Build an EF and ASP.NET Core 2App HOL

Welcome to the Build an Entity Framework Core and ASP.NET Core 2 Application in a Day Hands On Lab. This lab walks you through creating the projects and adding/updating the NuGet packages.

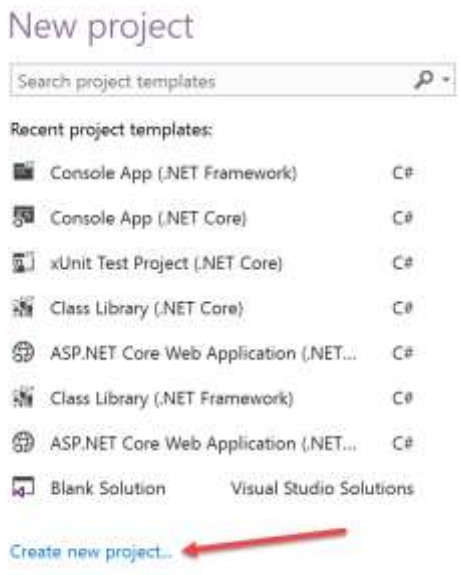
Prior to starting this lab, you must have completed Lab 0, Installing the Prerequisites.

All labs and files are available at https://github.com/skimedic/dotnetcore_hol.

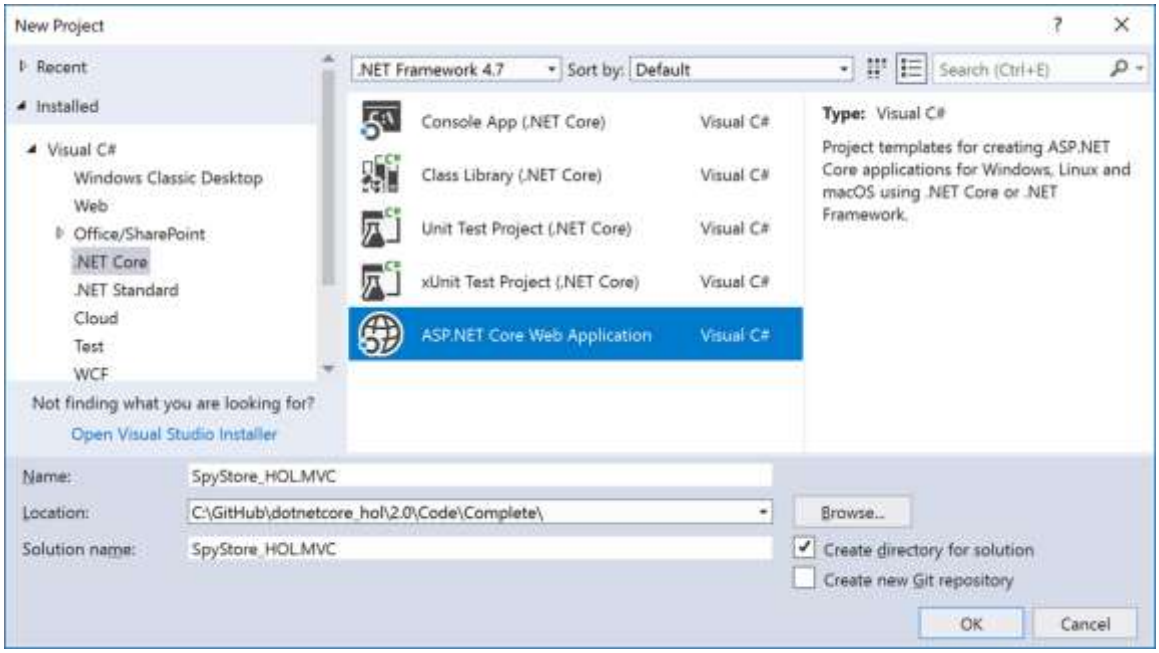
Part 1: Creating the Solution and Projects

