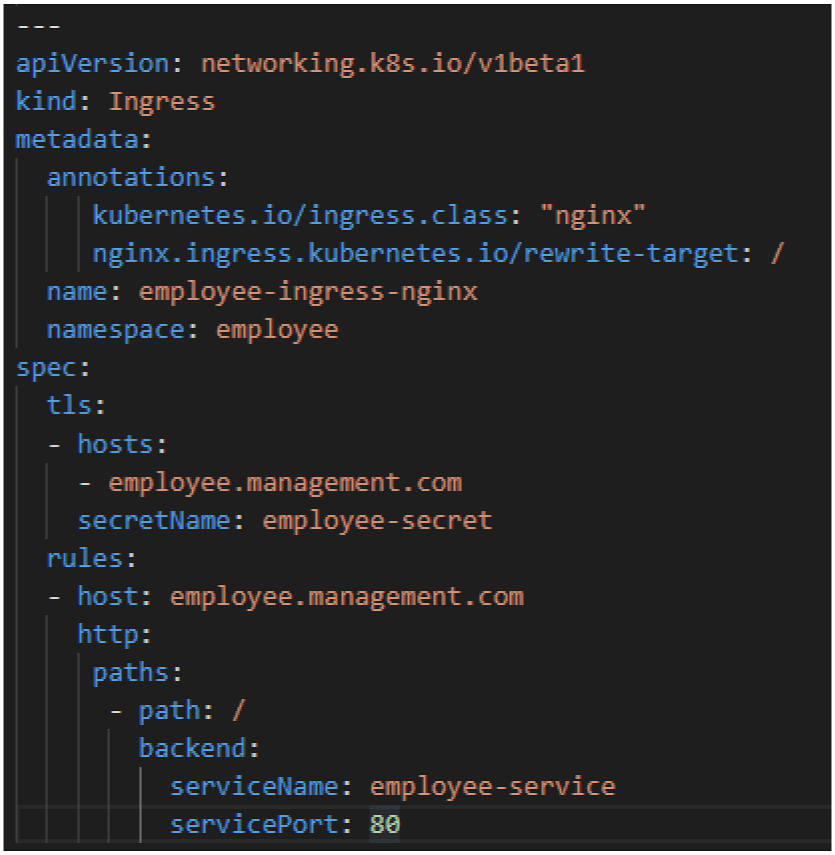
Lesson10 - Deploy .Net core web application with ingress

In previous lessons with deployed ingress-nginx-controller and TLS secret with self-signed certification to Kuberneties cluster.

In this lesson we will deploy the .NET core web application docker image with the MSSQL docker image to Kuberneties cluster from scratch using secrets, persistent volume and ingress-nginx.

Create netcore-deploy-with-ingress-nginx.yml:

Copy the netcore-deployment.yml to **netcore-deploy-with-ingress-nginx.yml** in manifests folder and add the ingress section after Service section as below and save the file:



```
---
apiVersion: networking.k8s.io/v1beta1
kind: Ingress
metadata:
  annotations:
     kubernetes.io/ingress.class: "nginx"
     nginx.ingress.kubernetes.io/rewrite-target: /
  name: employee-ingress-nginx
  namespace: employee
spec:
  tls:
  - hosts:
    - employee.management.com
    secretName: employee-secret
  rules:
  - host: employee.management.com
    http:
     paths:
      - path: /
        backend:
          serviceName: employee-service
          servicePort: 80
```

Deploy MSSQL and .NET core web application from scratch

Clean the Kuberneties cluster:

```
Kubectl delete ns employee
kubectl delete ns ingress-nginx
kubectl get ns
```

Create employee namespace:

```
kubectl create ns employee
kubectl get ns
```

Create mssql-secret with sa password and connection string:

```
kubectl create secret generic mssql-secret --namespace=employee --from-literal='ConnectionString="server=mssql-service;Initial Catalog=EmployeeDB;Persist Security Info=False;User ID=sa;Password=MyDemoPwd2021!;MultipleActiveResultSets=true"' --from-literal='SA_PASSWORD=MyDemoPwd2021!'
kubectl get secret -n employee
```

Deploy MSSQL:

```
cd .\manifests\
kubectl apply -f .\mssql-deploy-with-secret-and-pv.yml
kubectl get all -n employee
kubectl get pv -n employee
```

Deploy ingress-nginx-controller:

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

Create employee-secret TLS:

```
cd ..
cd .\certification\
kubectl create secret tls employee-secret --key privkey.pem --cert cert.pem -n employee
kubectl get secret -n employee
```

Deploy .NET core web application:

cd ..

cd .\Employees

dotnet ef database update

cd ..

