

Deploying Stateful Applications without Persisting State

In this lesson, we will deploy Jenkins, a stateful application, without persisting its state.

WE'LL COVER THE FOLLOWING ^

- Deploying Jenkins
 - Looking into the Definition
 - Creating the Resources
 - Creating the Secret
 - Verification

We'll start the exploration by deploying a stateful application without any mechanism to persist its state. That will give us a better insight into benefits behind some of the Kubernetes concepts and resources we'll use in this chapter.

Deploying Jenkins

We already deployed Jenkins a few times. Since it is a stateful application, it is an excellent candidate to serve as a playground.

Looking into the Definition

Let's take a look at a definition stored in the `pv/jenkins-no-pv.yml` file.

```
cat pv/jenkins-no-pv.yml
```



The YAML defines the `jenkins` Namespace, an Ingress controller, and a Service. We're already familiar with those types of resources so we'll skip explaining them and jump straight to the Deployment definition.

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The output of the `cat` command, limited to the `jenkins` Deployment, is as follows.

```
...
apiVersion: apps/v1
kind: Deployment
metadata:
  name: jenkins
  namespace: jenkins
spec:
  selector:
    matchLabels:
      app: jenkins
  strategy:
    type: Recreate
  template:
    metadata:
      labels:
        app: jenkins
    spec:
      containers:
      - name: jenkins
        image: vfarcić/jenkins
        env:
        - name: JENKINS_OPTS
          value: --prefix=/jenkins
        - name: SECRETS_DIR
          value: /etc/secrets
        volumeMounts:
        - name: jenkins-creds
          mountPath: /etc/secrets
      resources:
        limits:
          memory: 2Gi
          cpu: 1
        requests:
          memory: 1Gi
          cpu: 0.5
      volumes:
      - name: jenkins-creds
        secret:
          secretName: jenkins-creds
```

There's nothing special about this Deployment. We already used a very similar one. Besides, by now, you're an expert at Deployment controllers.

The only thing worth mentioning is that there is only one volume mount and it references a secret we're using to provide Jenkins with the initial administrative user. Jenkins is persisting its state in `/var/jenkins_home`, and we are not mounting that directory.

Creating the Resources

Let's create the resources defined in `pv/jenkins-no-pv.yml`.

```
kubectl create \
  -f pv/jenkins-no-pv.yml \
  --record --save-config
```



The **output** is as follows.

```
namespace "jenkins" created
ingress "jenkins" created
service "jenkins" created
deployment "jenkins" created
```



We'll take a quick look at the events as a way to check that everything was deployed successfully.

```
kubectl --namespace jenkins \
  get events
```



The **output**, limited to relevant parts, is as follows.

```
...
2018-03-14 22:36:26 +0100 CET    2018-03-14 22:35:54 +0100 CET    7                jenkins-8768d486-1n
...
```



Creating the Secret

We can see that the setup of the only volume failed since it could not find the secret referenced as `jenkins-creds`. Let's create it.

```
kubectl --namespace jenkins \
  create secret \
  generic jenkins-creds \
  --from-literal=jenkins-user=jdoe \
  --from-literal=jenkins-pass=incognito
```



Verification

Now, with the secret `jenkins-creds` created in the `jenkins` Namespace, we can confirm that the rollout of the Deployment was successful.

```
kubectl --namespace jenkins \
  rollout status \
  deployment jenkins
```



We can see, from the output, that the deployment "jenkins" was successfully rolled out .

In the next lesson, we will analyze the failure of the Jenkins deployment due to the lack of persisting state.