Step 1: Create the ASP.NET Core project and solution

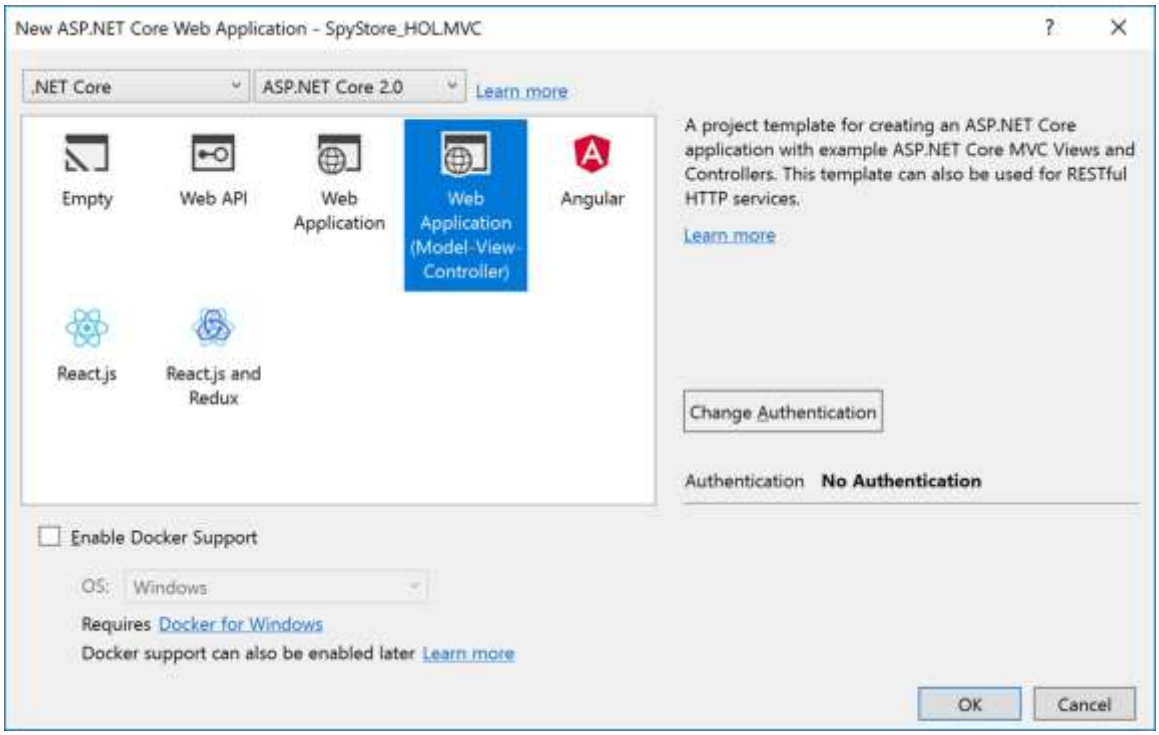
1) From the Start Page, select Create New Project



2) Select .NET Core from the templates from the left rail and ASP.NET Core Web Application from the center section and name it SpyStore_HOL.MVC:



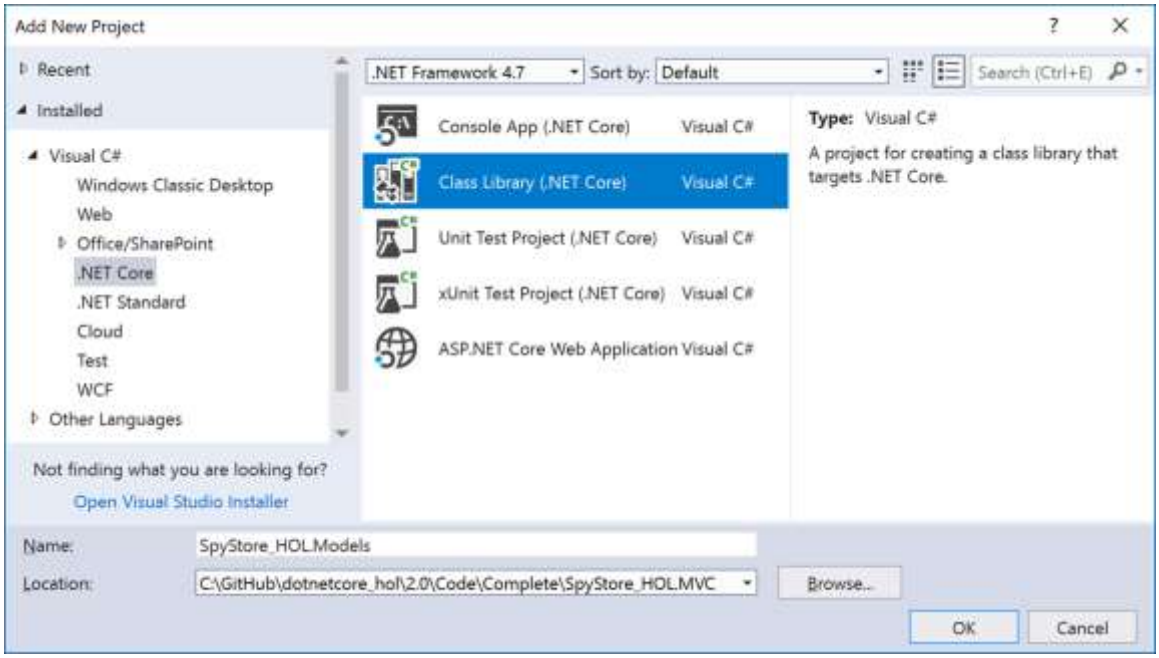
3) On the next screen, make sure the ASP.NET Core 2.0 templates are selected, then select Web Application (Model-View-Controller). Leave the authentication as "No Authentication", and leave the Enable Docker Support unchecked.



