

## Software specifications

Chapter number	Software required (With version)	Free/Proprietary	If proprietary, can code testing be performed using a trial version	If proprietary, then cost of the software	Download links to the software	Hardware specifications	OS required
1 to 12, 14, 16	Windows 7 or later and Visual Studio 2017 or Visual Studio Code, or macOS and Visual Studio Code	Free	n/a	n/a	<a href="https://www.visualstudio.com/downloads/">https://www.visualstudio.com/downloads/</a>	<p>1.8 GHz or faster processor. Dual-core or better recommended</p> <p>2 GB of RAM; 4 GB of RAM recommended (2.5 GB minimum if running on a virtual machine)</p> <p>Hard disk space: 1GB to 40GB, depending on features installed</p> <p>Video card that supports a minimum display resolution of 720p (1280 by 720); Visual Studio will work best at a resolution of WXGA (1366 by 768) or higher</p> <p><a href="https://www.visualstudio.com/en-us/productinfo/vs2017-system-requirements-vs">https://www.visualstudio.com/en-us/productinfo/vs2017-system-requirements-vs</a></p> <p>Visual Studio Code is a small download (&lt; 100 MB) and has a disk footprint of 200 MB. VS Code is lightweight and should easily run on today's hardware.</p>	Windows 7 or later or macOS

						<p>We recommend:</p> <ul style="list-style-type: none"> <li>• 1.6 GHz or faster processor</li> <li>• 1 GB of RAM</li> </ul> <p>VS Code has been tested on the following platforms:</p> <ul style="list-style-type: none"> <li>• OS X Yosemite</li> <li>• Windows 7 (with .NET Framework 4.5.2), 8.0, 8.1 and 10 (32-bit and 64-bit)</li> <li>• Linux (Debian): Ubuntu Desktop 14.04, Debian 7</li> <li>• Linux (Red Hat): Red Hat Enterprise Linux 7, CentOS 7, Fedora 23</li> </ul> <p><a href="https://code.visualstudio.com/Docs/supporting/requirements">https://code.visualstudio.com/Docs/supporting/requirements</a></p>	
13	Windows 10 and Visual Studio 2017	Free	n/a	n/a	<a href="https://www.visualstudio.com/downloads/">https://www.visualstudio.com/downloads/</a>	<a href="https://www.visualstudio.com/en-us/productinfo/vs2017-system-requirements-vs">https://www.visualstudio.com/en-us/productinfo/vs2017-system-requirements-vs</a>	Windows 10
15	macOS, Visual Studio Code, and Visual Studio for Mac	Free	n/a	n/a	<a href="https://www.visualstudio.com/vs/visual-studio-mac/">https://www.visualstudio.com/vs/visual-studio-mac/</a>		macOS

## Detailed installation steps (software-wise)

The steps should be listed in a way that it prepares the system environment to be able to test the codes of the book.

