



# **Deploy a Jenkins CI/CD Pipeline with Persistent Storage: Red Hat OpenShift with NetApp**

NetApp Solutions

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# Deploy a Jenkins CI/CD Pipeline with Persistent Storage: Red Hat OpenShift with NetApp

This section provides the steps to deploy a continuous integration/continuous delivery or deployment (CI/CD) pipeline with Jenkins to validate solution operation.

## Create the resources required for Jenkins deployment

To create the resources required for deploying the Jenkins application, complete the following steps:

1. Create a new project named Jenkins.

### Create Project

Name \*

Display Name

Description

Cancel

Create

2. In this example, we deployed Jenkins with persistent storage. To support the Jenkins build, create the PVC. Navigate to [Storage > Persistent Volume Claims](#) and click [Create Persistent Volume Claim](#). Select the storage class that was created, make sure that the Persistent Volume Claim Name is jenkins, select the appropriate size and access mode, and then click Create.

## Create Persistent Volume Claim

[Edit YAML](#)

### Storage Class

SC basic ▼

Storage class for the new claim.

### Persistent Volume Claim Name \*

jenkins

A unique name for the storage claim within the project.

### Access Mode \*

☒ Single User (RWO) ☐ Shared Access (RWX) ☐ Read Only (ROX)

Permissions to the mounted drive.

### Size \*

100 GiB ▼

Desired storage capacity.

☐ Use label selectors to request storage

Use label selectors to define how storage is created.

Create Cancel

## Deploy Jenkins with Persistent Storage

To deploy Jenkins with persistent storage, complete the following steps:

1. In the upper left corner, change the role from Administrator to Developer. Click **+Add** and select **From Catalog**. In the **Filter by Keyword** bar, search for jenkins. Select Jenkins Service with Persistent Storage.

## Developer Catalog

Add shared apps, services, or source-to-image builders to your project from the Developer Catalog. Cluster admins can install additional apps which will show up here automatically.

All Items

Languages

Databases

Middleware

CI/CD

Other

Type

☒ Operator Backed (0)

☐ Helm Charts (0)

☒ Builder Image (0)


☒ Template (4)

☐ Service Class (0)

All Items

jenkins


Group By: None ▾

Template

Jenkins

provided by Red Hat, Inc.


Jenkins service, with persistent storage. NOTE: You must have persistent volumes available in...

Template

Jenkins

provided by Red Hat, Inc.


Jenkins service, with persistent storage. NOTE: You must have persistent volumes available in...

Template

Jenkins (Ephemeral)

provided by Red Hat, Inc.

Jenkins service, without persistent storage. WARNING: Any data stored will be lost upon...

Template

Jenkins (Ephemeral)

provided by Red Hat, Inc.

Jenkins service, without persistent storage. WARNING:

2. Click **Instantiate Template**.



### Jenkins

Provided by Red Hat, Inc.



**Instantiate Template**

#### Provider

Red Hat, Inc.

#### Support

[Get support](#)

#### Created At

 May 26, 3:58 am

#### Description

Jenkins service, with persistent storage.

NOTE: You must have persistent volumes available in your cluster to use this template.

#### Documentation

[https://docs.okd.io/latest/using\\_images/other\\_images/jenkins.html](https://docs.okd.io/latest/using_images/other_images/jenkins.html)

3. By default, the details for the Jenkins application are populated. Based on your requirements, modify the parameters and click Create. This process creates all the required resources for supporting Jenkins on

OpenShift.

## Instantiate Template

Namespace \*

jenkins

Jenkins Service Name

jenkins

The name of the OpenShift Service exposed for the Jenkins container.

Jenkins JNLP Service Name

jenkins-jnlp

The name of the service used for master/slave communication.

Enable OAuth in Jenkins

true

Whether to enable OAuth OpenShift integration. If false, the static account 'admin' will be initialized with the password 'password'.

Memory Limit

1Gi

Maximum amount of memory the container can use.

Volume Capacity \*

50Gi

Volume space available for data, e.g. 512Mi, 2Gi.

Jenkins ImageStream Namespace

openshift

The OpenShift Namespace where the Jenkins ImageStream resides.

Disable memory intensive administrative monitors

false

Whether to perform memory intensive, possibly slow, synchronization with the Jenkins Update Center on start. If true, the Jenkins core update monitor and site warnings monitor are disabled.

Jenkins ImageStreamTag

jenkins:2

Name of the ImageStreamTag to be used for the Jenkins image.

