

#### Example command

```
# subscription-manager repos --enable="gitops-1.12-for-rhel-8-aarch64-rpms"
```

- Install the **openshift-gitops-argocd-cli** package by running the following command:

```
# yum install openshift-gitops-argocd-cli
```

- After you install the GitOps **argocd** CLI, verify that it is available by running the following command:

```
$ argocd version --client
```

### Example output

```
argocd: v2.9.5+f943664
BuildDate: 2024-02-15T05:19:27Z
GitCommit: f9436641a616d277ab1f98694e5ce4c986d4ea05
GitTreeState: clean
GoVersion: go1.20.10
Compiler: gc
Platform: linux/amd64
ExtraBuildInfo: openshift-gitops-version: 1.12.0, release: 0015022024 1
```

- The build information of Red Hat OpenShift GitOps built by Red Hat.

## 3.3. INSTALLING THE RED HAT OPENSIFT GITOPS CLI ON WINDOWS

For Windows, you can download the GitOps **argocd** CLI as a compressed **zip** archive.

### Procedure

- Download the latest version of the CLI tool from the [content gateway](#) for your operating system and architecture.

| Operating system | Architecture | Tarball                         |
|------------------|--------------|---------------------------------|
| Windows          | x86_64       | <b>argocd-windows-amd64.zip</b> |



### NOTE

Newer versions of the CLI tool are compatible with the older versions of Red Hat OpenShift GitOps server, but not vice versa.

- Extract the archive with a ZIP program.
- Move the binary to a directory on your **PATH** environment variable by running the following command:

```
C:\> move argocd.exe <directory>
```



- After you install the GitOps **argocd** CLI, verify that it is available by running the following command:

```
$ argocd version --client
```

### Example output

```
argocd: v2.9.5+f943664
BuildDate: 2024-02-15T05:19:27Z
GitCommit: f9436641a616d277ab1f98694e5ce4c986d4ea05
GitTreeState: clean
GoVersion: go1.20.10
Compiler: gc
Platform: linux/amd64
ExtraBuildInfo: openshift-gitops-version: 1.12.0, release: 0015022024 1
```

- The build information of Red Hat OpenShift GitOps built by Red Hat.

## 3.4. INSTALLING THE RED HAT OPENSIFT GITOPS CLI ON MACOS

For macOS, you can download the GitOps **argocd** CLI as a **tar.gz** archive.

### Procedure

- Download the latest version of the CLI tool from the [content gateway](#) for your operating system and architecture.

| Operating system | Architecture | Tarball                          |
|------------------|--------------|----------------------------------|
| macOS on Intel   | x86_64       | <b>argocd-macos-amd64.tar.gz</b> |
| macOS on ARM     | arm64        | <b>argocd-macos-arm64.tar.gz</b> |



### NOTE

Newer versions of the CLI tool are compatible with the older versions of Red Hat OpenShift GitOps server, but not vice versa.

- Extract the archive by running the following command:

```
$ tar xvzf <file>
```

- Move the binary to a directory on your **PATH** environment variable by running the following command:

```
$ sudo mv argocd /usr/local/bin/argocd
```

- Make the file executable by running the following command:

■

```
$ sudo chmod +x /usr/local/bin/argocd
```

5. After you install the GitOps **argocd** CLI, verify that it is available by running the following command:

```
$ argocd version --client
```

### Example output

```
argocd: v2.9.5+f943664  
BuildDate: 2024-02-15T05:19:27Z  
GitCommit: f9436641a616d277ab1f98694e5ce4c986d4ea05  
GitTreeState: clean  
GoVersion: go1.20.10  
Compiler: gc  
Platform: linux/amd64  
ExtraBuildInfo: openshift-gitops-version: 1.12.0, release: 0015022024 1
```

- 1** The build information of Red Hat OpenShift GitOps built by Red Hat.

## 3.5. ADDITIONAL RESOURCES

- [Configuring the GitOps CLI](#)
- [Logging in to the Argo CD server in the default mode](#)
- [Basic GitOps argocd commands](#)
- [Installing Red Hat OpenShift GitOps](#)
- [Setting up a new Argo CD instance](#)