Lesson9 - Generate self-signed certificate

In the previous lesson we deployed Ingress-Nginx-Controller to Kuberneties cluster in order to add DNS to the .NET core web application deployment. In order to use the TLS/HTTPS option provided by Ingress-Nginx-Controller, we will use OpenSSL tool to generate self-signed certificate and then will use the certificate to create a secret in the Kuberneties cluster.

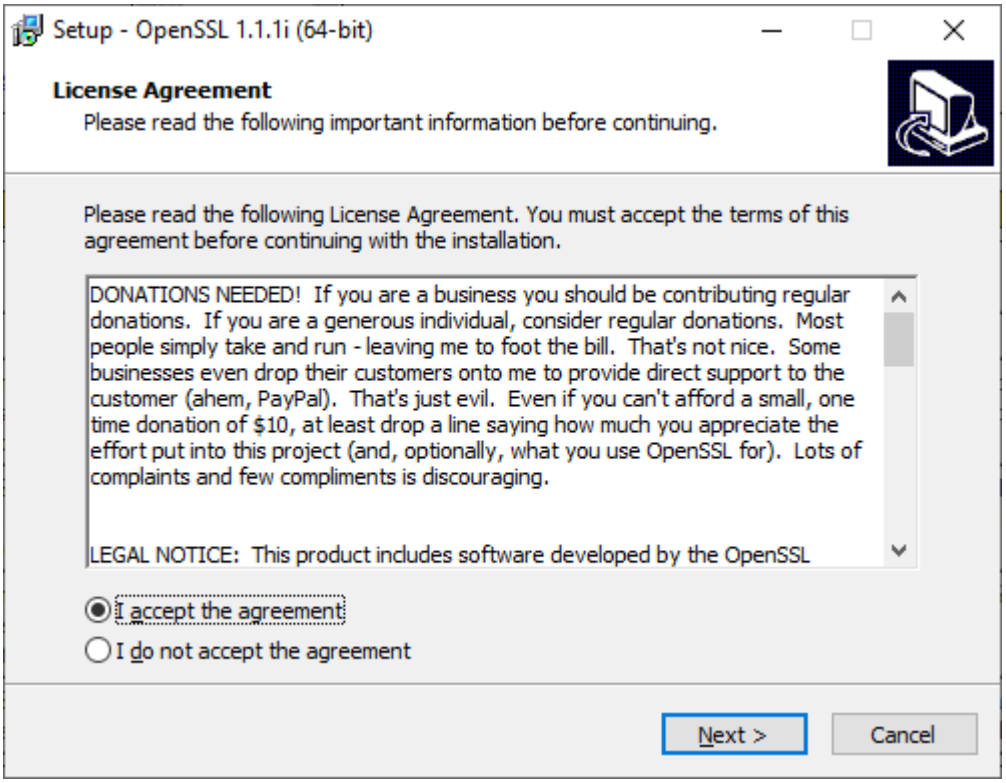
Install OpenSSL

Download the latest OpenSSL windows installer from a third-party source.

