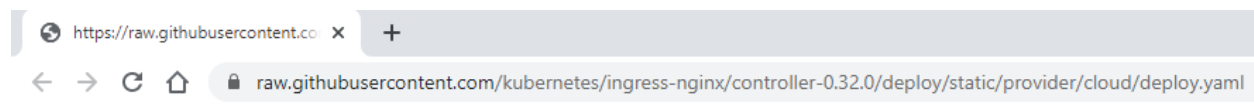


Lesson8 - Ingress-Nginx-Controller

In the previous lesson we deployed .NET core web application with IP address and port - localhost:8080. In order to deploy the .NET core web application with DNS (Domain Name Server) instead of IP address and port and add SSL/TLS we will use Ingress-Nginx-Controller.

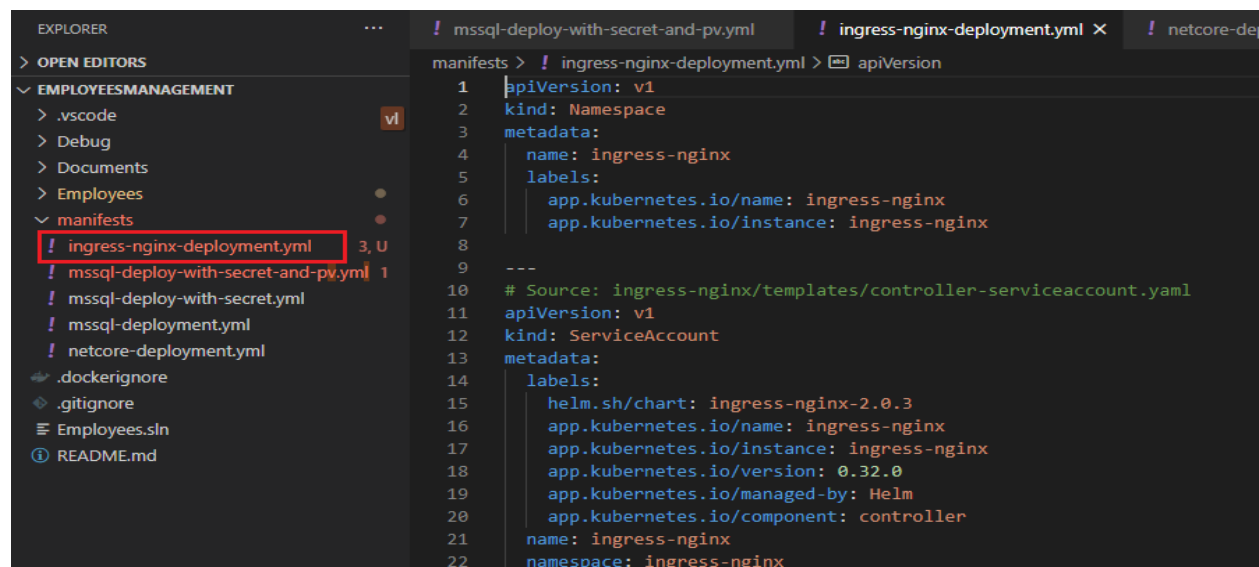
Deploy Ingress-Nginx-Controller to Kubernetes cluster

Create ingress-nginx-deployment.yml in manifests folder, open the URL - <https://raw.githubusercontent.com/kubernetes/ingress-nginx/controller-0.32.0/deploy/static/provider/cloud/deploy.yaml> and copy the content into the YML file.



```
apiVersion: v1
kind: Namespace
metadata:
  name: ingress-nginx
  labels:
    app.kubernetes.io/name: ingress-nginx
    app.kubernetes.io/instance: ingress-nginx

---
# Source: ingress-nginx/templates/controller-serviceaccount.yaml
apiVersion: v1
kind: ServiceAccount
metadata:
  labels:
    helm.sh/chart: ingress-nginx-2.0.3
    app.kubernetes.io/name: ingress-nginx
    app.kubernetes.io/instance: ingress-nginx
    app.kubernetes.io/version: 0.32.0
    app.kubernetes.io/managed-by: Helm
    app.kubernetes.io/component: controller
  name: ingress-nginx
  namespace: ingress-nginx
```



```
cd .\manifests\
```

```
kubectl apply -f .\ingress-nginx-deployment.yml
```

```
PS C:\Kubernetes\EmployeesManagement\manifests> kubectl apply -f .\ingress-nginx-deployment.yml
namespace/ingress-nginx created
serviceaccount/ingress-nginx created
configmap/ingress-nginx-controller created
clusterrole.rbac.authorization.k8s.io/ingress-nginx created
clusterrolebinding.rbac.authorization.k8s.io/ingress-nginx created
role.rbac.authorization.k8s.io/ingress-nginx created
rolebinding.rbac.authorization.k8s.io/ingress-nginx created
service/ingress-nginx-controller-admission created
service/ingress-nginx-controller created
deployment.apps/ingress-nginx-controller created
Warning: admissionregistration.k8s.io/v1beta1 ValidatingWebhookConfiguration is deprecated in v1.16+
istration.k8s.io/v1 ValidatingWebhookConfiguration
validatingwebhookconfiguration.admissionregistration.k8s.io/ingress-nginx-admission created
clusterrole.rbac.authorization.k8s.io/ingress-nginx-admission created
clusterrolebinding.rbac.authorization.k8s.io/ingress-nginx-admission created
job.batch/ingress-nginx-admission-create created
job.batch/ingress-nginx-admission-patch created
role.rbac.authorization.k8s.io/ingress-nginx-admission created
rolebinding.rbac.authorization.k8s.io/ingress-nginx-admission created
serviceaccount/ingress-nginx-admission created
PS C:\Kubernetes\EmployeesManagement\manifests>
```

