

Chapter 6 - Kubernetes 101/201 (Reduced version)

Objective

- Verify the functionality of created cluster in chapter 5
 - Kubernetes control plane
 - Kube-DNS
 - Kube-Proxy
- Manage a Deployment
- Manage a Service

Setup kubeconfig

```
export KUBECONFIG=.terraform/kubeconfig
```

Deployment Management

Create an nginx Deployment:

```
kubectl create -f \  
https://k8s.io/examples/application/deployment.yaml
```

Check your deployment

List all Deployments:

```
kubectl get deployment
```

List the Pods created by the Deployment:

```
kubectl get pods -l app=nginx
```

Services

Create an nginx Service:

```
kubectl create -f \
https://k8s.io/examples/service/nginx-service.yaml
```

List all services:

```
kubectl get services
```

Get the service IP and port

Provided the service IP is accessible, you should be able to access its http endpoint with wget on the exposed port:

```
export SERVICE_IP=$(\  
  kubectl get service nginx-service \  
  -o go-template='{{.spec.clusterIP}}' \  
)  
export SERVICE_PORT=$(\  
  kubectl get service nginx-service \  
  -o go-template='{{(index .spec.ports 0).port}}' \  
)
```

Check `$SERVICE_IP` and `$SERVICE_PORT` :

```
echo "$SERVICE_IP:$SERVICE_PORT"
```

Verify the service

Then, create a busybox Pod:

```
kubectl run busybox \  
  --generator=run-pod/v1 --image=busybox \  
  --restart=Never --tty -i \  
  --env "SERVICE_IP=$SERVICE_IP" \  
  --env "SERVICE_PORT=$SERVICE_PORT"
```

```
# Run in the busybox container  
u@busybox$ wget -qO- \  
http://$SERVICE_IP:$SERVICE_PORT  
u@busybox$ wget -qO- \  
http://nginx-service.default:$SERVICE_PORT  
  
# Exit the busybox container  
u@busybox$ exit
```

After verification, delete the busybox Pod

```
kubectl delete pod busybox # Clean up the busybox Pod
```


Delete the nginx Service

To delete the Service by name:

```
kubectl delete service nginx-service
```

Delete the nginx Deployment by name:

```
kubectl delete deployment nginx-deployment
```

Key Takeaways

- Create a Deployment to verify the **Kubernetes control plane**
- Create a Service to verify **kube-dns** and **kube-proxy**