

1. Install Minikube:

First, you need to install Minikube on your local machine. You can find instructions for your operating system on the Minikube website: <https://minikube.sigs.k8s.io/docs/start/>

2. Start Minikube:

Once you have installed Minikube, start it by running the following command in your terminal:

➔ `minikube start`

3. This will start a single-node Kubernetes cluster on your local machine using a virtual machine.

Verify the cluster:

To verify that the cluster is running, run the following command:

➔ `kubectl cluster-info`

This should display the cluster information, including the Kubernetes API server address and the Kubernetes DNS service address.

4. Deploy an application: Now that you have a running Kubernetes cluster, you can deploy an application to it. You can use a sample application provided by Kubernetes, such as the Guestbook application. To deploy the Guestbook application, run the following command:

-> `kubectl create deployment guestbook --image=k8s.gcr.io/examples/guestbook-go:v0`

This will create a deployment called "guestbook" using the "guestbook-go" image from the Kubernetes registry.

5. Expose the application:

Next, you need to expose the guestbook deployment so that it can be accessed from outside the cluster. To do this, run the following command:

➔ `kubectl expose deployment guestbook --type=LoadBalancer --port=80 --target-port=8080`

This will create a service called "guestbook" of type LoadBalancer that exposes port 80 of the guestbook deployment and forwards traffic to port 8080 of the containers running in the deployment.

6. Verify the application:

To verify that the guestbook application is running and accessible, run the following command to get the IP address of the LoadBalancer service:

➔ `minikube service guestbook --url`

This should display a URL that you can use to access the guestbook application in your web browser.