Step 2: Create the Models project

1) Right click on the solution, and select Add -> New Project

2) Select .NET Core from the templates from the left rail and Class Library (.NET Core) from the center section and name it SpyStore_HOL.Models:



3) Delete the Class.cs file.

Step 3: Create the DAL project

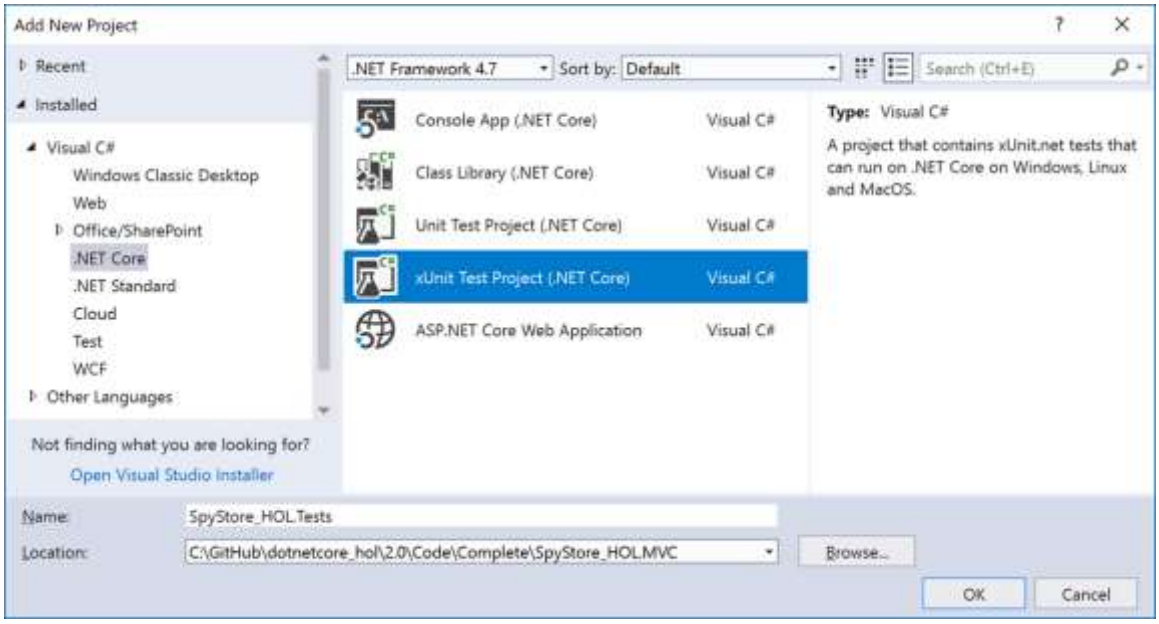
1) Repeat the process and add a new Class Library (.NET Core) named SpyStore_HOL.DAL:
2) Delete the Class.cs file
3) Right click on the SpyStore_HOL.DAL project, and select Edit SpyStore_HOL.DAL.csproj.
4) Update the first <PropertyGroup> to the following snippet using the version of the .NET Core Shared Framework Host displayed using the command line "dontnet –info" (covered in Lab 0).
NOTE: This is due to a bug that will (hopefully) be resolved soon. This only occurs when the DbContext is in a different project than the ASP.NET Core code. See the entire issue explained here: https://github.com/dotnet/cli/issues/7901

```
<PropertyGroup>
  <TargetFramework>netcoreapp2.0</TargetFramework>
  <RuntimeFrameworkVersion>2.0.5</RuntimeFrameworkVersion>
</PropertyGroup>
```

Step 4: Create the Unit Test project

1) Right click on the solution, and select Add -> New Project

2) Select .NET Core from the templates from the left rail and xUnit Test Project (.NET Core) from the center section and name it SpyStore_HOL.Tests:



Part 2: Add/Update the NuGet packages

.NET Core is composed of a series of NuGet packages that update faster than the VS2017 templates, so in addition to adding new packages, the existing packages must be updated.

NOTE: Please make sure not to have "Include prerelease" checked.

