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Visual Studio Operating System environments

Visual Studio **IDE** runs only in a **Windows environment** and runs best on a mid-level machine [computer] with lots of RAM. Gamers will have no problems. Those with older or modestly spec'd machines may find Visual Studio IDE *walks* instead of runs.

The latter Windows users, and **macOS** or **Linux** users, should use **Visual Studio Code**. Although the cross-platform <u>Visual Studio Code</u> is not officially supported or used in our school, it is becoming a viable alternative to Visual Studio IDE for many who use macOS or Linux, or even Windows running on older or lower powered machines. ("machine" is geek speak for any computer.)

See these videos on installing Visual Studio Code: <u>https://www.youtube.com/results?search_query=install+visual+studio+code+**macOS** <u>https://www.youtube.com/results?search_query=install+visual+studio+code+**windows**</u></u>

Students are no longer licensed for the Windows OS to upgrade their own PCs or to run Windows as a second OS with macOS or Linux. *Complain to your student council.*

Visual Studio IDE Installation (Windows only)

We recommend you install **Visual Studio IDE**, Community Edition, on your Windows computer for programming in the C language. An IDE is an Integrated Development Environment which is far more than a coding editor. Visual Studio is a "fully-featured, extensible, free IDE for creating modern applications for Android, iOS, Windows, as well as web applications and cloud services." We use it in all our programming courses because it is one of the world's most highly rated and most used software development tools popular among both professionals and students. The C programming course lectures, workshops, and how-to instructions all assume the use of Visual Studio IDE.

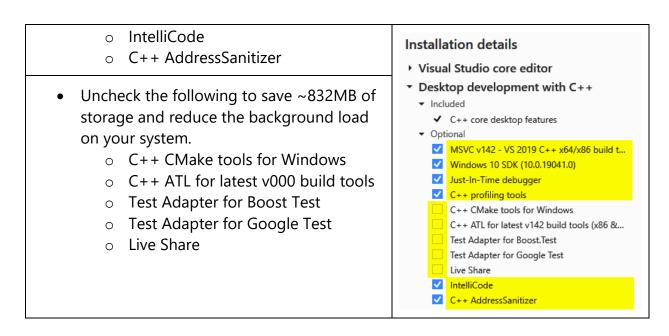
Microsoft has notes for <u>Getting Started with Visual Studio for C and C++ Development</u> which you can explore.

Visual Studio IDE Installation

Start your installation of Visual Studio Community or Visual Studio Code from <u>https://visualstudio.microsoft.com/</u>. *Installing* "Visual Studio for macOS" *will waste your time – despite the name, it is not the same thing as VS IDE or VS Code*.

- Select the Workload, Desktop & Mobile, "Desktop development with C++
 - Use the [TAB] key to move to a section of the dialog and the arrow keys to move within a section. Use the space-bar to select.

Installing — Visual Studio Community 2022 — 17.1.6		
Workloads Individual components Language pa	acks Installation locations	
Web & Cloud (4)		
ASP.NET and web development	Azure development	
Build web applications using ASP.NET Core, ASP.NET, HTML/JavaScript, and Containers including Docker	Azure SDKs, tools, and projects for developing cloud apps and creating resources using .NET and .NET Framework.	
support.	Also includes tools for containerizing your application, i	
Python development	Node_js development	
Editing, debugging, interactive development and source control for Python.	Build scalable network applications using Node.js, an asynchronous event-driven JavaScript runtime.	
Desktop & Mobile (5)		
Mobile development with .NET	INET desktop development	
Build cross-platform applications for iOS, Android or Windows using Xamarin. This includes a preview of	Build WPF, Windows Forms, and console applications using C#, Visual Basic, and F# with .NET and .NET	
the .NET MAUI Workload as an optional install.	Framework.	
t+→→ Desktop development with C++	Universal Windows Platform development	
Build modern C++ apps for Windows using tools of your choice, including MSVC, Clang, CMake, or MSBuild.	Create applications for the Universal Windows Platform with C#, VB, or optionally C++.	
* Mobile development with C++		
Build cross-platform applications for iOS, Android or Windows using C++.		
Check these "Optional" compo	nents	
needed for C programming		
 MSVC v### [the most cull 	urrent	
version of build tools] fo	or your	
processor		
o Windows 10 SDK [the m	lost current	
version]		
 Just-In-Time debugger 		
 C++ profiling tools 		



If the above was missed on the initial install,

run "Visual Studio Installer" > Modify to change Visual Studio components.

