Creating Kubernetes clusters using Cleura Cloud Control Panel

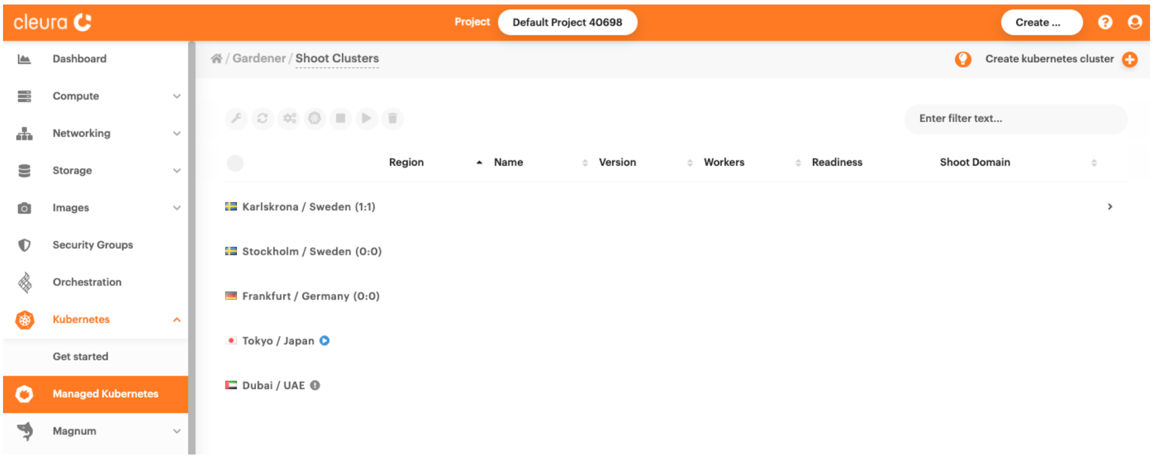
If you want to create a Kubernetes cluster, you can do it via Cleura Cloud Control Panel using Gardener. This how-to shows you how to do that, and how to deploy a sample application on such a cluster.

Prerequisites

To access the cluster from your computer, you will need kubectl installed on your machine.

Creating a Kubernetes cluster in Cleura Cloud Control Panel

To get started, navigate to https://cleura.cloud, and in the side panel choose Kubernetes → Managed Kubernetes. You will see a Gardener page, in which you can create and manage your clusters. Click `Create Kubernetes cluster`.



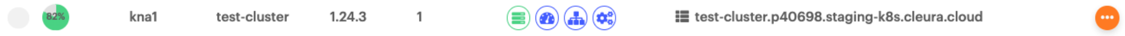
Region	Name	Version	Workers	Readiness	Shoot Domain
Karlskrona / Sweden (1:1)					
Stockholm / Sweden (0:0)					
Frankfurt / Germany (0:0)					
Tokyo / Japan					
Dubai / UAE					

> In Gardener’s terminology, a Kubernetes cluster is referred as a **Shoot cluster**. You can see the name “Shoot” in various places throughout the panel’s UI, so it is good to know what it means. To learn more, check out Gardener architecture.

In the opened form, fill in the name of the cluster and a region to see the rest of the options. Hover over question mark icons at each form field to learn more about it. For the purposes of this how-to, you can leave everything at default values and click `Create` at the bottom.