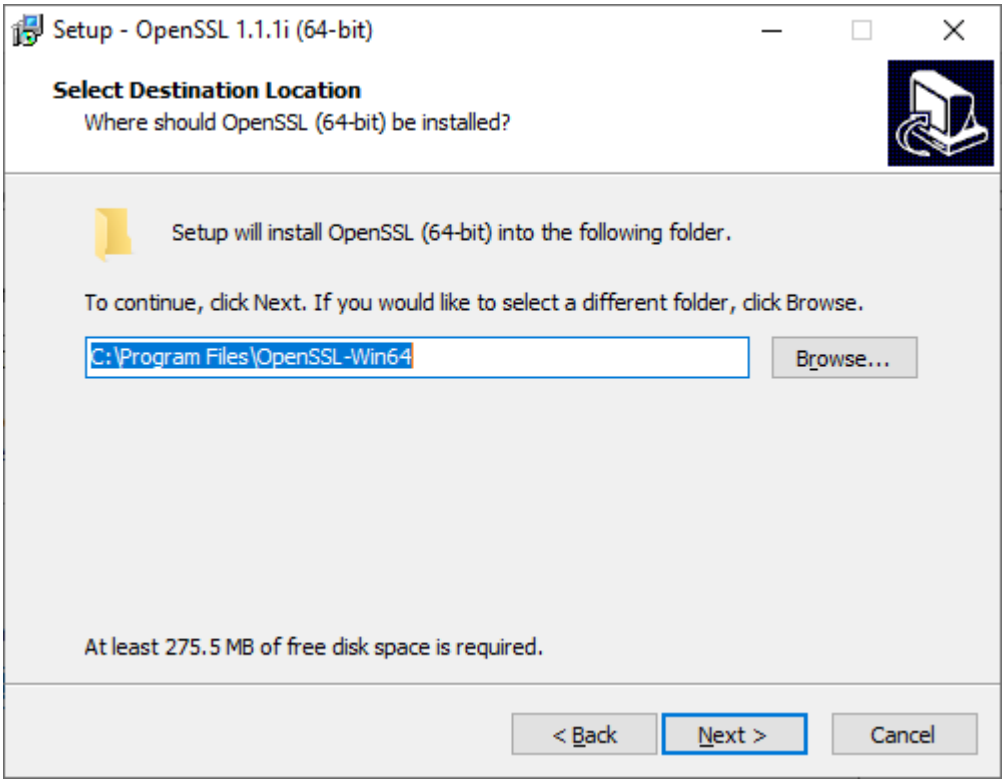
Download Win32/Win64 OpenSSL today using the links below!

File	Type	Description
Win64 OpenSSL v1.1.1i Light EXE | MSI	3MB Installer	Installs the most commonly used essentials of Win64 OpenSSL v1.1.1i (Recommended for users by the creators of OpenSSL). Only installs on 64-bit versions of Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.
Win64 OpenSSL v1.1.1i EXE | MSI	63MB Installer	Installs Win64 OpenSSL v1.1.1i (Recommended for software developers by the creators of OpenSSL). Only installs on 64-bit versions of Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.
Win32 OpenSSL v1.1.1i Light EXE | MSI	3MB Installer	Installs the most commonly used essentials of Win32 OpenSSL v1.1.1i (Only install this if you need 32-bit OpenSSL for Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.
Win32 OpenSSL v1.1.1i EXE | MSI	54MB Installer	Installs Win32 OpenSSL v1.1.1i (Only install this if you need 32-bit OpenSSL for Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.

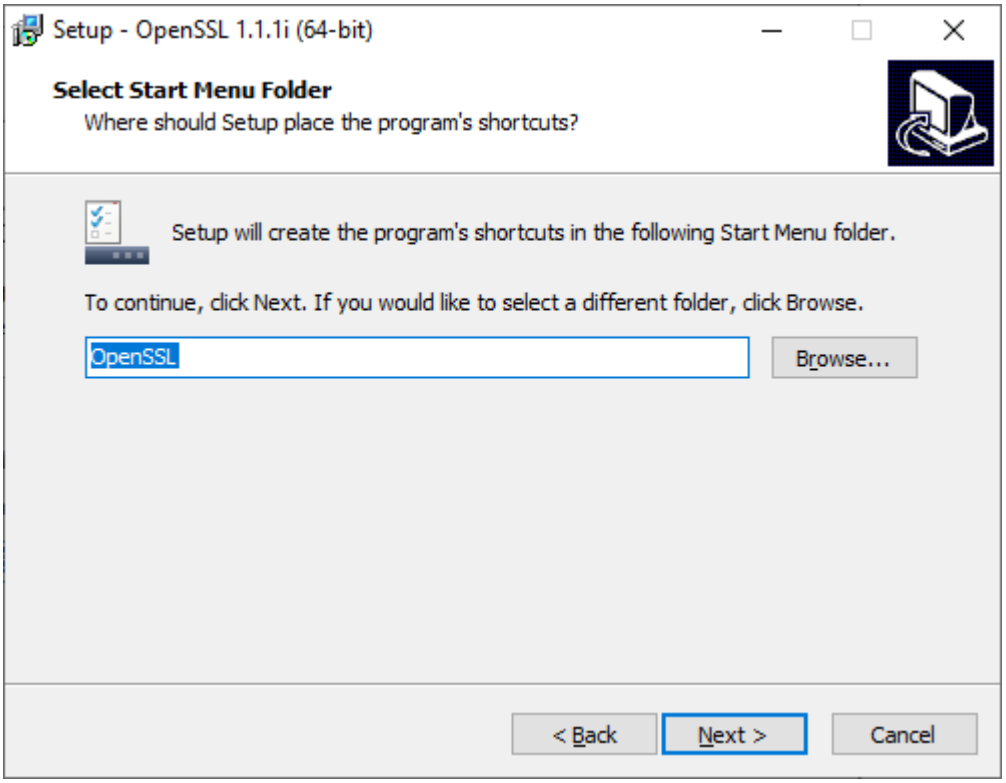
Click Next to install.



