



Using Microsoft Visual Studio Community 2015

This is the software we will use in lab to write our C++ programs. If you wish to install the same software on your personal computer, follow these directions carefully: Do NOT use the default install options. Be sure to select CUSTOM install. Expand "Programming Languages" and select Visual C++. Now you can select "Next" buttons until the install begins. The documentation says that you must have 11 gigs available in order to install this software. Web site:

<https://beta.visualstudio.com/downloads/>

1. Start Visual Studio 2015.
2. Log in with a Microsoft account, if necessary. You may use your own or use:
SPCCompSciVS@gmail.com
binary0001
3. Go to the Tools menu and choose "Options". Click on "Projects and Solutions". Change the path names if you are working in the SPC computer science lab. Choose your flash drive as the default location. Do not use your Documents folder with your network account to set up a project. A project must be on a local drive in order to process external input and output files. Not every program we write will use external files, but many of them will.
4. Anytime you write a C++ program using Visual Studio, **you must first create or open a project** that has the program as a component. The set up for this project is crucial to running your program correctly. In 1436 we will create ONE project (called **working**) and use it to run every program we write. In 1437, we will create new projects as necessary.

Creating a Project:

From the Start page, click "New Project". (Or choose from File menu: New Project.)

On the left panel expand "Visual C++", and choose "Win32". On the right panel choose "Win32 Console Application."

*Be sure the location is correct. (Change Location by clicking Browse button to the right)
Enter **working** for the project Name (the solution name will also be **working**). Choose OK.*

In the Win32 Application Wizard box that pops up next, click "Application Settings" on the left. Choose "Console Application" and check "Empty Project". Choose Finish.

You should see a panel on the right named Solution Explorer. If you don't, choose it from the View menu.

Opening a Project:

To begin a new C++ program, you will open the project you created by following these steps:
*File, Open, Project/Solution. Open the **working** folder, double-click on "working.sln".*

You will insert or create the *.cpp file you wish to work with into this project under the folder "Source Files".

5. Writing source code:

If you wish to work with a program that is already written, choose menu item *Project*, (or right click on Source Files folder), *Add Existing Item* and then choose the appropriate path and filename. (Expand the folder "Source Files" and you will see the name of your file.) Double click on the filename and the text will appear.

If you wish to write a new program, choose menu item *Project*, (or right click on Source Files folder), *Add New Item*. Choose "Code" from the Categories panel on the left. Choose "C++ File (.cpp)". Fill in the name of your file. Do not use blanks or periods in your file name. The .cpp extension will be automatically added to your name.

6. Compiling source code:

When you are ready to compile your program, choose from the menu: *Build, Compile*. This will create the object file (*.obj). Each time you compile your program, your *.cpp file is automatically saved.

If your program has syntax (compile) errors, you will see a list of the compile errors in the bottom panel. If you double-click on an error, the cursor will jump to the offending line in the source code. Fix the errors, then compile again until you get a clean compile.

7. **Building (Linking) your program:**

After your program compiles with no errors, then you are ready to link (or build) your program to create the executable file. Choose *Build, Build Solution*. Your *.exe file is created in the "Debug" folder.

8. **Testing and Running your program:**

Now you are ready to actually run the program. Select: *Debug, Start without Debugging*. Notice you can use the keyboard shortcut Ctrl+F5. If you do not like your results and need to make changes to your program, don't forget to go through the compile and build steps again before you execute!

9. There can be only **one** file that has a **main function** included in the project at any one time. When you are through with one program, you need to remove it from the project by clicking on the filename under the Source Files folder, highlighting the file you are through with, and then pressing the delete key. Choose "Remove" to remove the file from the project workspace; this does not delete the file from the folder.
10. If the program uses an input file, the entire path name must be given in the open statement, or it will be assumed that the input file is in the sub folder called **working** under the original **working** folder. When giving a pathname, you must use a forward slash (/) instead of a backslash (\) in the open statement.
11. If the program creates an output file, it will be created in a sub folder to the **working** folder also called **working**. You may create this output file in a different place by specifying a pathname in the open statement.