Fatal Error Log File

false

When a fatal error occurs, an error log is created with information and the state obtained at the time of the fatal error.

Allows use of Jenkins Update Center repository with invalid SSL certificate

false

Whether to allow use of a Jenkins Update Center that uses invalid certificate (self-signed, unknown CA). If any value other than 'false', certificate check is bypassed. By default, certificate check is enforced.

Create

Cancel



Jenkins

INSTANT-APP JENKINS

[View documentation](#) [Get support](#)

Jenkins service, with persistent storage.

NOTE: You must have persistent volumes available in your cluster to use this template.

The following resources will be created:

- DeploymentConfig
- PersistentVolumeClaim
- RoleBinding
- Route
- Service
- ServiceAccount

4. The Jenkins pods take approximately 10–12 minutes to enter the Ready state.





Project: jenkins ▼

## Pods

Create Pod

Filter by name...

<div>1</div> Running	<div>0</div> Pending	<div>0</div> Terminating	<div>0</div> CrashLoopBackOff	<div>1</div> Completed	<div>0</div> Failed	<div>0</div> Unknown
<div>Select all filters</div>						
<div>1 of 2 Items</div>						

Name ↑	Namespace ↑	Status ↑	Ready ↑	Owner ↑	Memory ↑	CPU ↑	
 jenkins-l-c77n9	 jenkins	 Running	1/1	 jenkins-1	-	0.004 cores	⋮

5. After the pods are instantiated, navigate to **Networking > Routes**. To open the Jenkins webpage, click the URL provided for the jenkins route.





Project: jenkins ▼

## Routes

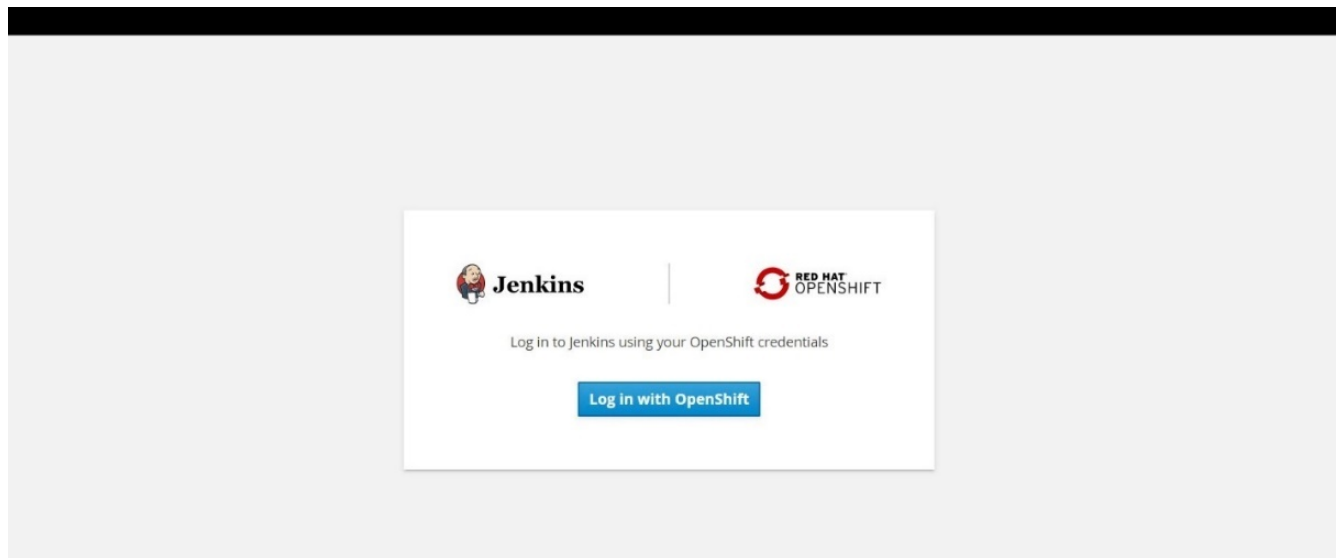
Create Route

Filter by name...

