CSC 1100 – Problem Solving and Programming
Using Visual Studio and Visual C++

This document is for users of **Visual Studio** and **Visual C++**. There may be variations of the instructions for different Visual Studio versions.

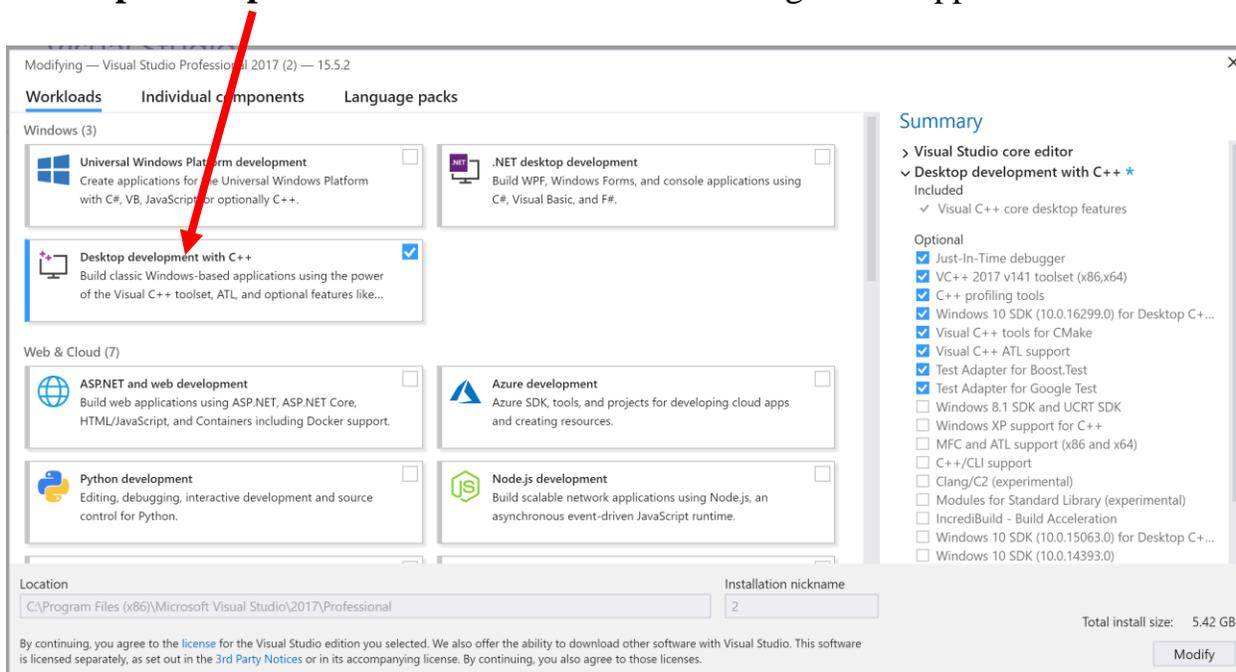## Table of Contents

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Getting Visual Studio
Visual Studio is available at apps.eng.wayne.edu/MPStudents/Dreamspark.aspx:
1) Login with your WSU credentials.
2) Click Developer Tools on left.
3) For Windows users, select **Visual Studio Community 2017**. For Mac OS users, select **Visual Studio for Mac**.
4) Follow the instructions to install the **Visual Studio** download. Select workload **Desktop development with C++** when the following screen appears:

Running Visual Studio
1) Open the Start menu.
2) Navigate to and select **Visual Studio**.

Creating a Visual C++ CLR console application
1) Create file **<source>.cpp** in your code library folder. This is typically done by copying from an existing .cpp file like C++Template.cpp, Lab01.cpp, etc.
2) From the Visual Studio screen, select **File / New / Project …**
3) From the New Project screen:
      a) Select **Visual C++ / CLR / CLR Empty Project**.
      b) Enter a Name for the project (leave Solution Name the same).
      c) Select a Location for the project.
      d) Click **OK**.

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4) From the Visual Studio project screen, Solution Explorer pane, right-click **Source Files**, and select **Add / Existing Item …**
5) From the Add Existing Item screen, navigate to file <source>.cpp (the file created in step 1), and click **Add**.

Copying code from a .cpp file to a into an empty source file
1) From the Visual Studio project screen, select **Edit / Insert File As Text ...**
1) From the Visual Studio project screen, select **Edit / Insert File As Text ...**
6) From the Insert File screen, navigate to a previously stored .cpp file (C++Template.cpp, Source.cpp, Lab1.cpp, etc.), select it, and click **Open**.
7) Complete the header comment.