### Installing Microsoft Visual Studio 2017 for Windows

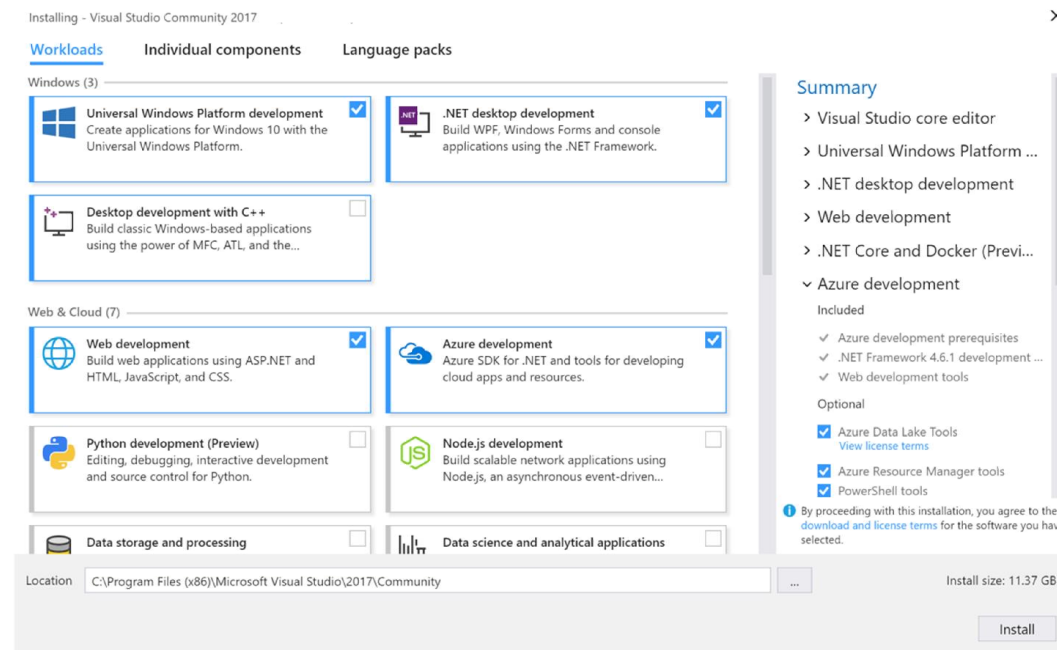
Download and install **Microsoft Visual Studio Community 2017** or later.

- <https://www.visualstudio.com/vs/visual-studio-2017/>

### Choosing workloads

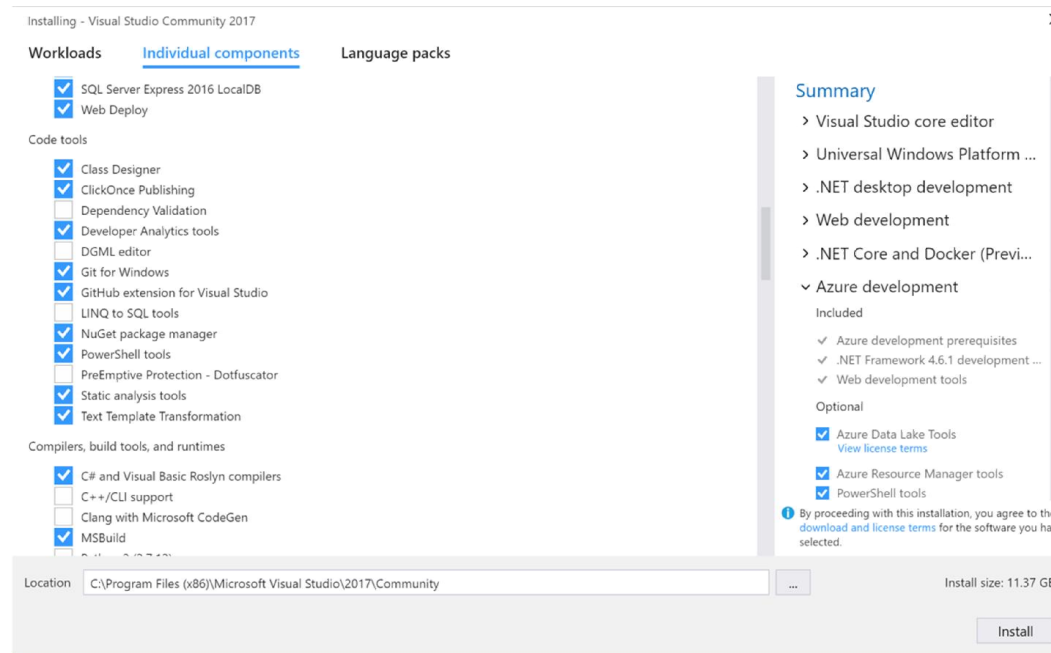
On the **Workloads** tab, choose the following:

- Universal Windows Platform development
- .NET desktop development
- Web development
- Azure development
- .NET Core and Docker development



On the **Individual components** tab, choose the following:

- Git for Windows
- GitHub extension for Visual Studio



Click **Install**.

## Completing the installation

Wait for the software to download and install.

