Visual C++ Express
Gameboy Advance (GBA) Development

1 Installation

NOTE: be sure to read through the instructions before you begin. Please install all of these programs to the **default** directory as this will ensure everything goes smoothly!

1. Download Cygwin's installer from here and install according to the instructions below in 1.1.
2. Download and Install Microsoft Visual C++ Express from Microsoft's website or from the T-Square "Resources" page.
    - The setup will ask you if you would like to install Microsoft Silverlight or Microsoft SQL Server. There are NOT required and installation will be faster if these are unchecked.
3. Download and install **gdaSetup.msi** from the T-Square "Resources" page. Once you have installed the Gameboy Programs through gbaSetup.msi, you can move on to setting up Visual C++ Express!
4.

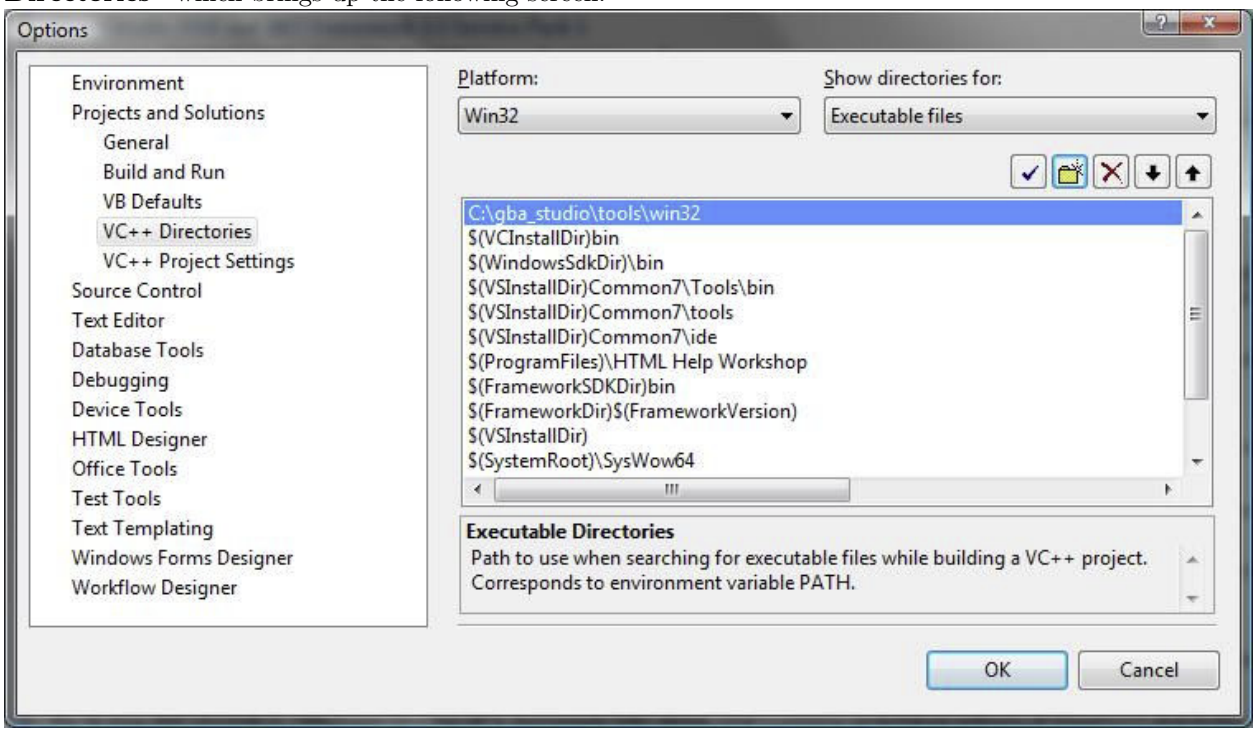
1.1 Installing Cygwin

1. After downloading Cygwin, run the installer.
2. Click Next.
3. Select "Install from Internet" then click Next.
4. Set the local package directory to whatever you wish (usually just leave it at the default value). This is where Cygwin will store downloaded files prior to installation. You may wish to clean out this folder when you are done.
5. Select "direct connection", then click Next.
6. Select ftp://ftp.grlib.gatech.edu.
7. Open up the section labeled "Devel". Scroll down the the component named "make" and click on the arrows so that the installer indicates that make will be installed.
8. Click Next and wait for the installation process to complete.

2 Setup

1. The first step in setting up VC++ to take on GBA development involves opening the program andadding a few directories so that it is able to find the files it needs to compile your game. To do this open up Visual C++ and go to **Tools→Options...**