Renaming a .cpp file
From the Visual Studio project screen, Solution Explorer pane, right-click the .cpp file, select **Rename**, enter the new name, and press **ENTER**.

Switching .cpp files
In CSC 1101, **it is only necessary to have one .cpp file per console application**. It appears under folder Source Files. One .cpp file may be switched with another.
1) From the Visual Studio project screen, Solution Explorer pane, right-click the .cpp file, and click **Remove**.
2) From the Visual Studio project screen, Solution Explorer pane, right-click **Source Files**, and select **Add / Existing Item …**
3) From the Add Existing Item screen, navigate to a .cpp file, select it, and click **Add**.

Opening a Visual Studio project
1) From the Visual Studio screen, select **File / Open Project …**
2) From the Open Project screen, navigate to the project directory, select its solution file (*.sln), and click **Open**.

Opening a Visual C++ source code file
From the Solution Explorer pane, under folder Source Files, double-click the .cpp file. Never open a .cpp file outside its project: first, open its project, second open the file.

Changing the code font
1) From the Visual Studio screen, select **Tools / Options …**

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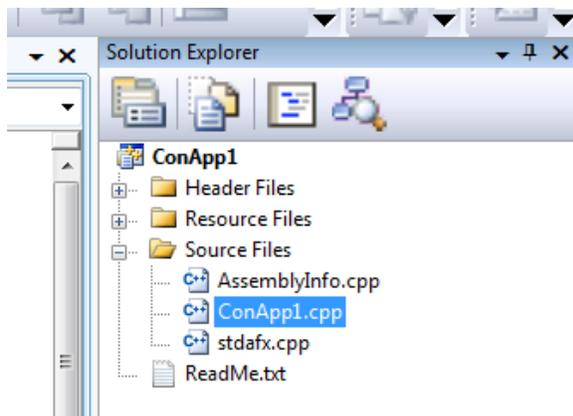## Using Visual Studio and Visual C++

2) From the Options screen, select **Environment / Fonts and Colors**, and modify font settings.
3) From the Options screen, click **OK**.

Showing line numbers
1) From the Visual Studio screen, select **Tools / Options …**
2) From the Options screen, select **Text Editor / All Languages / Line Numbers**.
3) From the Options screen, click **OK**.

Showing the Solution Explorer pane
From the Visual Studio screen, select **View / Solution Explorer**.

Showing the Toolbox
From the Visual Studio screen, select **View / Toolbox**.

Setting *Load last loaded solution* option on startup
To save time when opening Visual Studio with your last project open, set the following option:
1) From the Visual Studio screen, select **Tools / Options …**
2) From the Options screen, select **Environment / Startup**.
3) From the Options screen, for option **At startup:**, select option **Load last loaded solution**, and click **OK**.

Setting Build and Run options
To save time when building and running an application, set the following options:
1) From the Visual Studio screen, select **Tools / Options …**
2) From the Options screen, select **Projects and Solutions / Build and Run**.