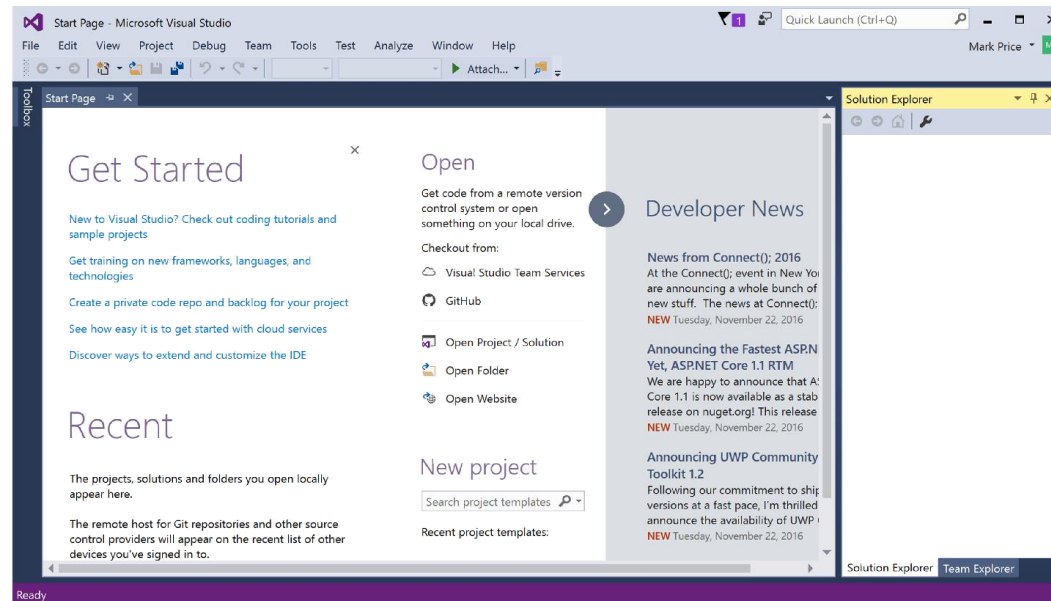
When the installation is complete, click **Launch**.

## Signing in to Visual Studio

The first time that you run Visual Studio 2017, you will be prompted to sign in. If you have a Microsoft account, for example, a Hotmail, MSN, Live, or Outlook e-mail address, you can use that account. If you don't, then register for a new one at the following link:

<https://signup.live.com/>

You will see the Visual Studio user interface with the **Start Page** open in the central area. Like most Windows desktop applications, Visual Studio has a menu bar, a toolbar for common commands, and a status bar at the bottom. On the right is the **Solution Explorer** window that will list your open projects.



To have quick access to Visual Studio in the future, right-click on its entry in the Windows taskbar and select **Pin this program to taskbar**.

## Installing Visual Studio Code for macOS

Install Visual Studio Code for one of the following platforms:

- Windows
- macOS
- Linux

<https://code.visualstudio.com/>

After downloading Visual Studio Code for macOS, drag and drop it to your Applications folder.

You will now need to install .NET Core for the macOS. The full instructions, including a video to watch, are described at the following link, but I have also included them in this book so you don't have to follow the link if you don't have access to the internet now:

<https://www.microsoft.com/net/core#macos>

The first step is to install Homebrew (if you don't already have it).

Start macOS's **Terminal** app and enter the following at the **Terminal** prompt:

```
/usr/bin/ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"
```

