Build an ASP.NET Core MVC App with EF Core One-Day Hands-On Lab

Lab 0

Welcome to the Build an ASP.NET Core App with EF Core Two-Day Hands-On Lab. Prior to starting the rest of the workshop, you must have the .NET (Core) 5.0.302+ SDK, .NET (Core) 5.0.8+ runtime, Docker Community or SQL Server 2019 Developer, and an appropriate IDE installed.

Supported IDEs include:

- Visual Studio 2019 16.8+
- Visual Studio 2022 Preview
- Visual Studio for the Mac 8.8+
- Visual Studio Code 1.51.1+

SQL Server Management Studio or Azure data Studio is recommended.

Part 0: Permissions

You must have admin permissions on your machine to complete this hands-on lab.

Part 1: Installing the Prerequisites

Step 1: Install/Confirm .NET (Core) 5 Runtime and SDK

- Download and install the latest .NET 5 SDK, ASP.NET Core Runtime, and .NET Runtime from http://dot.net (the .NET Desktop Runtime is not used for the hands-on lab).
- Check the version of the .NET 5 Runtime by entering:

```
dotnet --list-runtimes
```

- The response will be (at the time of this writing):

```
Microsoft.AspNetCore.App 5.0.8
Microsoft.NETCore.App 5.0.8
```

- Microsoft.AspNetCore.App leverages the ASP.NET Core shared framework. Any assets in the ASP.NET Core shared framework will not be deployed with your app and are pre-compiled for better application startup time. Microsoft.AspNetCore.App also uses version roll-forward to work with later versions of the .NET Core framework installed on the target machine.
- Check the version of the .NET 5 SDK by entering:

```
dotnet –-list-sdks
```

- The response will be (at the time of this writing):

```
5.0.302
```

Step 2: Install an IDE

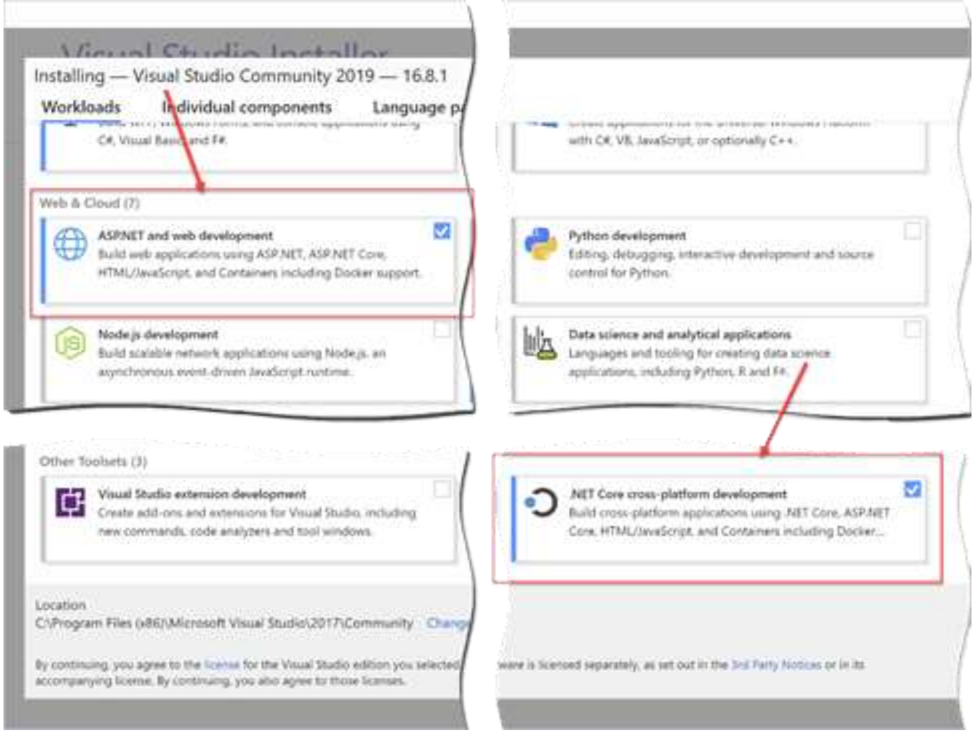
Option 1: Download and install Visual Studio 2019 16.8+/Visual Studio 2022 Preview

- If you already have VS 2019 version 16.8 (or above) or Visual Studio 2022 Preview installed, continue to the next step.
- Download Visual Studio 2019 16.8+ (any edition) from the Visual Studio home page: https://www.visualstudio.com

  a) The Community Edition is free, and has everything you need to complete this Hands-On Lab

Start the installer

  b) The new installation experience has separate workloads based on what type of work you intend to do. For this lab, select the "**ASP.NET and web development**" workload as well as the "**.NET Core cross-platform development**" workloads.



Installing — Visual Studio Community 2019 — 16.8.1

Workloads | Individual components | Language p

C#, Visual Basic and F#. | with C#, VB, JavaScript, or optionally C++.

Web & Cloud (7)

☑ **ASP.NET and web development**
Build web applications using ASP.NET, ASP.NET Core, HTML/JavaScript, and Containers including Docker support.

□ **Python development**
Editing, debugging, interactive development and source control for Python.

□ **Node.js development**
Build scalable network applications using Node.js, an asynchronous event-driven JavaScript runtime.

□ **Data science and analytical applications**
Languages and tooling for creating data science applications, including Python, R and F#.

Other Toolsets (3)

□ **Visual Studio extension development**
Create add-ons and extensions for Visual Studio, including new commands, code analyzers and tool windows.

