

# Build an EF and ASP.NET Core 2 App 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 configuring the pipeline, setting up configuration, and dependency injection.

Prior to starting this lab, you must have completed Lab 2 (Lab 3 was optional and is not necessary for completing the class).

All labs and files are available at [https://github.com/skimeddic/dotnetcore\\_hol](https://github.com/skimeddic/dotnetcore_hol).

## Part 1: Create the CustomSettings class

- 1) Add a new folder named Support in the MVC project. In that folder, add a new class named CustomSettings.cs. This file will be used to hold configuration information.

```
public class CustomSettings
{
    public CustomSettings() { }
    public string MySetting1 { get; set; }
    public int MySetting2 { get; set; }
}
```

## Part 2: Update the Startup.cs class

### Step 1: Update the using statements

- 2) Update the using statements to the following:

```
using Microsoft.AspNetCore.Builder;
using Microsoft.AspNetCore.Hosting;
using Microsoft.EntityFrameworkCore;
using Microsoft.EntityFrameworkCore.Diagnostics;
using Microsoft.Extensions.Configuration;
using Microsoft.Extensions.DependencyInjection;
using SpyStore_HOL.DAL.EfStructures;
using SpyStore_HOL.DAL.EfStructures.Initialization;
using SpyStore_HOL.DAL.Repos;
using SpyStore_HOL.DAL.Repos.Interfaces;
using SpyStore_HOL.MVC.Support;
```

### Step 2: Add Items to the Dependency Injection Container

- 1) Open the Startup.cs file and navigate to the ConfigureServices method

- 2) EF Core support is added to the ASP.NET Core DI Container using the built-in AddDbContextPool method. This method constructs the DbContext using the constructor that takes an instance of DbContextOptions. Add the following code after the services.MVC() call:

```
services.AddDbContextPool<StoreContext>(options => options
    .UseSqlServer(Configuration.GetConnectionString("SpyStore"),o=>o.EnableRetryOnFailure())
    .ConfigureWarnings(warnings=>warnings.Throw(RelationalEventId.QueryClientEvaluationWarning)));
```

- 3) Next add all of the repos into the DI container:

```
services.AddScoped<ICategoryRepo, CategoryRepo>();
services.AddScoped<IProductRepo, ProductRepo>();
services.AddScoped<ICustomerRepo, CustomerRepo>();
services.AddScoped<IShoppingCartRepo, ShoppingCartRepo>();
services.AddScoped<IOrderRepo, OrderRepo>();
services.AddScoped<IOrderDetailRepo, OrderDetailRepo>();
```

- 4) Finally, add the following code that uses the configuration file to create the CustomSettings class when requested by another class:

```
services.Configure<CustomSettings>(Configuration.GetSection("CustomSettings"));
```

### Step 3: Call the Data Initializer in the Configure method

- 1) Navigate to the Configure method.
- 2) Update the code block in the IsDevelopment if block:

```
if (env.IsDevelopment())
{
    app.UseDeveloperExceptionPage();
    app.UseBrowserLink();
    using (var serviceScope = app.ApplicationServices
        .GetRequiredService<IServiceScopeFactory>().CreateScope())
    {
        StoreDataInitializer
            .InitializeData(serviceScope.ServiceProvider.GetRequiredService<StoreContext>());
    }
}
else
{
    app.UseExceptionHandler("/Home/Error");
}
```

# Part 3: Use the DI Container

## Step 1: Add the controllers

- 1) In the Controllers director of the MVP app, add three new controller classes:

CartController.cs  
OrdersController.cs  
ProductsController.cs

**NOTE:** You can use the Add Controller wizard or just add regular classes.

## Step 2: Update the CartController

- 1) Update the using statements to the following:

```
using System;
using System.Collections.Generic;
using AutoMapper;
using Microsoft.AspNetCore.Mvc;
using Newtonsoft.Json;
using SpyStore_HOL.DAL.Repos.Interfaces;
using SpyStore_HOL.Models.Entities;
using SpyStore_HOL.Models.ViewModels;
using SpyStore_HOL.Models.ViewModels.Base;
using SpyStore_HOL.MVC.Controllers.Base;
using SpyStore_HOL.MVC.ViewModels;
```

- 2) Make the class public and inherit from Controller:

```
public class CartController : Controller
{
}
```

- 3) Add a constructor that takes an instance of IShoppingCartRepo and a private variable to hold the instance.