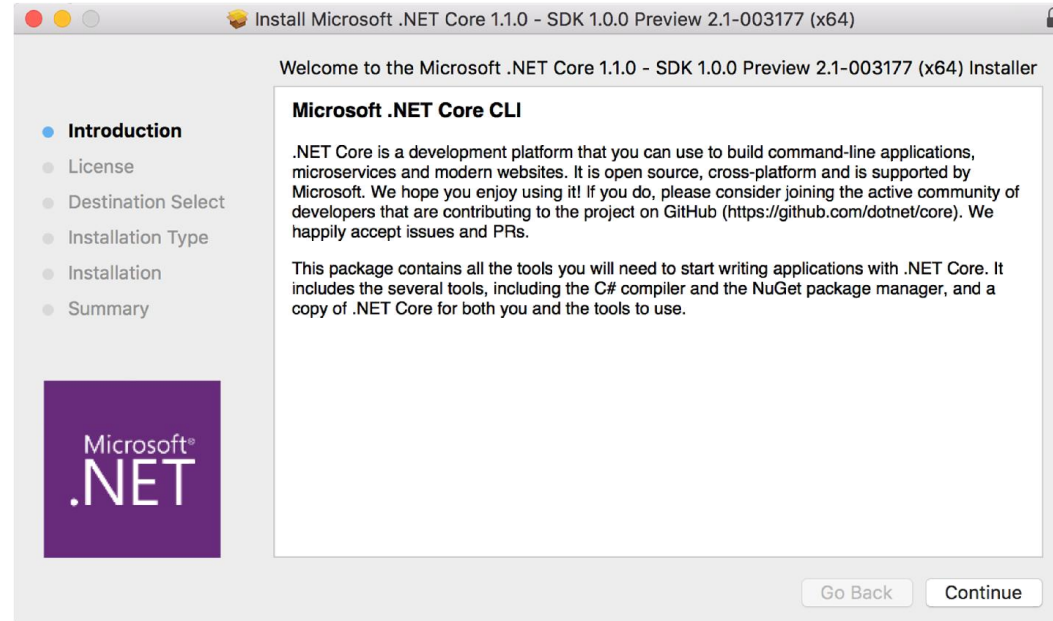
Now, we will use Homebrew to install OpenSSL which is required by .NET Core.

At the Terminal prompt enter the following commands:

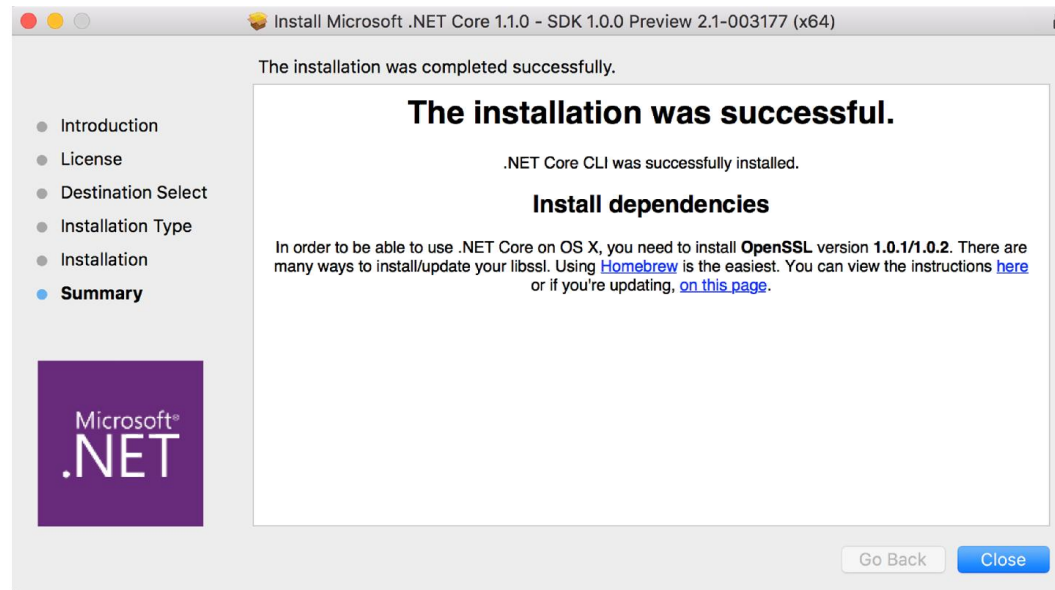
```
brew update  
brew install openssl  
mkdir -p /usr/local/lib  
ln -s /usr/local/opt/openssl/lib/libcrypto.1.0.0.dylib /usr/local/lib/  
ln -s /usr/local/opt/openssl/lib/libssl.1.0.0.dylib /usr/local/lib/
```

Next, download the official .NET Core installer for macOS from the following link:

<https://go.microsoft.com/fwlink/?LinkID=835011>



Click **Continue** and then **Close**.