Step 1: Update the MVC Project

1) Right click on the SpyStore_HOL.MVC project, and select Manage NuGet Packages.
2) Click Updates at the top, and update all packages that need updating.
3) Examine the list of NuGet packages – on Microsoft.AspNetCore.All and Microsoft.NETCore.App
4) The Microsoft.AspNetCore.All metapackage contains everything you need to Asp.NET MVC Core, including EF
5) Add the AutoMapper package by clicking Browse, then entering AutoMapper in the search box. Select AutoMapper in the left rail, and click install in the right rail.

Step 2: Update the Models Project

1) Right click on the SpyStore_HOL.Models project, and select Manage NuGet Packages.
2) Click Updates at the top, and update all packages that need updating.
3) Add the Entity Framework Core packages by clicking Browse, then entering Microsoft.EntityFrameworkCore in the search box. Select and install:
   Microsoft.EntityFrameworkCore 2.0.1
   Microsoft.EntityFrameworkCore.SqlServer 2.0.1

Step 3: Update the DAL Project

1) Right click on the SpyStore_HOL.DAL project, and select Manage NuGet Packages.
2) Click Updates at the top, and update all packages that need updating.
3) Install the following packages:
   Microsoft.EntityFrameworkCore 2.0.1
   Microsoft.EntityFrameworkCore.Design 2.0.1
   Microsoft.EntityFrameworkCore.Relational 2.0.1
   Microsoft.EntityFrameworkCore.SqlServer 2.0.1
   Microsoft.EntityFrameworkCore.Tools 2.0.1
4) Right click on the SpyStore_HOL.DAL project, and select Edit SpyStore_HOL.DAL.csproj.
5) Add the following XML to the project file in its own ItemGroup:

```
<ItemGroup>
    <DotNetCliToolReference Include="Microsoft.EntityFrameworkCore.Tools.DotNet" Version="2.0.1"
/>
  </ItemGroup>
```

Step 4: Update the Unit Test Project

1) Right click on the SpyStore_HOL.Tests project, and select Manage NuGet Packages.
2) Click Updates at the top, and update all packages that need updating.
3) Add the Entity Framework Core packages by clicking Browse, then entering Microsoft.EntityFrameworkCore in the search box. Select and install
   Microsoft.EntityFrameworkCore 2.0.1
   Microsoft.EntityFrameworkCore.SqlServer 2.0.1

Step 5: Restore the packages (Optional with .NET Core 2.0)

1) Open Package Manager Console (View -> Other Windows -> Package Manager Console) and enter the following command to restore all packages:

```
dotnet restore
```

Part 3: Add the Project References

Step 1: Update the MVC Project

1) Right click on the SpyStore_HOL.MVC project, and select Add -> Reference
2) Select SpyStore_HOL.DAL and SpyStore_HOL.Models

Step 2: Update the DAL Project

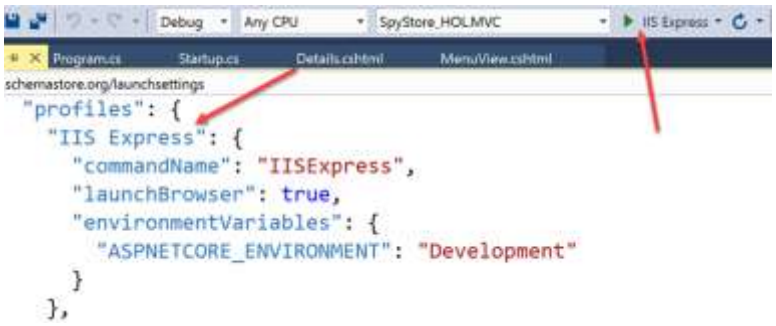
1) Right click on the SpyStore_HOL.DAL project, and select Add -> Reference
2) Select SpyStore_HOL.Models

Step 3: Update the Tests Project

1) Right click on the SpyStore_HOL.Tests project, and select Add -> Reference
2) Select SpyStore_HOL.DAL and SpyStore_HOL.Models

Part 4: Running the Application

1) Set the MVC project as the Startup Project.
2) Examine launchSettings.json under the Properties node in the SpyStore_HOL.MVC project.
    a) IIS Express profile controls IIS Express in Visual Studio 2017



    b) SpyStore_HOL profile controls Kestrel in Visual Studio 2017

3) Can also run from the command line by entering 'dotnet run' from the same directory as the SpyStore_HOL.MVC.csproj file.

Summary

This lab created all of the projects for the HOL, added the NuGet packages, and the appropriate references.

Next steps

In the next part of this tutorial series, you will start to build the data access library using Entity Framework Core.