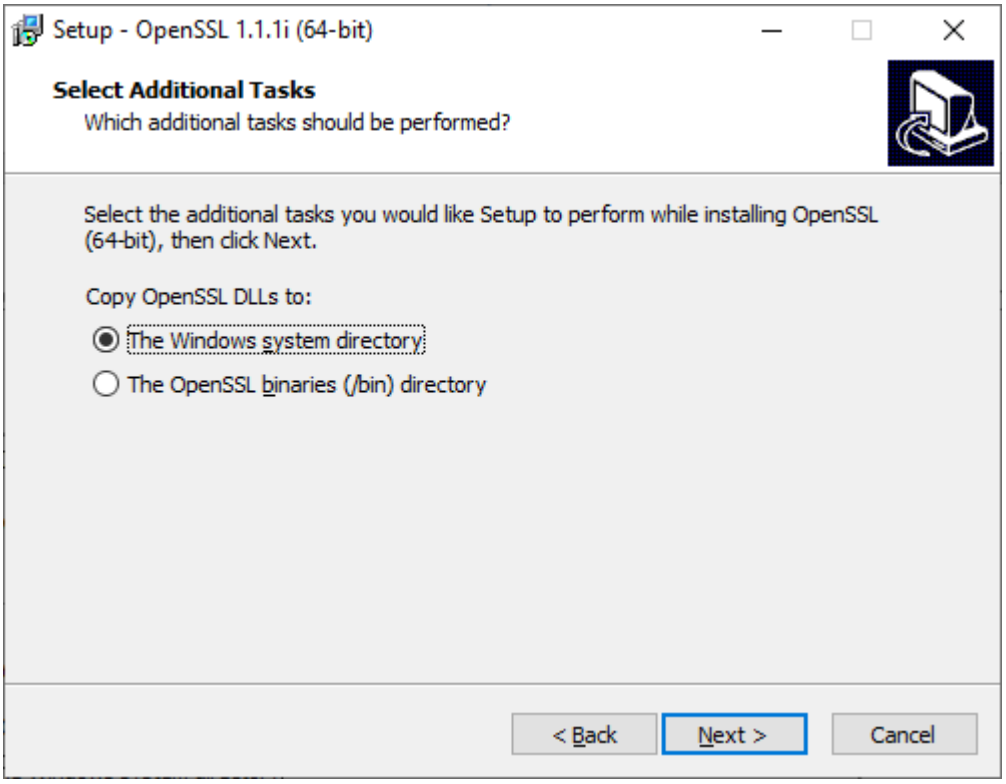
Select the installation directory.