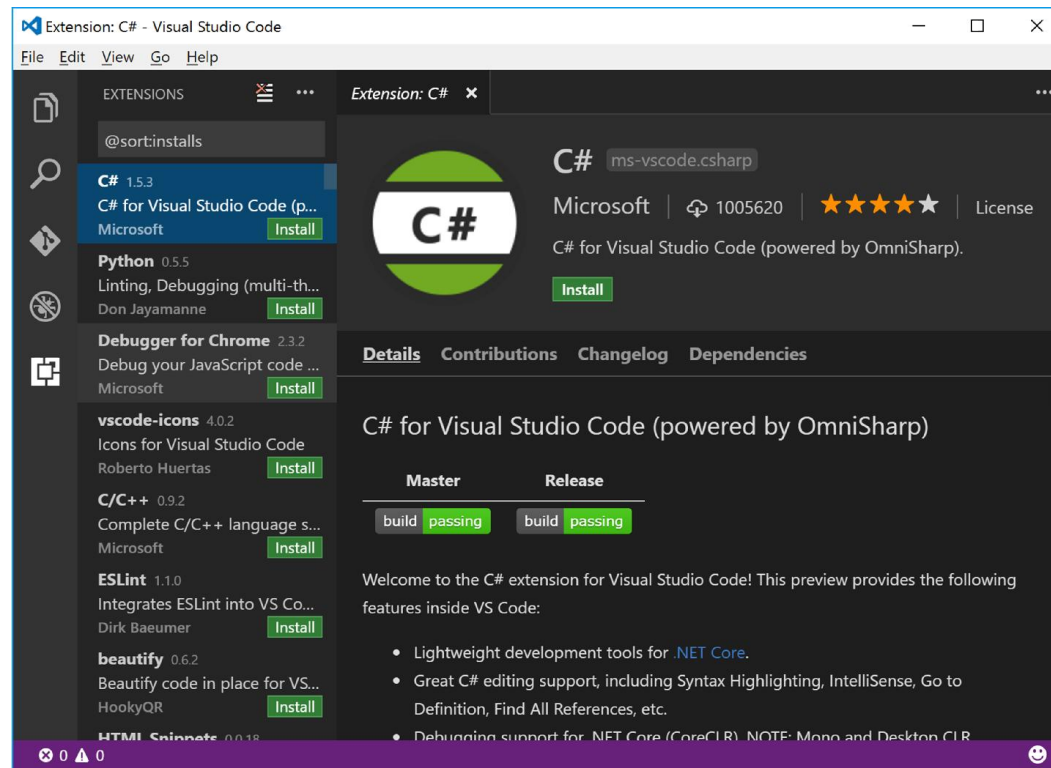


### Install the Visual Studio Code extension for C#

Launch Visual Studio Code and click the **Extensions** icon, or choose **View | Extensions**, or press **Cmd + Shift + X**.

C# is the most popular extension so you should see it at the top of the list. Click **Install**. This extension is not necessary but it provides IntelliSense as you type in a similar way that Visual Studio 2017 does, so it's very handy to install.





## Installing Visual Studio for Mac

If you have not already installed Xcode on your Mac, install it now from the App Store.

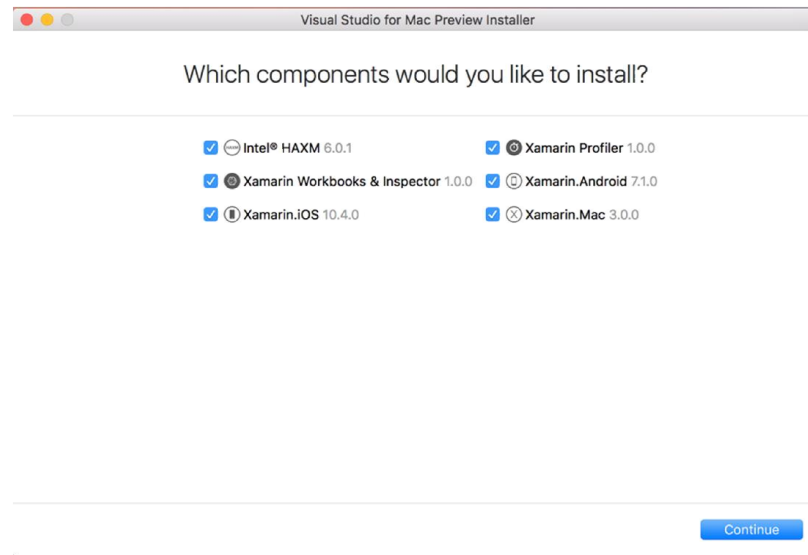
## Search Results for "xcode"