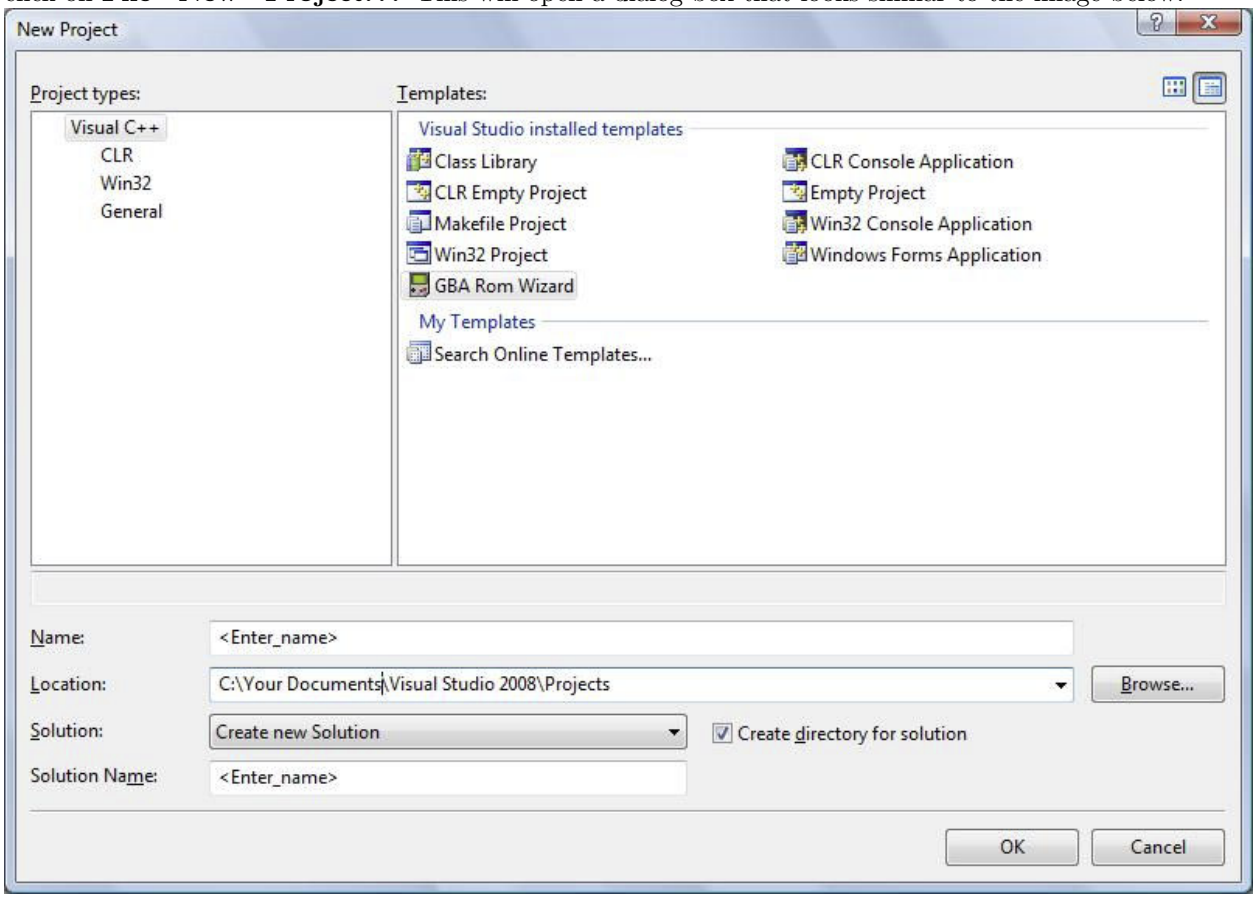
2. This will bring up the window below. On the left side of the new window you will see a few menus. Click the + sign beside **"Projects and Solutions"** and, in the menu below it, click on **"VC++ Directories"** which brings up the following screen:



You will need to add **"C:\gba_studio\tools\win32"** to the entries on this list as shown above. To do this, click on the folder icon on the top to create a new line then type or copy and paste the line into the empty space. Once you have completed that, click OK. Now its time to begin using Visual C++!

3 How To Use

1. As you noticed when you opened VC++, you are greeted by the Start Page. This lists your most recently opened projects and also has a news feed from MSDN on the right. To begin your project click on **File→New→Project...** This will open a dialog box that looks similar to the image below.



2. First be sure that Visual C++ is highlighted on the left menu, and then you should see "GBA Rom Wizard" in on the left menu at the bottom. Single click on this and go to the bottom to enter a name you wish to call your project. **NOTE: Do NOT use any spaces in the name**; use_underscores_if you want to have some separation. It is good practice to not use spaces in filenames or folders. If you use spaces in this case, the compiler will be very angry at you and will not compile your game correctly. Once you are ready to begin, click OK!

3. The next screen you will be presented with is your workspace, though you will still see the Start Page until you open up a file. For every project you will need to begin by creating a main.c file which will contain the code to run your program. These files are considered Source Files, so begin by right clicking the "Source Files" folder and go to **Add→New Item...** This will bring up another window asking what type of file you wish to create. Since there is no choice for a *.c file, single click the "C++ File (.cpp)" but enter main.c in the box where you name the file. After you have chosen a name click Add. You will see the file added to the Source Files folder. If for some reason you accidently added the file to another folder, you can easily move the file by dragging and dropping it into another folder.

4. Once the file is created it should automatically open it up in the main window. If not, double click on the file on the sidebar. Good luck programming!

4 Additional Notes (Important! Please Read)

4.1 Compiling Your Program

- Once you have written your program, you will need to compile it to see if it works correctly. This is done by pressing **F7** or by going to **Build→Build Solution**.

    1. The compilation is handled by the compiler with instructions taken from the makefile which you will see at the bottom of your project. As your programs begin to grow you will add additional *.c files. When you do this, you **terxtulmust** edit the makefile as follows:
        (a) Double click the makefile to open it for editing.
        (b) Go to the line that says **"OFILES += main.o"**.
        (c) Add a *.o file for each *.c file that you need to compile.
            – **Example:** if you added a file called mylib.c you would need to add mylib.o to the end of this line. The line will look like this after the change is made.
            – textbf"OFILES += main.o mylib.o"
            – Note that there is only a **space** separating the two names. Do not use a comma or any type of punctuation.

- As a final note, please be aware of which configuration you are in: Debug or Release. This information can be seen at the top of your screen beside the green arrow button. You begin in Debug mode, but you will need to change this to Release for most of the beginning projects until you are taught the proper way to debug the code. This is as simple as clicking the arrow beside "Debug" and choosing "Release".