

# Build an EF and ASP.NET Core 3.0 App HOL

## Lab 6

This lab walks you through configuring the pipeline, setting up configuration, and dependency injection. Prior to starting this lab, you must have completed Lab 5.

### Part 1: Configure the Application

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

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

```
{
  "Logging": {
    "LogLevel": {
      "Default": "Debug",
      "System": "Information",
      "Microsoft": "Information"
    }
  },
  "ConnectionStrings": {
    "SpyStore": "Server=.,6433;Database=SpyStoreHol;User
ID=sa;Password=P@ssw0rd;MultipleActiveResultSets=true;"
  }
}
```

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

1) Add a new JSON file to the `SpyStore.Hol.Mvc` project named `appsettings.Production.json`. Update the file to the following (this will cause the app to fail in production since the connection string is invalid):

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

#### Step 3: Add the Custom Settings to `AppSettings.Development.json`

1) Open `appsettings.development.json` and add the following:

```
"CustomSettings": {
  "MySetting1": "Foo",
  "MySetting2": 5
}
```

## Part 2: Create the CustomSettings class

- 1) Add a new folder named Support in the SpyStore.Hol.Mvc project. In that folder, add a new class named CustomSettings.cs. This file will be used to hold configuration information. The CustomSettings class is populated using the “CustomSettings” configuration section.

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

## Part 3: Update the Startup.cs class

### Step 1: Update the using statements

- 1) Update the using statements to the following:

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Threading.Tasks;
using Microsoft.AspNetCore.Builder;
using Microsoft.AspNetCore.Hosting;
using Microsoft.EntityFrameworkCore;
using Microsoft.Extensions.Configuration;
using Microsoft.Extensions.DependencyInjection;
using Microsoft.Extensions.Hosting;
using SpyStore.Hol.Dal.EfStructures;
using SpyStore.Hol.Dal.Initialization;
using SpyStore.Hol.Dal.Repos;
using SpyStore.Hol.Dal.Repos.Interfaces;
using SpyStore.Hol.Mvc.Support;
```

### Step 2: Update the Constructor

- 1) The constructor by default takes in an instance of IConfiguration, but it can also take in IWebHostEnvironment and ILoggerFactory instances. Update the constructor to take an instance of IWebHostEnvironment, and assign that injected instance to a class level variable.

```
private readonly IWebHostEnvironment _env;
public Startup(IConfiguration configuration, IWebHostEnvironment env)
{
    Configuration = configuration;
    _env = env;
}
```

## Step 3: Add Services to the Dependency Injection Container

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

2) Use the IConfiguration instance to get the connection string:

```
var connectionString = Configuration.GetConnectionString("SpyStore");
```

3) EF Core support is added to the ASP.NET Core DI Container using the built-in AddDbContextPool method. Add the following code into the ConfigureServices method:

```
services.AddDbContextPool<StoreContext>(options => options
    .UseSqlServer(connectionString,o=>o.EnableRetryOnFailure()));
```

4) Next add all of the repos into the DI container by adding these lines into the ConfigureServices method:

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

5) 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 4: Call the Data Initializer in the Configure method

1) Navigate to the Configure method and update the code block in the IsDevelopment if block:

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

# Part 4: Use the DI Container

## Step 1: Add the Base controller

- 1) In the Controllers directory of the SpyStore.Hol.Mvc project, create a new folder named Base. Add a class named BaseController.cs. Update the using statements to match the following:

```
using Microsoft.AspNetCore.Mvc;  
using Microsoft.AspNetCore.Mvc.Filters;
```

- 2) Update the code to match the following. This is the fake security for the sample app:

```
public class BaseController : Controller  
{  
    public override void OnActionExecuting(ActionExecutingContext context)  
    {  
        ViewBag.CustomerId = 1;  
    }  
}
```

## Step 2: Add the Controllers

- 1) Add three new controller classes into the Controllers directory:  
    CartController.cs  
    OrdersController.cs  
    ProductsController.cs

## Step 3: Update the CartController

- 1) Update the using statements to the following:

```
using System;  
using System.Collections.Generic;  
using System.Linq;  
using System.Threading.Tasks;  
using AutoMapper;  
using Microsoft.AspNetCore.Mvc;  
using Microsoft.Extensions.Logging;  
using SpyStore.Hol.Dal.Repos.Interfaces;  
using SpyStore.Hol.Models.Entities;  
using SpyStore.Hol.Models.Entities.Base;  
using SpyStore.Hol.Models.ViewModels;  
using SpyStore.Hol.Mvc.Controllers.Base;  
using SpyStore.Hol.Mvc.Models.ViewModels;
```

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

```
public class CartController : BaseController
```

- 3) Add a constructor that takes an instance of `ILogger` and `IShoppingCartRepo` and private variables to hold the instances. They will be automatically populated by the DI container.

```
private readonly ILogger<CartController> _logger;
private readonly IShoppingCartRepo _shoppingCartRepo;
public CartController(ILogger<CartController> logger, IShoppingCartRepo shoppingCartRepo)
{
    _logger = logger;
    _shoppingCartRepo = shoppingCartRepo;
}
```

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

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

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

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

## Step 4: Update the OrdersController

- 1) Update the using statements to the following:

```
using System.Collections.Generic;
using System.Linq;
using Microsoft.AspNetCore.Mvc;
using Microsoft.Extensions.Logging;
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 `BaseController`:

```
public class OrdersController : BaseController
```

- 3) Add a constructor that takes an instance of `ILogger` and `IOrdersRepo` and private variables to hold the instances.

```
private readonly IOrderRepo _orderRepo;
private readonly ILogger<OrdersController> _logger;
public OrdersController(ILogger<OrdersController> logger, IOrderRepo orderRepo)
{
    _logger = logger;
    _orderRepo = orderRepo;
}
```

## Step 5: 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 BaseController:

```
public class ProductsController : BaseController
```

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

```
private readonly IProductRepo _productRepo;
private readonly CustomSettings _settings;
private readonly ILogger<ProductsController> _logger;
public ProductsController(ILogger<ProductsController> logger,
    IProductRepo productRepo, IOptionsMonitor<CustomSettings> settings)
{
    _settings = settings.CurrentValue;
    _logger = logger;
    _productRepo = productRepo;
}
```

## 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 fully implement the Controllers.