1 Accepted	0 Rejected	0 Pending	Select all filters	1 Item
------------	------------	-----------	--------------------	--------

Name ↓	Namespace ↑	Status	Location ↑	Service ↑	
 jenkins	 jenkins	 Accepted	<a href="https://jenkins-jenkins.apps.rhv-ocp-cluster.cie.netapp.com">https://jenkins-jenkins.apps.rhv-ocp-cluster.cie.netapp.com</a>	 jenkins	⋮

6. Because OpenShift OAuth was used while creating the Jenkins app, click **Log in with OpenShift**.



7. Authorize the Jenkins service-account to access the OpenShift users.

## Authorize Access

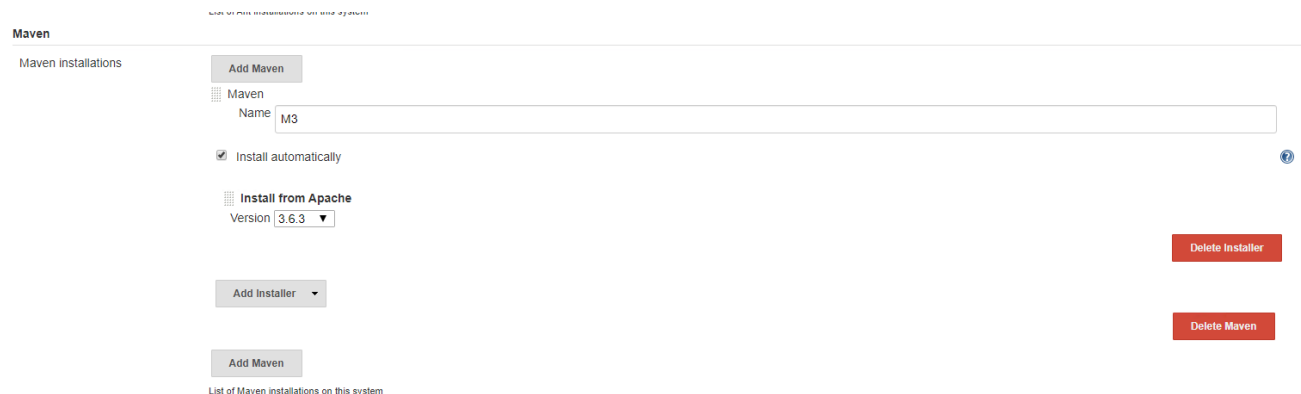
Service account `jenkins` in project `jenkins` is requesting permission to access your account (`kube:admin`)

### Requested permissions

- ☒ **user:info**  
Read-only access to your user information (including username, identities, and group membership)
- ☒ **user:check-access**  
Read-only access to view your privileges (for example, "can I create builds?")

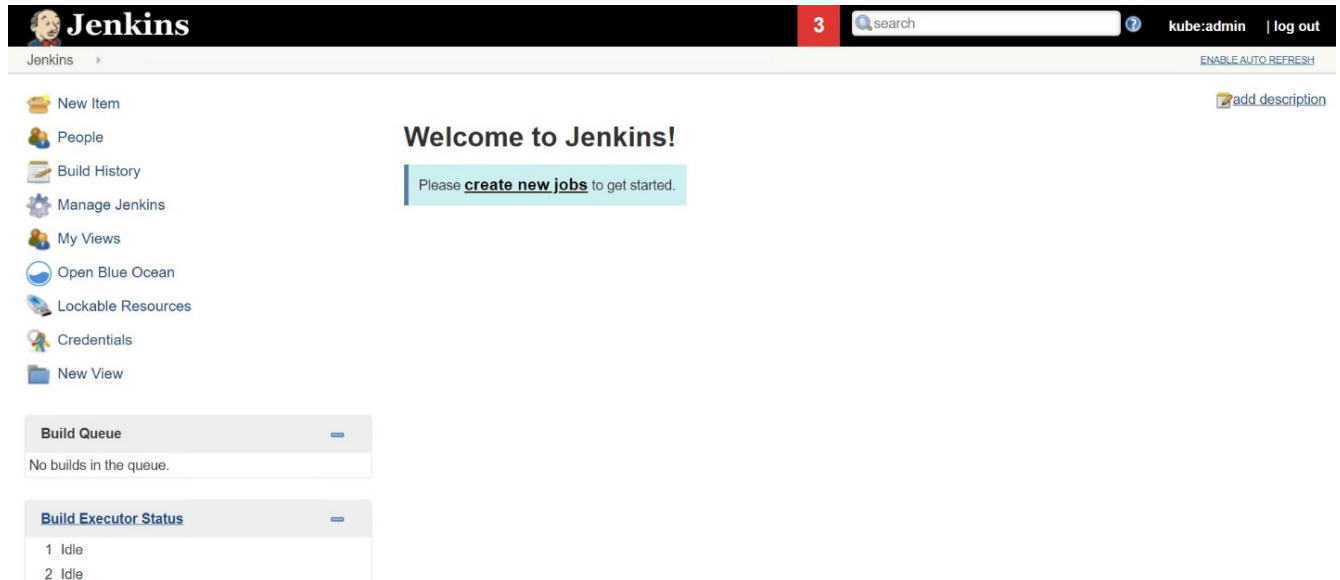
You will be redirected to <https://jenkins-jenkins.apps.rhv-ocp-cluster.cie.netapp.com/securityRealm/finishLogin>