cd .\manifests

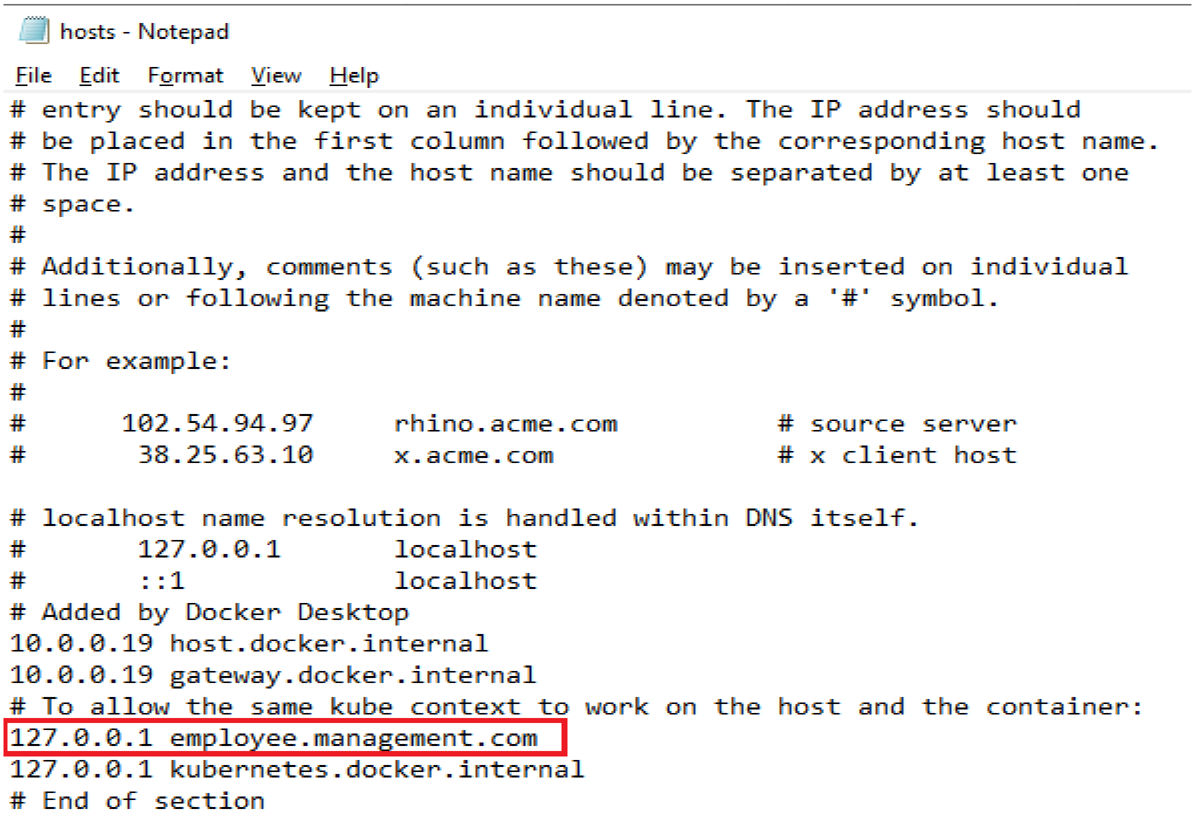
kubectl apply -f .\netcore-deploy-with-ingress-nginx.yml