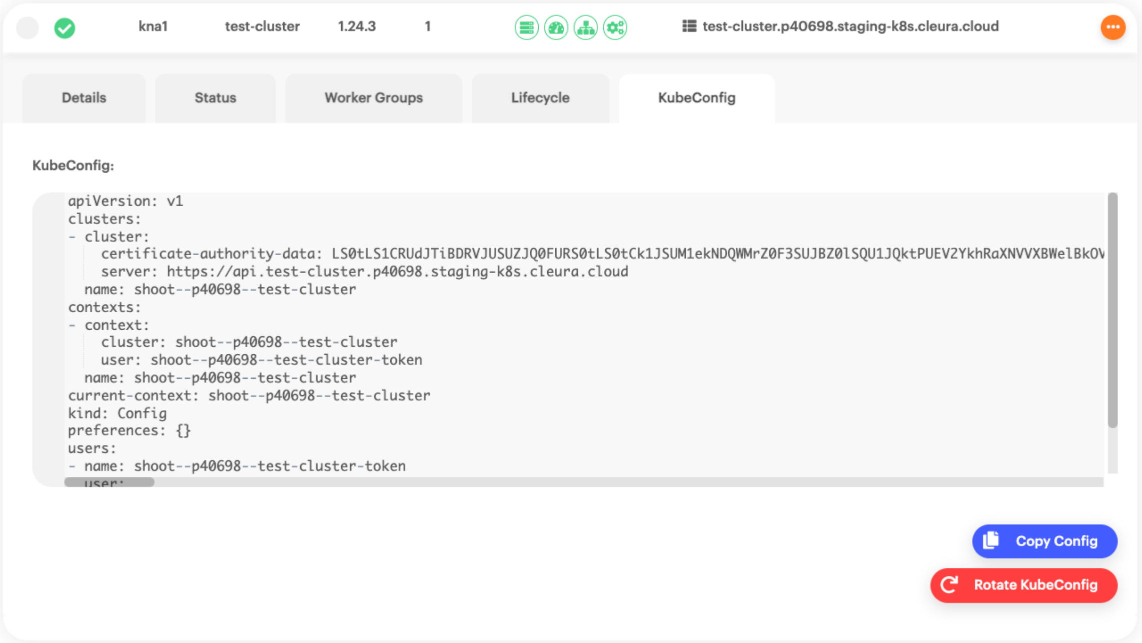
> In the form you can see a section about worker groups. This name refers to Kubernetes worker nodes.

In the list of clusters, you will see your new Gardener shoot bootstrapping. The icon on the left marks the progress. Creating the cluster can take up to several minutes.



Extract kubeconfig file from Shoot cluster

When the Shoot cluster is up and running, you need to get a kubeconfig file to be able to access it. To do that, click on the cluster to expand its properties, and open `Kubeconfig`.



```
apiVersion: v1
clusters:
- cluster:
    certificate-authority-data: LS0tLS1CRUdJTiBDRVJUSUZJQ0FURS0tLS0tCk1JSUM1ekNDQWMrZ0F3SUJBZ0lSQU1JQktPUEV2YkhRaXNVVXBWelBkOV
    server: https://api.test-cluster.p40698.staging-k8s.cleura.cloud
  name: shoot--p40698--test-cluster
contexts:
- context:
    cluster: shoot--p40698--test-cluster
    user: shoot--p40698--test-cluster-token
  name: shoot--p40698--test-cluster
current-context: shoot--p40698--test-cluster
kind: Config
preferences: {}
users:
- name: shoot--p40698--test-cluster-token
  user:
```

You should now see the file’s contents. You have the option to `Copy Config` or `Rotate Kubeconfig` if your credentials got compromised. Copy the content of the kubeconfig and insert it into `~/.kube/config`. Create the directory and the file if needed.

> By default, Kubectl searches for its configuration in `~/.kube/config`, but you can modify this behaviour if needed. More info here.

Check if your kubectl uses the proper configuration by running:

```
kubectl config view
```

You should see something like this:

```
apiVersion: v1
clusters:
  - cluster:
      certificate-authority-data: DATA+OMITTED
      server: https://api.test-cluster.p40698.staging-k8s.cleura.cloud
    name: shoot--p40698--test-cluster
contexts:
  - context:
      cluster: shoot--p40698--test-cluster
      user: shoot--p40698--test-cluster-token
    name: shoot--p40698--test-cluster
current-context: shoot--p40698--test-cluster
kind: Config
preferences: { }
users:
  - name: shoot--p40698--test-cluster-token
    user:
      token: REDACTED
```

Access your cluster with kubectl and deploy an application

Check your available nodes by running:

```
kubectl get nodes
```

You should see Gardener’s worker node that is available:

```
NAME                                               STATUS   ROLES    AGE    VERSION
shoot--p40698--test-cluster-czg4zf-z1-5d7b5-bfl7p   Ready    <none>   156m   v1.24.3
```

Create a sample deployment with a Hello World application:

```
kubectl create deployment hello-node --image=registry.k8s.io/echoserver:1.4
kubectl expose deployment hello-node --type=LoadBalancer --port=8080
```

To access the created app, list the available services:

```
kubectl get services
```

You should get the load balancer service with its external IP and port number:

```
NAME         TYPE           CLUSTER-IP      EXTERNAL-IP     PORT(S)          AGE
hello-node   LoadBalancer   100.69.16.106   <External IP>   8080:32039/TCP   34m
kubernetes   ClusterIP      100.64.0.1      <none>          443/TCP          3h46m
```

Open a browser and open `<External IP>:8080`. You should see the page of the Hello World app.

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