☑ **.NET Core cross-platform development**
Build cross-platform applications using .NET Core, ASP.NET Core, HTML/JavaScript, and Containers including Docker...

Location
C:\Program Files (x86)\Microsoft Visual Studio\2017\Community Chang

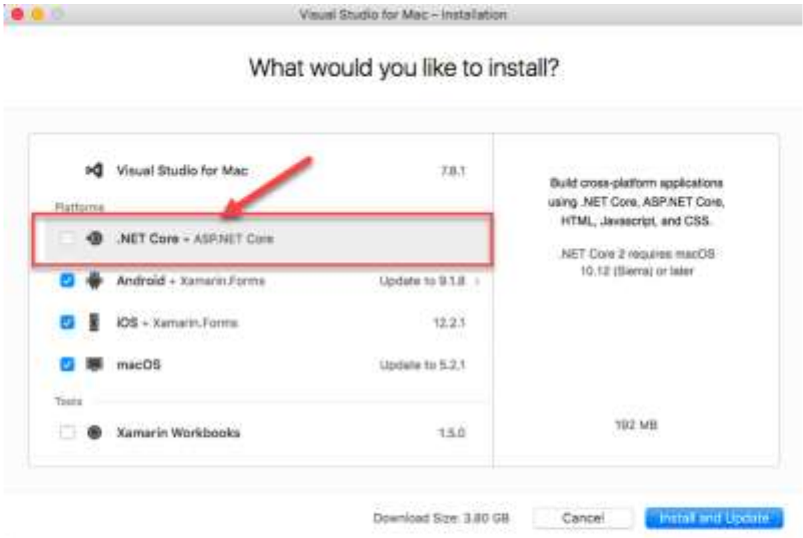
By continuing, you agree to the license for the Visual Studio edition you selected ware is licensed separately, as set out in the 3rd Party Notices or in its accompanying license. By continuing, you also agree to those licenses.

Option 2: Download and install Visual Studio Code 1.51.1+

- If you already have VS Code 1.51.1 or above installed, continue to the next step.
- Download Visual Studio Code from https://visualstudio.microsoft.com/.
- Install the "Microsoft C# extension (powered by OmniSharp)" extension.

Option 3: Download and install Visual Studio for the Mac (8.8+)

- If you already have VS Mac version 8.8 or above installed, continue to the next step.
- Download Visual Studio for the Mac from https://visualstudio.microsoft.com/
- Select .NET Core from the install screen (image from 7.8.1)


Visual Studio for Mac – Installation
What would you like to install?
Download Size: 3.80 GB
Cancel
Install and Update

Visual Studio for Mac 7.8.1

Platforms

□ .NET Core + ASP.NET Core

☑ Android + Xamarin.Forms Update to 9.1.8

☑ iOS + Xamarin.Forms 12.2.1

☑ macOS Update to 5.2.1

Tools

□ Xamarin Workbooks 1.5.0

Build cross-platform applications using .NET Core, ASP.NET Core, HTML, Javascript, and CSS.

.NET Core 2 requires macOS 10.12 (Sierra) or later

192 MB

Step 3: Download and install SQL Server Tooling (SSMS or ADS)

Neither of these are required for the workshop but having one installed makes it easier to work with the database. You only need to install one.

Windows: Download/Install SQL Server Management Studio (SSMS)

- Download and install SQL Server Management Studio 18.4+ from https://docs.microsoft.com/en-us/sql/ssms/download-sql-server-management-studio-ssms?view=sql-server-2017
    a) This is a free tool from Microsoft

Mac/Windows: Download/Install Azure Data Studio (ADS)

- Download and install Azure Data Studio 1.15+ from https://docs.microsoft.com/en-us/sql/azure-data-studio/download?view=sql-server-2017
    a) This is a free tool from Microsoft

Step 4: Install Docker Desktop

Docker is a containerization platform that runs on Windows, MacOS, and Linux.

- Download and install Docker Desktop from https://www.docker.com/products/docker-desktop
    a) Select the edition for your operating system (Windows/Mac)
    b) During installation, when prompted what type of containers to use, select Linux containers (and not Windows containers), even if you are on a Windows machine. This is the type of container that will be loaded and is not related to your computer's operating system.
    c) This is a free tool but requires you to have a Docker user id and password

Step 5: Pull the SQL Server Image and Create the Local Container

A Docker image is like a class definition, while a Docker Container is like an instance of that class. To run SQL Server in Docker, you must first pull the image from Docker Hub, and then create a container using that image.

- Pull the SQL Server 2019 for Linux image. Enter the following command:

```
docker pull mcr.microsoft.com/mssql/server:2019-latest
```

- When creating an image, there are two required environment variables, “ACCEPT_EULA” and “SA_PASSWORD”. An optional environment variable “MSSQL_PID” sets the product version. The host port mapping to the image port needs to be set, and a friendly name added. Create the container using the following command:
   a) **NOTE:** On Windows, use double quotes (“). On Mac and Linux, use single quotes (').

```
docker run -e "ACCEPT_EULA=Y" -e "SA_PASSWORD=P@ssw0rd" -p 5433:1433 --name AutoLot -d
mcr.microsoft.com/mssql/server:2019-latest
```

Step 6: [Optional] Download and install SQL Server 2019 Developer (only if NOT using Docker AND on a Windows machine)

If you already have a version of SQL Server 2019 installed on your machine you can use that version.

- Download the SQL Server 2019 Developer Edition from https://www.microsoft.com/en-us/sql-server/sql-server-downloads

Clone the Repo for the Hands-On Lab

https://github.com/skimedic/dotnetcore_hol_oneday

Summary

These are all the tools you need to complete this Hands-on Lab.