

Experiment No. 6 - Kubernetes Setup using kubectl and minikube

Step 1: Install kubectl

1. Search 'install kubectl' in a browser.
2. Click the first link and download it for Windows.
3. Create a folder C:\kubectl
4. Open Command Prompt and navigate to the folder:

```
cd.. > cd > cd kubectl
```

5. Run the following commands:

```
curl.exe -LO https://dl.k8s.io/release/v1.33.0/bin/windows/amd64/kubectl.exe
```

```
curl.exe -LO https://dl.k8s.io/v1.33.0/bin/windows/amd64/kubectl.exe.sha256
```

```
CertUtil -hashfile kubectl.exe SHA256
```

```
type kubectl.exe.sha256
```

```
$(Get-FileHash -Algorithm SHA256 .\kubectl.exe).Hash -eq $(Get-Content .\kubectl.exe.sha256)
```

6. Add C:\kubectl to system environment variables.
7. Open a new CMD and run: kubectl version --client

Step 2: Install Minikube

1. Search 'install minikube' in browser.
2. Create a folder: C:\minikube
3. Open PowerShell as Administrator.
4. Run:

```
$oldPath = [Environment]::GetEnvironmentVariable('Path', [EnvironmentVariableTarget]::Machine)
```

```
if ($oldPath.Split(';') -notcontains 'C:\minikube') {
```

```
    [Environment]::SetEnvironmentVariable('Path',      $('{0};C:\minikube' -f      $oldPath),
```

```
    [EnvironmentVariableTarget]::Machine)
```

```
}
```

Step 3: Install VirtualBox

1. Go to <https://www.virtualbox.org/wiki/Downloads>
2. Download and install for Windows hosts.

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Step 4: Start Minikube

1. Open CMD and run:

```
minikube start --driver=virtualbox
```

OR

```
minikube start --no-vtx-check
```

2. Run:

```
minikube config set driver virtualbox
```

```
minikube status
```

```
kubectI get nodes
```

```
kubectI get po -A
```

Step 5: Create and Expose Deployment

1. `kubectI create deployment hello-minikube --image=kicbase/echo-server:1.0`

2. `kubectI get pods`

3. `kubectI expose deployment hello-minikube --type=NodePort --port=8080`

4. `kubectI get services hello-minikube`

5. `minikube service hello-minikube --url`

6. Open URL in browser

Step 6: Run and Verify Nginx Pod

1. `kubectI run nginx --image=nginx`

2. `kubectI get pods`

Step 7: Check and Delete Services and Deployments

1. `kubectI get deployments`

2. `kubectI get service`

3. `kubectI delete service hello-minikube`

4. `kubectI delete deployments hello-minikube`

5. `kubectI get service`

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6. kubectI get deployments
7. kubectI get pods

Step 8: Stop and Restart Minikube

1. minikube stop
2. minikube start