**NOTE:** This will be automatically populated by the DI container. The StoreContext is also automatically populated by the DI container.

```
private readonly IShoppingCartRepo _shoppingCartRepo;
readonly MapperConfiguration _config = null;
public CartController(IShoppingCartRepo shoppingCartRepo)
{
    _shoppingCartRepo = shoppingCartRepo;
}
```

- 4) Create a method named Index that takes an ICustomerRepo. When leveraging the DI container in a method, you use the FromServices attribute:

```
public IActionResult Index([FromServices] ICustomerRepo customerRepo, int customerId)
{
    return null;
}
```

- 5) Create a method named AddToCart that takes an IProductRepo.

```
public IActionResult AddToCart([FromServices] IProductRepo productRepo,int customerId, int
productId, bool cameFromProducts = false)
{
    return null;
}
```

### Step 3: Update the OrdersController

- 1) Update the using statements to the following:

```
using System.Collections.Generic;
using System.Linq;
using Microsoft.AspNetCore.Mvc;
using SpyStore_HOL.DAL.Repos.Interfaces;
using SpyStore_HOL.Models.Entities;
using SpyStore_HOL.Models.ViewModels;
using SpyStore_HOL.MVC.Controllers.Base;
```

- 2) Make the class public and inherit from Controller:

```
public class OrdersController : Controller
{
}
```

- 3) Add a constructor that takes an instance of IOrdersRepo and a private variable to hold the instance.  
NOTE: This will be automatically populated by the DI container

```
private readonly IOrderRepo _orderRepo;
public OrdersController(IOrderRepo orderRepo)
{
    _orderRepo = orderRepo;
}
```

### Step 4: Update the ProductsController

- 1) Update the using statements to the following:

```
using Microsoft.AspNetCore.Mvc;
using Microsoft.Extensions.Logging;
using Microsoft.Extensions.Options;
using SpyStore_HOL.DAL.Repos.Interfaces;
using SpyStore_HOL.MVC.Controllers.Base;
using SpyStore_HOL.MVC.Support;
```

- 2) Make the class public and inherit from Controller:

```
public class ProductsController : BaseController
{
}
```

- 3) Add a constructor that takes an instance of IProductRepo, IOptionsSnapShot<CustomSettings>, and ILogger:

```
private readonly IProductRepo _productRepo;
private readonly CustomSettings _settings;
private ILogger Logger { get; }
```

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```

public ProductsController(
    IProductRepo productRepo,
    IOptionsSnapshot<CustomSettings> settings,
    ILogger<ProductsController> logger)
{
    _settings = settings.Value;
    _productRepo = productRepo;
    Logger = logger;
}

```

## Part 4: Configure the Application

### Step 1: Add the connection string to the development settings

4) Update the appsettings.Development.json to the following (adjusted for your machine's setup):

```

{
  "Logging": {
    "IncludeScopes": false,
    "LogLevel": {
      "Default": "Debug",
      "System": "Information",
      "Microsoft": "Information"
    }
  },
  "ConnectionStrings": {
    "SpyStore":
"Server=(localdb)\\mssqllocaldb;Database=SpyStore_HOL2;Trusted_Connection=True;MultipleActiveResultSets=true"
  }
}

```

### Step 2: Add the connection string to the production settings

- 1) Add a new json file named appsettings.Production.json.
- 2) Update the file to the following:

```

{
  "Logging": {
    "IncludeScopes": false,
    "LogLevel": {
      "Default": "None"
    }
  },
  "ConnectionStrings": {
    "SpyStore": "Production connection string"
  }
}

```

- 3) If you change the environment to Production, the app will fail on the data initialization since the connection string is not valid.

## Step 3: Add the Custom Settings to AppSettings.JSON

The CustomSettings class is populated using a configuration section named “CustomSettings”.

- 1) Open appsettings.json.
- 2) Update the file to the following:

```
{
  "Logging": {
    "IncludeScopes": false,
    "LogLevel": {
      "Default": "Warning"
    }
  },
  "CustomSettings": {
    "MySetting1": "Foo",
    "MySetting2": 5
  }
}
```

## Summary

This lab added the necessary classes into the DI container and modified the application configuration.

## Next steps

In the next part of this tutorial series, you will create a custom validation attribute.