Check ingress-nginx namespace is created:

Kubectl get ns

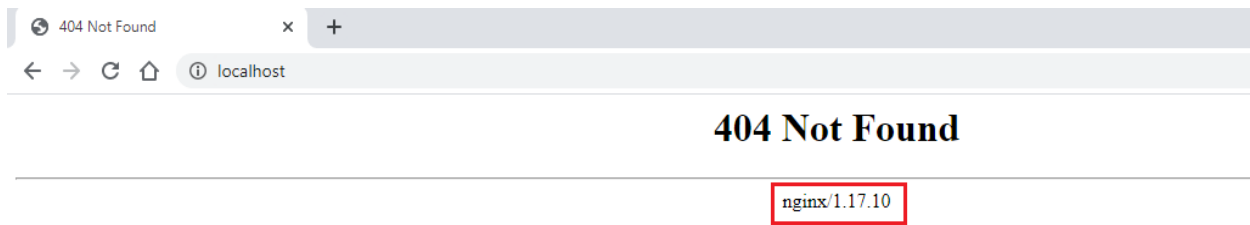
```
PS C:\Kubernetes\EmployeesManagement\manifests> kubectl get ns
NAME                STATUS   AGE
default             Active   18d
ingress-nginx       Active   105s
kube-node-lease     Active   18d
kube-public         Active   18d
kube-system         Active   18d
PS C:\Kubernetes\EmployeesManagement\manifests>
```

Check Ingress-Nginx-Controller is installed:

kubectl describe svc ingress-nginx-controller -n ingress-nginx

```
PS C:\Kubernetes\EmployeesManagement\manifests> kubectl describe svc ingress-nginx-controller -n ingress-nginx
Name:                ingress-nginx-controller
Namespace:           ingress-nginx
Labels:              app.kubernetes.io/component=controller
                    app.kubernetes.io/instance=ingress-nginx
                    app.kubernetes.io/managed-by=Helm
                    app.kubernetes.io/name=ingress-nginx
                    app.kubernetes.io/version=0.32.0
                    helm.sh/chart=ingress-nginx-2.0.3
Annotations:         <none>
Selector:            app.kubernetes.io/component=controller,app.kubernetes.io/instance=ingress-nginx,app.kube
x
Type:                LoadBalancer
IP:                 10.101.210.96
LoadBalancer Ingress: localhost
Port:               http 80/TCP
TargetPort:         http/TCP
NodePort:           http 31040/TCP
Endpoints:          10.1.0.54:80
Port:               https 443/TCP
TargetPort:         https/TCP
NodePort:           https 31765/TCP
Endpoints:          10.1.0.54:443
Session Affinity:   None
External Traffic Policy: Local
HealthCheck NodePort: 30996
Events:             <none>
```

Open chrome and enter localhost to see that nginx is working as below (the error 404 is ok):



Check and investigate the Ingress-Nginx-Controller status

Run the commands below:

kubectl get deployments -n ingress-nginx

```
PS C:\Kubernetes\EmployeesManagement\manifests> kubectl get deployments -n ingress-nginx
NAME                      READY   UP-TO-DATE   AVAILABLE   AGE
ingress-nginx-controller  1/1     1             1           13m
PS C:\Kubernetes\EmployeesManagement\manifests>
```

kubectl get pods -n ingress-nginx

```
PS C:\Kubernetes\EmployeesManagement\manifests> kubectl get pods -n ingress-nginx
NAME                                READY   STATUS    RESTARTS   AGE
ingress-nginx-admission-create-pvrln 0/1     Completed 0           14m
ingress-nginx-admission-patch-6bznt  0/1     Completed 0           14m
ingress-nginx-controller-98f46f89d-4mmp1 1/1     Running   0           14m
PS C:\Kubernetes\EmployeesManagement\manifests>
```

kubectl logs -n ingress-nginx ingress-nginx-controller-98f46f89d-4mmp1

```
PS C:\Kubernetes\EmployeesManagement\manifests> kubectl logs -n ingress-nginx ingress-nginx-controller-98f46f89d-4mmp1
I0210 11:48:31.357828      8 flags.go:204] Watching for Ingress class: nginx
-----
NGINX Ingress controller
  Release:      0.32.0
  Build:        git-446845114
  Repository:   https://github.com/kubernetes/ingress-nginx
  nginx version: nginx/1.17.10
-----

I0210 11:48:33.161164      8 controller.go:139] Configuration changes detected, backend reload required.
I0210 11:48:33.202685      8 leaderelection.go:252] successfully acquired lease ingress-nginx/ingress-controller-leader-nginx
I0210 11:48:33.202694      8 status.go:86] new leader elected: ingress-nginx-controller-98f46f89d-4mmp1
I0210 11:48:33.333154      8 controller.go:155] Backend successfully reloaded.
I0210 11:48:33.333285      8 controller.go:164] Initial sync, sleeping for 1 second.
PS C:\Kubernetes\EmployeesManagement\manifests>
```

kubectl exec -it -n ingress-nginx ingress-nginx-controller-98f46f89d-4mmp1 -- cat /etc/nginx

```
PS C:\Kubernetes\EmployeeManagement\manifests> kubectl exec -it -n ingress-nginx ingress-nginx-controller-98f46f89d-4mmp1 -- cat /etc/nginx/nginx.conf

# Configuration checksum: 15812241863220064840

# setup custom paths that do not require root access
pid /tmp/nginx.pid;

daemon off;
```

kubectl get pods -n ingress-nginx -l app.kubernetes.io/name=ingress-nginx --watch

Done!