kubectl get all -n employee

kubectl get ing -n employee

kubectl describe ing -n employee

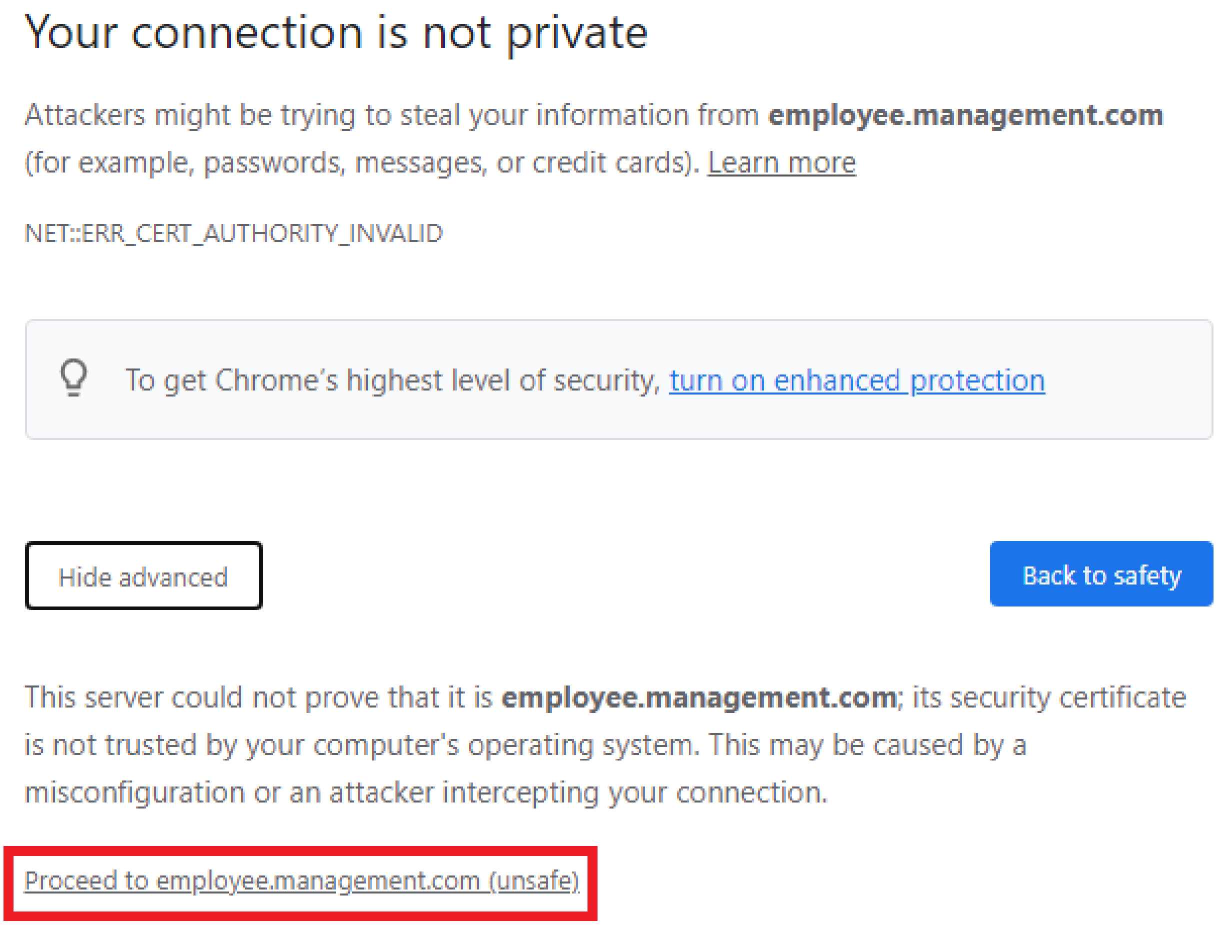
Add **https://employee.management.com/ to** C:\Windows\System32\drivers\etc\hosts:



```
# entry should be kept on an individual line. The IP address should
# be placed in the first column followed by the corresponding host name.
# The IP address and the host name should be separated by at least one
# space.
#
# Additionally, comments (such as these) may be inserted on individual
# lines or following the machine name denoted by a '#' symbol.
#
# For example:
#
#      102.54.94.97     rhino.acme.com          # source server
#       38.25.63.10     x.acme.com              # x client host

# localhost name resolution is handled within DNS itself.
#       127.0.0.1       localhost
#       ::1             localhost
# Added by Docker Desktop
10.0.0.19 host.docker.internal
10.0.0.19 gateway.docker.internal
# To allow the same kube context to work on the host and the container:
127.0.0.1 employee.management.com
127.0.0.1 kubernetes.docker.internal
# End of section
```

Open Chrome and enter https://employee.management.com/



Your connection is not private

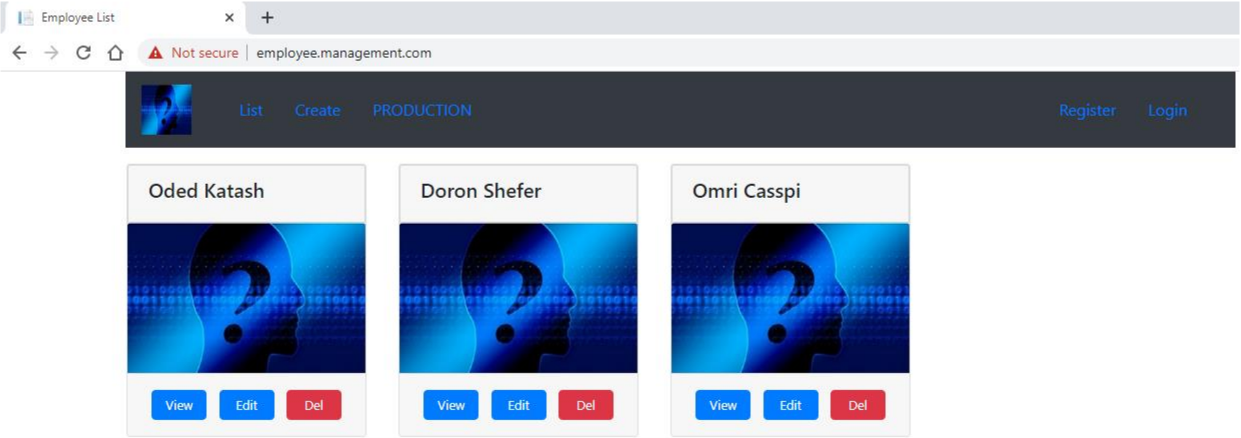
Attackers might be trying to steal your information from **employee.management.com** (for example, passwords, messages, or credit cards). Learn more

NET::ERR_CERT_AUTHORITY_INVALID

To get Chrome’s highest level of security, turn on enhanced protection

This server could not prove that it is **employee.management.com**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

Proceed to employee.management.com (unsafe)


Employee List
Not secure | employee.management.com
List
Create
PRODUCTION
Register
Login
Oded Katash
View
Edit
Del
Doron Shefer
View
Edit
Del
Omri Casspi
View
Edit
Del

Done!