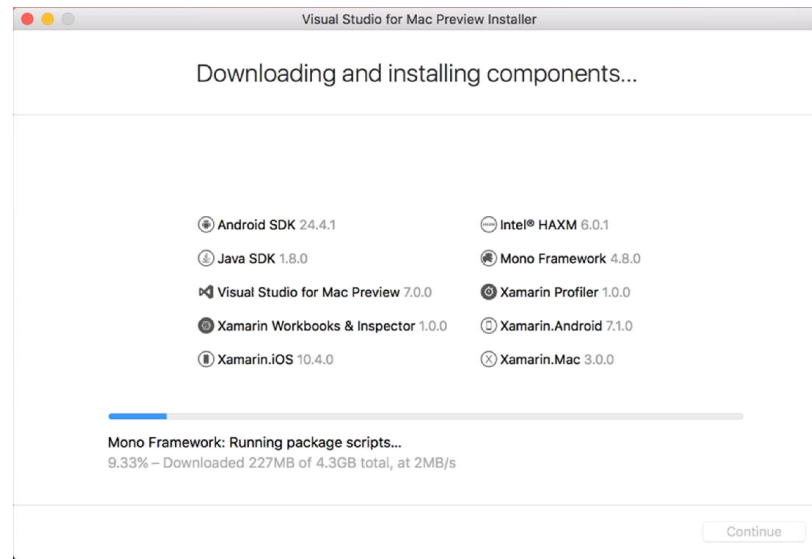
Go to the following link to download and install **Visual Studio for Mac**.

<https://developer.xamarin.com/visual-studio-mac/>

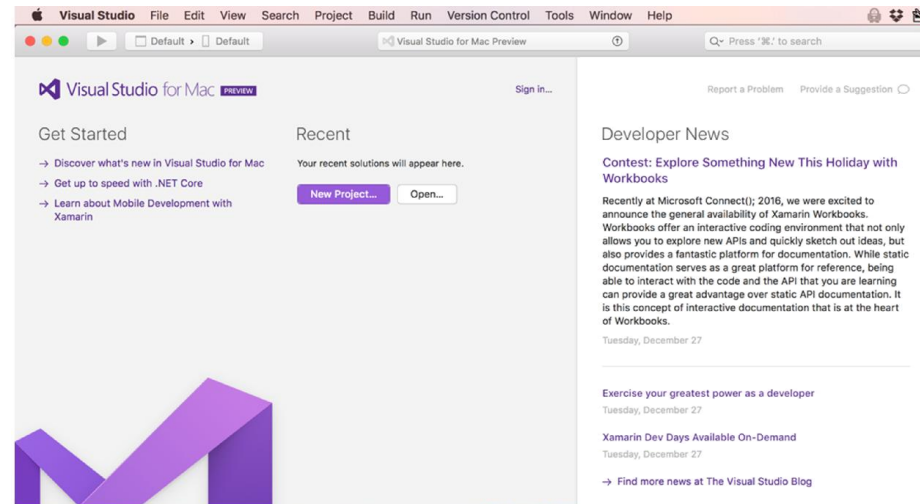
In the **Installer**, choose to install all components, and then click **Continue**.



Accept any licences and wait for **Visual Studio for Mac** to fully install.



Start Visual Studio for Mac to see the Welcome page.



If you are prompted to update components, then click **Restart and Install Updates**.