8. The Jenkins welcome page is displayed. Because we are using a Maven build, complete the Maven installation first. Navigate to **Manage Jenkins > Global Tool Configuration**, and then, in the Maven subhead, click **Add Maven**. Enter the name of your choice and make sure that the **Install Automatically** option is selected. Click **Save**.

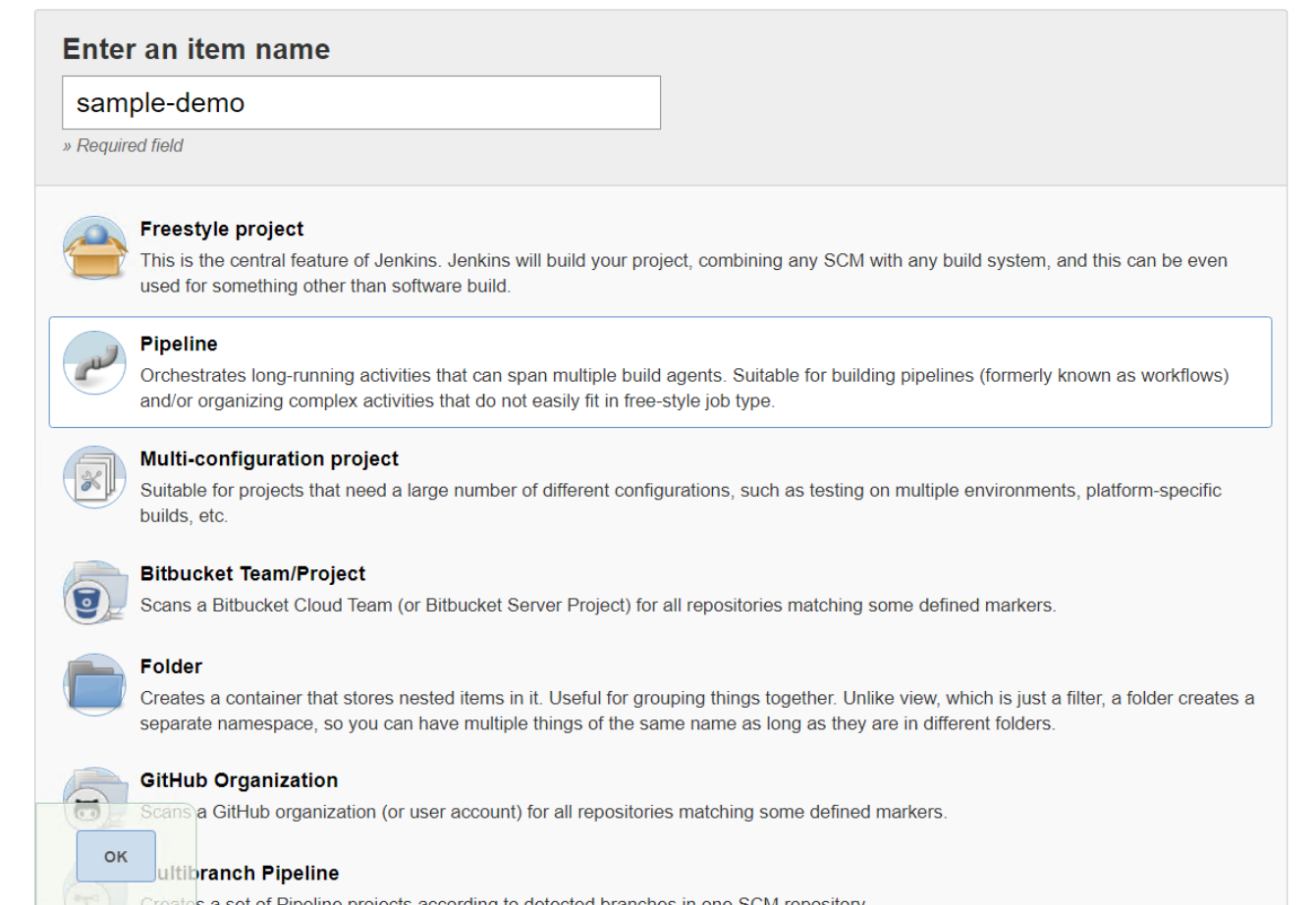




9. You can now create a pipeline to demonstrate the CI/CD workflow. On the home page, click **Create New Jobs** or **New Item** from the left-hand menu.



