

## Installing Jenkins

### Prerequisites

Before continuing with this tutorial, make sure you have ubuntu machine created and logged in as a user with sudo privileges.

**Reference URL:** <https://www.digitalocean.com/community/tutorials/how-to-install-jenkins-on-ubuntu-18-04> OR

To install Jenkins on your Ubuntu system, follow these steps:

#### 1. Install Java.

Since Jenkins is a Java application, the first step is to install Java. Update the package index and install the Java 8 OpenJDK package with the following commands:

#### 2. Add the Jenkins Debian repository.

Import the GPG keys of the Jenkins repository using the following

```
wget -q -O - https://pkg.jenkins.io/debian/jenkins.io.key | sudo apt-key add -
```

#### Command:

```
sudo apt update  
sudo apt install openjdk-8-jdk
```

The command above should output OK which means that the key has been successfully imported and packages from this repository will be considered trusted.

#### Next, add the Jenkins repository to the system with:

```
sudo sh -c 'echo deb http://pkg.jenkins.io/debian-stable binary/ >  
/etc/apt/sources.list.d/jenkins.list'
```

#### 3. Install Jenkins.

Once the Jenkins repository is enabled, update the apt package list and install the latest version of Jenkins by typing:

```
sudo apt update  
sudo apt install jenkins
```

Jenkins service will automatically start after the installation process is complete. You can verify it by printing the service status:

```
systemctl status jenkins
```

## Setting Up Docker in Jenkins Server

#### 1. Install Docker

**Reference URL:** <https://www.digitalocean.com/community/tutorials/how-to-install-and-use-docker-on-ubuntu-18-04>

#### 2. Add Jenkins User to docker group

```
sudo usermod -aG docker jenkins
```

#### 3. Restart Jenkins

```
sudo systemctl restart jenkins
```

## Setup Kubernetes Cluster with kops on AWS on another Ec2 machine

Reference URL: [https://github.com/kubernetes/kops/blob/master/docs/getting\\_started/aws.md](https://github.com/kubernetes/kops/blob/master/docs/getting_started/aws.md)

## Install kubectl and add kubeconfig in Jenkins server

Reference URL: <https://github.com/kubernetes/kops/blob/master/docs/install.md>

### 1. Install Kubectl in Jenkins Server

```
curl -LO https://storage.googleapis.com/kubernetes-  
release/release/v1.18.0/bin/linux/amd64/kubectl  
chmod +x ./kubectl  
sudo mv ./kubectl /usr/local/bin/kubectl
```

### 2. Switch to jenkins user

```
sudo -i -u jenkins
```

### 3. Create .kube folder in Jenkins home directory

```
cd ~  
mkdir .kube
```

### 4. Create config file and copy config file content from Kubernetes Cluster master machine and save the content.

```
vi .kube/config
```

### 5. We can use kubectl commands directly in pipe line script, kubectl commands will get executed in Kubernetes cluster directly.

```
stage("Deploy To Kubernetes Cluster"){  
    sh "kubectl apply -f namespace-phpapp.yml"  
}
```