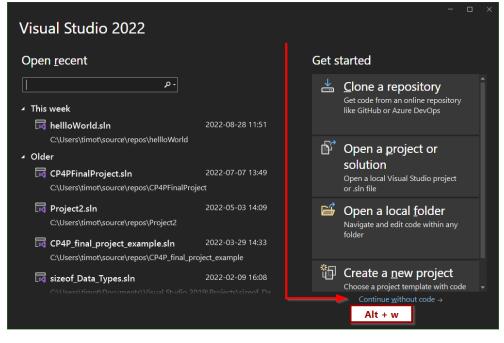
Vis	ual Studio Installer	
Install	ed Available	
×	Visual Studio Community 2019	<u>M</u> odify
	16.11.2	<u>L</u> aunch
	Powerful IDE, free for students, open-source contributors, and individuals Release notes	More 🔻

Windows Security / Microsoft Defender or other anti-malware anti-virus utilities

Security utilities sometimes prevent new executable files, like you create from C programming, from running on your system. Add an Exclusion for the Visual Studio projects folder.

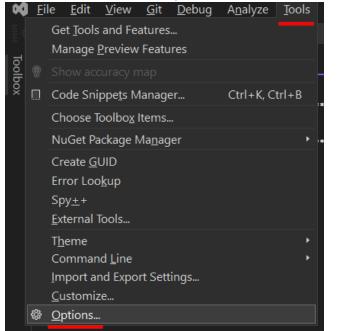
Configure Visual Studio

continue without code \rightarrow



use VS menu: <u>T</u>ools > <u>O</u>ptions

[Alt + T O]



> Projects and Solutions > Locations

[left arrow to collapse Environment, down to Projects and Solutions, right to expand] Copy the Projects location [TAB to Project Location and copy the path Ctrl + AC]

Options		
Search Options (Ctrl+E)	م	Project location:
▶ Environment	^	C:\Users\timot\source\repos
 Projects and Solutions 		User project template location:
General		C:\Users\timot\Documents\Visual
Build And Run		Line a line a translate in actions
Locations		User item template location:
Performance		C:\Users\timot\Documents\Visual
SDK-Style Projects		
VB Defaults		
VC++ Project Settings		
Source Control		

Add an <u>exclusion to your PC's security app</u> for the Project location:

- Search the start menu for Windows Security
- Select Virus & threat protection
- Select Manage settings
- Under Exclusions, select Add or remove exclusions
- Add your Visual Studio Project location

Win	dows Security
←	Exclusions
ŵ	Add or remove items that you want to exclude from Microsoft Defender anti-Virus scans.
0	
ද ආ	+ Add an exclusion \triangleright
	C:\Users\timot\Documents\Visual Studio 2019\Projects Folder
\$\$ \$	Remove

Visual Studio customization

Start Visual Studio and Customize the editor.

A simple way to make it easy for others to see your code is to zoom in. Use Ctrl with the mouse wheel (up to zoom in, down to zoom out). There is also a zoom control in the bottom-left of the code editor.

Alt + T for the Tools menu. O for Options

Use TAB key to move between sections of the following dialogues. Use Up/Down arrows to move within a section of the dialogue. Use the spacebar to select items.