10. On the Create Item page, enter the name of your choice, select Pipeline, and click Ok.



11. Select the Pipeline tab. From the Try Sample Pipeline drop-down menu, select **Github + Maven**. The code is automatically populated. Click Save.

GeneralBuild TriggersAdvanced Project OptionsPipeline

Advanced...

## Pipeline

Definition Pipeline script

Script

```
1 node {
2   def mvnHome
3   stage('Preparation') { // for display purposes
4     // Get some code from a GitHub repository
5     git 'https://github.com/jglick/simple-maven-project-with-tests.git'
6     // Get the Maven tool.
7     // ** NOTE: This 'M3' Maven tool must be configured
8     // **       in the global configuration.
9     mvnHome = tool 'M3'
10  }
11  stage('Build') {
12    // Run the maven build
13    withEnv(["MVN_HOME=$mvnHome"]) {
14      if (isUnix()) {
15        sh "$MVN_HOME/bin/mvn" -Dmaven.test.failure.ignore clean package
16      } else {
17        bat("/%MVN_HOME%\bin\mvn" -Dmaven.test.failure.ignore clean package/)
18      }
19    }
20  }
21 }
```


GitHub + Maven

☒ Use Groovy Sandbox

[Pipeline Syntax](#)

SaveApply

12. Click **Build Now** to trigger the development through the preparation, build, and testing phase. It can take several minutes to complete the whole build process and display the results of the build.

Jenkins

Jenkins > sample-demo >

Back to Dashboard

Status

Changes

Build Now

Delete Pipeline

Configure

Full Stage View

Open Blue Ocean

Rename

Pipeline Syntax

Build History

trend

find

x

#1

May 27, 2020 3:53 PM

Atom feed for all

Atom feed for failures

# Pipeline sample-demo

Last Successful Artifacts

simple-maven-project-with-tests-1.0-SNAPSHOT.jar

1.71 KB

view

Recent Changes

## Stage View

Average stage times:  
(Average full run time: ~7s)

#1

May 27 08:53

No Changes











Preparation	Build	Results
2s	4s	69ms
2s	4s	69ms

Latest Test Result (no failures)


## Permalinks


- [Last build \(#1\), 1 min 23 sec ago](#)
- [Last stable build \(#1\), 1 min 23 sec ago](#)
- [Last successful build \(#1\), 1 min 23 sec ago](#)
- [Last completed build \(#1\), 1 min 23 sec ago](#)


13. Whenever there are any code changes, the pipeline can be rebuilt to patch the new version of software enabling continuous integration and continuous delivery. Click **Recent Changes** to track the changes from the previous version.

-  Back to Dashboard
-  **Status**
-  Changes
-  Build Now
-  Delete Pipeline
-  Configure
-  Full Stage View
-  Open Blue Ocean
-  Rename
-  Pipeline Syntax


## Pipeline sample-demo

 [Last Successful Artifacts](#)

 [simple-maven-project-with-tests-1.0-SNAPSHOT.jar](#) 1.71 KB [view](#)

 [Recent Changes](#)



### Stage View

 **Build History** [trend](#)

X

#2 May 27, 2020 3:56 PM

#1 May 27, 2020 3:53 PM


 [Atom feed for all](#)  [Atom feed for failures](#)

Average stage times:  
(Average full run time: ~6s)

#2 May 27 08:56 No Changes

#1 May 27 08:53 No Changes

Preparation	Build	Results
2s	4s	86ms
1s	4s	104ms
2s	4s	69ms

 [Latest Test Result](#) (no failures)

### Permalinks

- [Last build \(#2\), 19 sec ago](#)
- [Last stable build \(#2\), 19 sec ago](#)
- [Last successful build \(#2\), 19 sec ago](#)
- [Last completed build \(#2\), 19 sec ago](#)

Next: Videos and Demos.

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