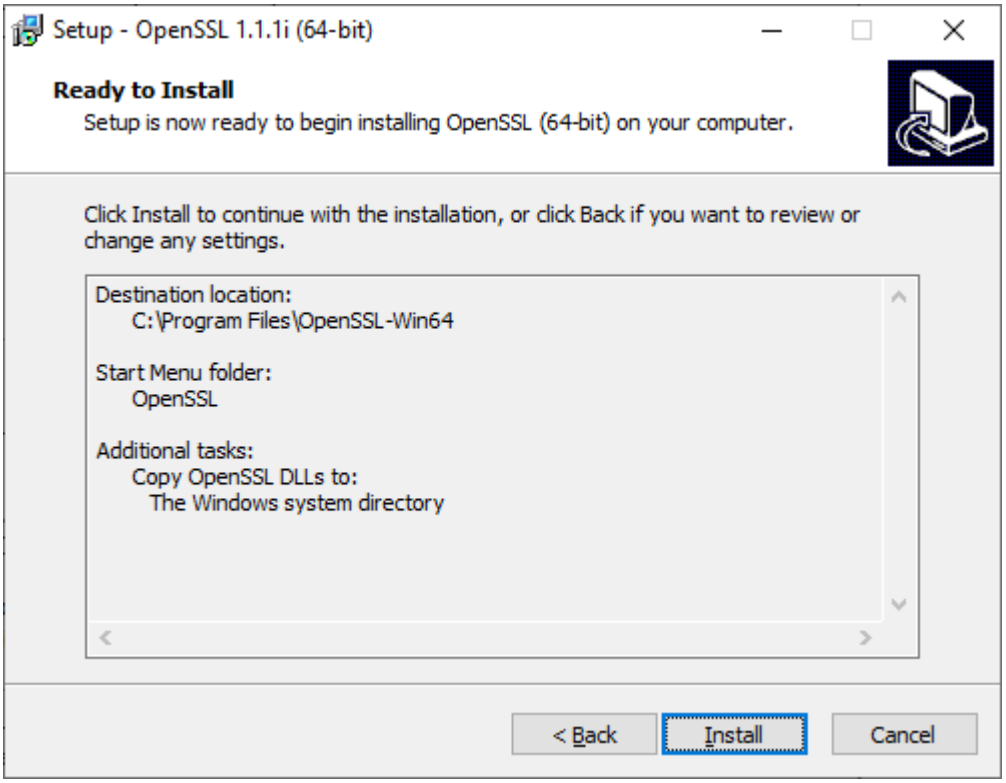
Click Next.



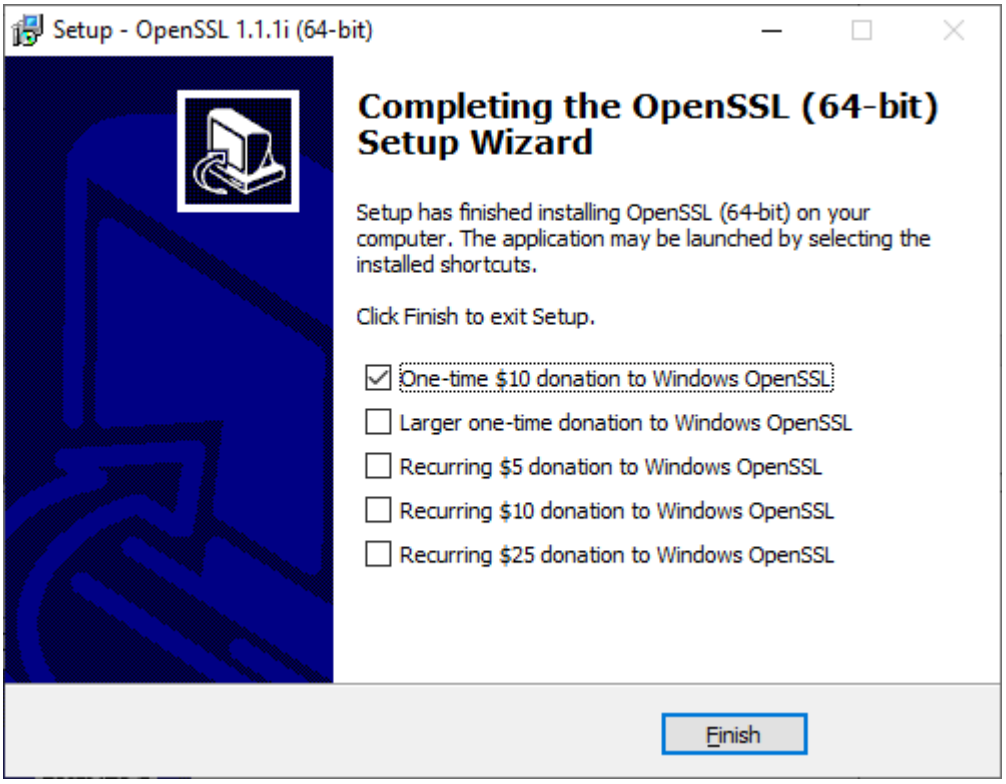
Click Next.