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3) From the Options screen, for option **On Run, when projects are out of date:**, select option **Always build**.
4) From the Options screen, for option **On Run, when build or deployment errors occur:**, select option **Do not launch**.
5) From the Options screen, click **OK**.
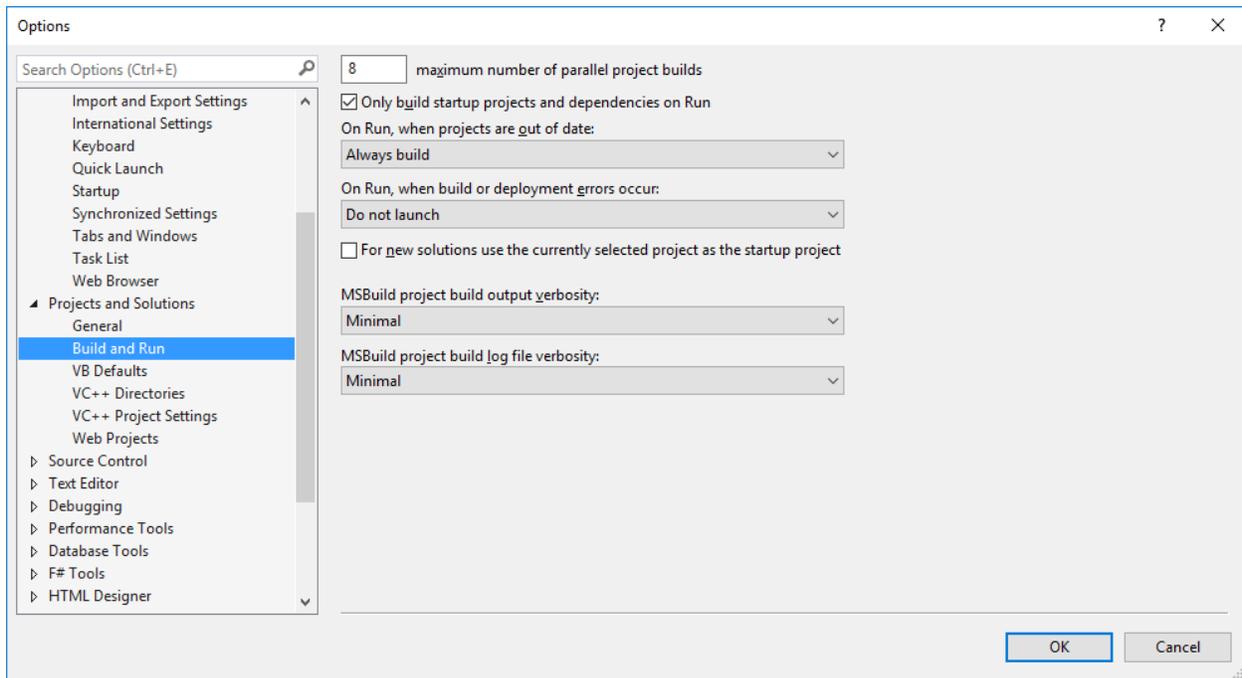
Running an application without the debugger
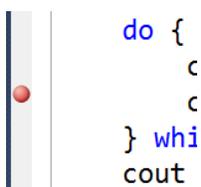Press **CTRL-F5**.

Running an application with the debugger
Press **F5**.

Setting/clearing a Visual C++ program breakpoint
Click in the left margin of any statement.
OR
1) Click any statement.
2) Press **F9**.

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Starting the debugger and stepping through code
Press **SHIFT-F8** (step over).
OR
Press **F8** (step into function).

Showing/hiding windows while the debugger is running
1) Click **Debug / Windows**.
2) Click window type including:
      Autos
      Breakpoints
      Call Stack
      Immediate
      Locals
      Output
      Watch 1, Watch 2, Watch 3, Watch 4

Halting an application running the debugger
Press **CTRL-ALT-BREAK** or click **Stop Debugging** icon.

Halting an application not running the debugger
● At a program prompt or during an infinite loop, press **CTRL-ALT-PAUSE**.

Copying-and-pasting Visual C++ code to a Word document
1) From within the Visual C++ program, press **CTRL-A** and press **CTRL-C**.
2) From within the Word document, press **CTRL-V**.

Printing Visual C++ code
1) From the Visual C++ screen, select **File / Print …**
2) From the Print screen, click **OK**.

Changing the font, layout, and colors of the console window.
1) From the console window, right-click the title bar, and click **Properties**.
2) From the console properties screen, click tab **Font**. Make any desired changes to the font settings.

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3) From the console properties screen, click tab **Layout**. Make any desired changes to the **Window Size** settings.
4) From the console properties screen, click tab **Colors**. Set the colors so that there is good contrast between the screen text and background. Set the **Screen Text** to a dark/light color, and the **Screen Background** to a light/dark color.
5) From the console properties screen, click **OK**.

Copying-and-pasting Visual C++ console application output to a Word document
1) From the Visual C++ console, press **ALT-PrintScreen**.
2) From within the Word document, press **CTRL-V**.

Keyboard shortcuts

Keyboard Shortcuts (not a complete list)	
Shortcut	**Purpose**
CTRL-C	Copy selected text, or position cursor anywhere in line, and copy it to Windows clipboard.
CTRL-End	Move cursor to end of document.
CTRL-F	Open find portion of Find and Replace dialog.
CTRL-H	Open replace portion of Find and Replace dialog.
CTRL-Home	Move cursor to start of document.
CTRL-Left arrow	Move cursor left one word/token.
CTRL-Right arrow	Move cursor right one word/token.
CTRL-SHIFT-Left arrow	Add to selection the next word/token to left.
CTRL-SHIFT-Right arrow	Add to selection the next word/token to right.
CTRL-V	Paste selection from Windows clipboard.
CTRL-X	Cut selected text, or position cursor anywhere in line, and cut it to Windows clipboard.
CTRL-Y	Redo last undo.
CTRL-Z	Undo last edit.

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