Text Editor – default to Word wrapping in all cases.

```
Text Editor > All Languages > General
```

Options	
wrap × Text Editor All Languages General	Statement completion Auto list <u>m</u> embers <u>H</u> ide advanced members Parameter information
 C# Code Style Formatting Wrapping 	Settings Enable virtual space Word wrap

We use the following style for blocks of code where each brace is on its own line:

```
#include <stdio.h> // Input/Output
int main(void)
{
    printf("Hello, World!\n");
}
```

instead of the traditional K&R style

```
#include <stdio.h> // Input/Output
int main(void) {
    printf("Hello, World!\n");
}
```

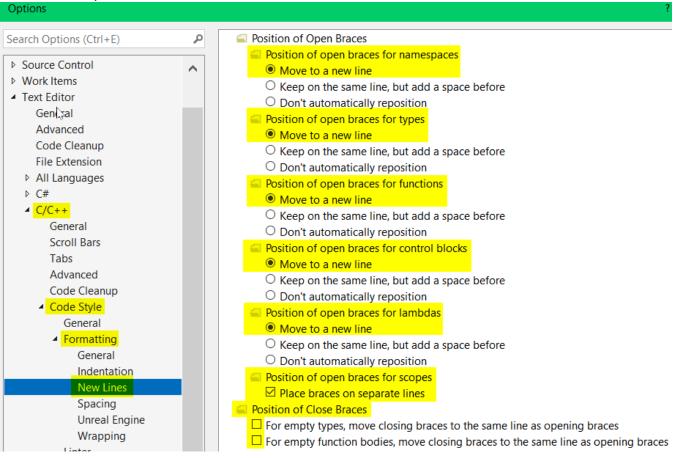
Override the default VS option to control blocks' braces formatting behaviour.

Text Editor > **C/C++** > **Code Style** > **Formatting** > **Wrapping** ... options for blocks > Always apply New Lines Setting for blocks

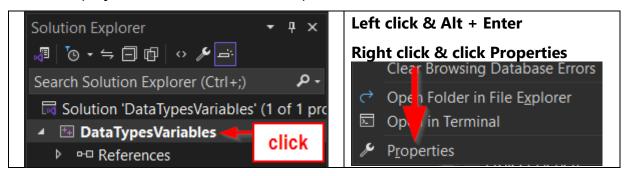
Options	? >
wrap Text Editor All Languages General C# Code Style Formatting	 Wrapping options for blocks Don't wrap one-line code blocks Don't wrap code blocks where opening and closing braces are on the next Always apply New Lines settings for blocks Code blocks are always formatted based on the settings on the "C/C++ New
Wrapping C/C++ Formatting Wrapping	<pre> void Function(int a, int b) { if (a < b) </pre>

Text Editor > C/C++ > Code Style > Formatting > New Lines ...

Position of open braces for functions > Move to a new line

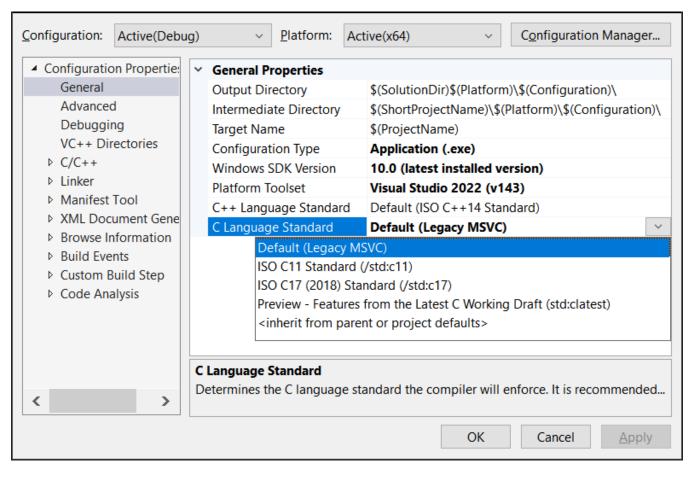


Change the C Language Standard in the project's Property Pages dialog. Select the project name in the Solution Explorer



Configuration Properties > General > C Language Standard

- <u>Default (Legacy MSVC)</u> is the most generic and will do for IPC144. "The default C compiler (that is, the compiler when /std:c11 or /std:c17 isn't specified) implements ANSI C89, but includes several Microsoft extensions, some of which are part of ISO C99."
- More sophisticated, but less portable, programming will need a more current standard.



Visual Studio can also edit HTML in Design and/or Source mode.

Use Solution Explorer to open a Folder View to .html files.

R-click on any .html file and select Open With...

select HTML (Web Forms) Editor, click Set as Default.

