

# **STEP-BY-STEP GUIDE TO INSTALLING, MANAGING, AND DEPLOYING**

## **APPLICATIONS ON MINIKUBE**

### **Step 1: Verify Minikube Installation**

First, let's ensure that Minikube is installed correctly by checking its version.

*minikube version*

- This command displays the current version of Minikube. If Minikube is not installed or the installation is faulty, you'll see an error message. In that case, proceed to reinstall Minikube.
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### **Step 2: Reinstall Minikube**

If Minikube isn't functioning correctly, reinstalling it is a good approach.

#### **1. Uninstall Minikube:**

- If Minikube was installed manually, delete the minikube.exe file from the installation directory (e.g., C:\Windows\System32 or C:\Program Files\Minikube).
- If installed with Chocolatey, uninstall Minikube using the following command:

*choco uninstall minikube*

- This command uses Chocolatey (a package manager for Windows) to uninstall Minikube completely from your system. This step removes any corrupt or incompatible files.
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### **Step 3: Reinstall Minikube (if needed)**

#### **1. Download and Install Minikube:**

- **Manual installation:** Download the latest version of Minikube from the Minikube download page. Place the minikube.exe file in a directory included in your system's PATH, such as C:\Windows\System32.

- **Using Chocolatey:**

*choco install minikube -y*

- This command installs Minikube using Chocolatey, ensuring a clean installation.
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#### **Step 4: Run PowerShell as Administrator**

To avoid permission-related issues, open PowerShell with **Administrator privileges**:

1. **Right-click on PowerShell** and select **Run as Administrator**.

- Running PowerShell with elevated privileges ensures Minikube has the necessary permissions to start Kubernetes and manage network configurations.
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#### **Step 5: Start Minikube**

Once Minikube is installed, start it:

*minikube start*

- This command starts Minikube and initializes a local Kubernetes cluster. If Minikube starts successfully, you'll see a confirmation message with the details of your virtual machine and cluster.
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#### **Step 6: Set kubectl Context**

Ensure that kubectl is using the correct context for Minikube:

*kubectl config use-context minikube*

- This command sets the context of kubectl to Minikube, ensuring that all kubectl commands interact with the Minikube cluster.
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## Step 7: Create a Sample Deployment

Deploy a sample application (nginx) on Kubernetes:

```
kubectl create deployment hello-minikube --image=nginx
```

- This command creates a Kubernetes deployment called hello-minikube using the nginx image. It starts an nginx container inside the cluster.

### 1. Check the deployment:

*kubectl get deployments*

- This command lists the active deployments in your Kubernetes cluster, confirming that the hello-minikube deployment was created successfully.
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## Step 8: Expose the Deployment as a Service

To make the nginx application accessible externally, expose it as a service:

```
kubectl expose deployment hello-minikube --type=NodePort --port=80
```

- This command exposes the hello-minikube deployment as a Kubernetes service with the NodePort type, making the application accessible via a port on the cluster's node.

### 1. Check the Service details:

*kubectl get services*

- This command lists all services, allowing you to see the assigned NodePort for the hello-minikube service.
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## Step 9: Access the Application

Open the application in your browser using Minikube's IP and NodePort:

*minikube service hello-minikube*

- This command will open a browser window showing the nginx welcome page hosted by your Minikube cluster. It uses the assigned NodePort to access the service externally.
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## **Step 10: Stop Minikube**

To save system resources, you can stop the Minikube cluster when you're done:

*minikube stop*

- This command stops the Minikube cluster and halts any running Kubernetes nodes, freeing up resources.
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## **Step 11: Delete the Minikube Cluster**

If you no longer need the Minikube cluster, you can delete it:

*minikube delete*

- This command deletes the Minikube cluster along with all associated resources, effectively cleaning up your environment.