Click Install.



Click Finish.



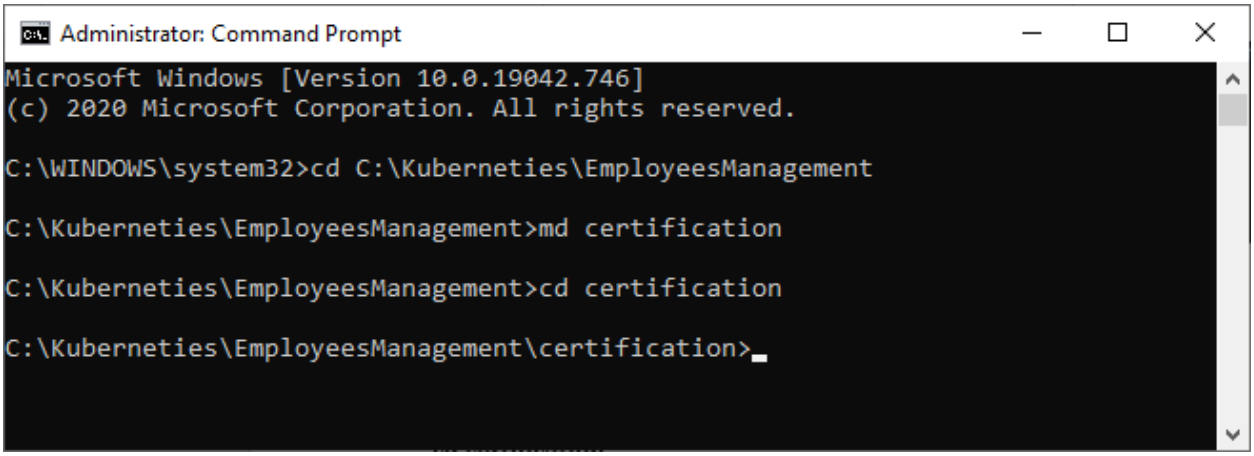
Generate a self-signed certificate and private key

Open CMD and change directory to the EmployeeManagement project folder:

cd C:\Kuberneties\EmployeesManagement

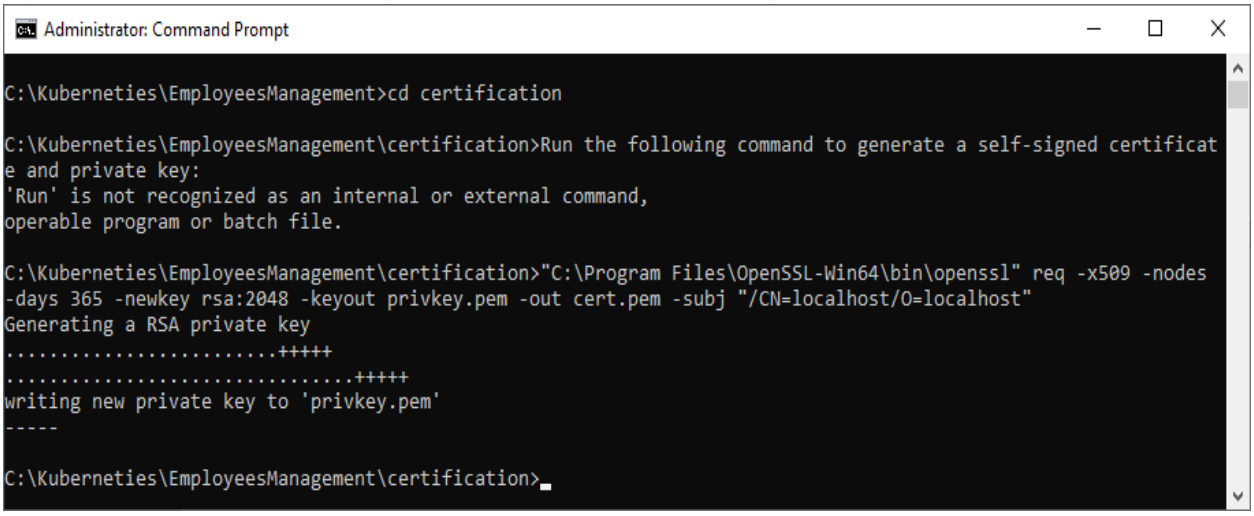
md certification

cd certification

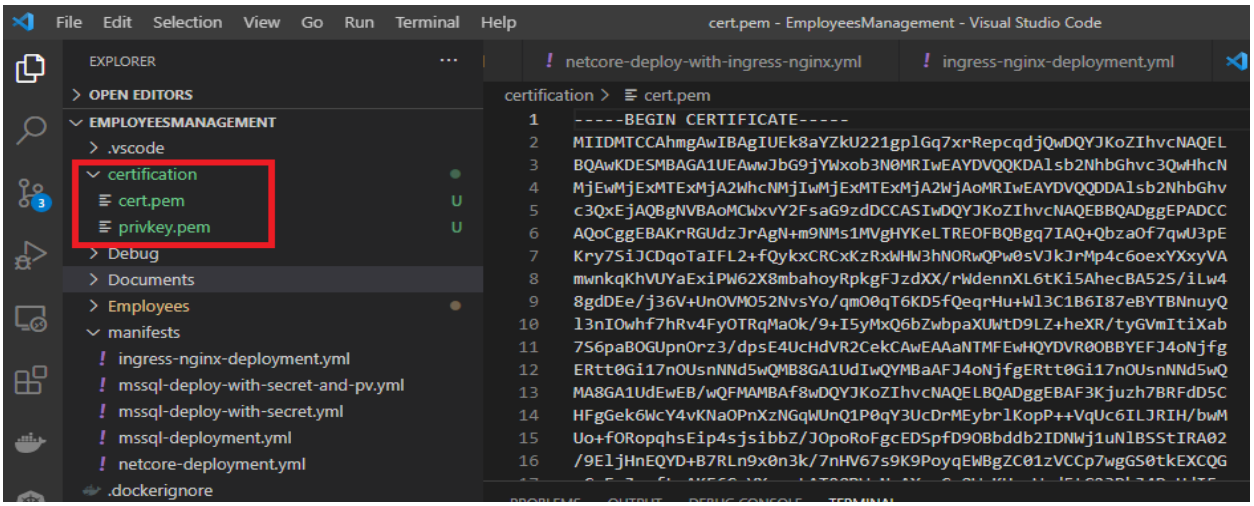


Run the following command to generate a self-signed certificate and private key:

"C:\Program Files\OpenSSL-Win64\bin\openssl" req -x509 -nodes -days 365 -newkey rsa:2048 -keyout privkey.pem -out cert.pem -subj "/CN=localhost/O=localhost"



Open VS code and see that private key and certificate files exist in certification folder:



Create TLS secret in Kuberneties cluster in the employee namespace using the key and the certificate:

cd .\certification

kubectl create secret tls employee-secret --key privkey.pem --cert cert.pem -n employee

kubectl get secret -n employee