Visual Studio Code

Introduction and Setup

# Introduction

In 2015, Microsoft introduced .NET Core, the open source, cross-platform implementation of their flagship development platform. .NET Core supports Windows, Mac OS X and even Linux and can be used for mobile, Web and cloud application development.

In concert with .NET Core, Microsoft also released Microsoft Visual Studio Code (otherwise known as VS Code), a free, open source IDE that also runs on the same platforms supported by .NET Core. VS Code is a lightweight, powerful, flexible IDE (Integrated Development Environment) that includes many of the features of its Windows-only cousin, Visual Studio. With the use of plugins known as *extensions* that add features and functionality, VS Code can be customized to become your ideal developer workspace.

This document will walk you through setting up your workspace with VS Code and .NET Core step-by-step. The software tools are relatively small (even VS Code is only 100 MB) so the installation should go quickly.

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| **NOTE**: You will need the hello\_sample.zip file to test the C# Visual Studio Code extension. |

# Setup

## .NET Core

Description: This is the foundation of our developer workspace.

.NET Core provides:

* The .NET runtime, which provides basic programming services
* A set of framework libraries, providing pre-built classes and utilities
* A set of SDK (Software Development Kit) utilities and language compilers
* The 'dotnet' app host, which is used to launch .NET Core apps and SDK tools.

### Installation

Point your Web browser to <https://www.microsoft.com/net/core> and follow the download and installation instructions for your platform.

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| **NOTE**: Windows Users - the installation process may appear to hang near the end, but just let it complete. |

### Testing

* Open a command prompt.
* Create a folder with the command

mkdir hwapp

* Change directories to enter the new folder with the command

cd hwapp

* Initialize a .NET application with the command

dotnet new

You should get the message that you've created a new C# project.

* Restore the packages your app needs with the command

dotnet restore

You will see a few log messages and after a few moments, your command prompt will return.

* Run your sample application with the command

dotnet run

The code will compile run with the output

Hello World!

You have successfully installed .NET Core.

## Git

Git is a free utility used for *version control* (sometimes known as *source control*). Version control software tracks the changes in your project, backs up your code and protects you from your own mistakes. (You can think of it as an Undo button for your entire project folder.) While git is a command line tool, there are many GUI frontends available to make it easier to use. VS Code has a built-in git GUI that lets you easily backup and manage your code changes.

### Installation

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| **NOTE**: Mac Users - If you have installed Apple's free XCode package (<https://itunes.apple.com/us/app/xcode/id497799835?mt=12>), then you already have git installed, along with many other developer tools. You can skip the installation portion of this guide. Be sure to run XCode at least once in order to accept the software license before using git. |

Point your Web browser to <https://git-scm.com/> and click on the download link for your platform and follow the installation instructions. You should be able to accept the default settings.

### Testing

* Open a command prompt and type the command

git

You should see a message that explains how to use git. If instead you get a message that the git command doesn't exist, you may need to re-install.

Now you need to customize your installation of git with your name and email. (If you don't do this, VS Code will complain when you try to use version control with your projects.). You only have to do this once.

* To add your name (ex. Edith Palka), run the command:

git config --global user.name "Edith Palka"

* To add your email address (ex. epalka@example.com), run the command:

git config --global user.email epalka@example.com

If both of these commands run with no errors, you have successfully installed git.

## Node Toolkit

### Description

Node is a Javascript runtime that allows you to run applications written in Javascript anywhere. This has led to an explosion of developer tools (server and desktop) written in Javascript. We will be installing three of those tools to make our development workflow easier. First, however, we need to install Node.

### Installation (Node)

Point your Web browser to <https://nodejs.org/en/>. You will see two download links for your platform. Choose the LTS (Long Term Support) version and follow the installation instructions.

### Testing

* Open a command prompt and run the command

node -v

You should see the version number for your node install. If you instead get a message that the command couldn't be found, you may have to re-install the software.

### Installation (Yeoman, ASP.NET generator, Bower and Gulp)

Now that you have node installed, you can install the rest of the toolkit with a single command using npm (Node Package Manager). The utilities you are installing are:

* **Yeoman**: This is a *scaffolding tool* that uses templates to set up your project folder, saving you a lot of time and trouble. If you've ever used a "New Project" wizard on an IDE, this is the same thing. Yeoman uses template packages called *generators* to set up different types of projects.
* **Bower**: Software projects rely on code from pre-built software packages to avoid re-inventing the wheel. Bower is a *package manager* that will help you install, update and remove third-party software packages with your project.
* **Gulp**: This is a *build tool*, which lets us automate the routine, boring parts of our software development workflow, letting us concentrate on our code.
* **aspnet**: This is a Yeoman generator specially built with templates for .NET Core project. It lets you easily and quickly set up everything from a simple console app to a full-featured Web application
* At a command prompt, run the command

npm install -g yo bower gulp-cli generator-aspnet

The software will download and automatically install itself. When the command prompt returns, the installation is complete.

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| **NOTE**: During the installation, you may see warning messages. These will not affect your installation. However, if you see the error ENOACESS, then you will have to rerun the installation command as an administrator. |

### Testing (Yeoman/aspnet)

* At a command prompt, run the command

yo

* You should see a greeting a text-based menu. (If you get a message that the command can't be found, you may have to re-install.)
* Confirm that Aspnet is one of the listed generators.
* Use the arrow keys to scroll down to Get me out of here!
* Press <Return> to exit back to the command prompt.

### Testing (Bower)

* At a command prompt, run the command

bower -v

You should see the version number for your bower install. If you get the message that the command can't be found, you may have to re-install.

### Testing (Gulp)

* At a command prompt, run the command

gulp -v

You should see the version number for your gulp install. If you get the message that the command can't be found, you may have to re-install.

If all of the above tests pass, you have successfully installed the node toolkit.

## Microsoft Visual Studio Code

This is the heart of your developer workspace. It provides a powerful, lightweight GUI IDE. By default, it is set up with support for Web application development. Since we will be coding with C#, we'll need to install a plugin (called an *extension* in VS Code-speak).

### Installation

* Point your Web browser to <https://code.visualstudio.com>.
* Download the version for your operating system and follow the installation instructions.

### Testing

* Once VS Code is installed, double-click the application to run it.
* If it starts up without errors, the installation succeeded.

(Leave the application open for the next step.)

## VS Code C# Extension

### Installation

* In VS Code, click on View->Extensions to open the Extensions sidebar.
* The first time you open this, it should display one or more recommended extensions.
* If the extension named C# for Visual Studio Code is listed, click on Install.
* Once the extension is installed, you will get a message that VS Code will have to re-start. Agree to this.
* Once VS Code restarts, the extension should be enabled and you can test it.

### Testing

* Extract the contents of hello\_sample.zip to an empty folder.
* Click on View->Explorer in VS Code to return to the editor window.
* Click on Open Folder and open the folder where you extracted hello\_sample.zip.
* After a moment, you should see two messages drop down from the top of the editor.
* In the message about unresolved dependencies, click on Restore. After a moment, a new file called project.lock.json will appear in your file listing.
* In the message about required assets, click on Yes. After a moment, a new folder called .vscode will appear in your file listing.
* Click on the file Program.cs. You should see C# code with syntax highlighting.
* Click on File->Close Folder to close the project.
* Quit VS Code.

You have now successfully installed and tested your C# developer workspace.

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