Quincy

for Pawn

August 2007

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Introduction

"Quincy" is an integrated development environment (IDE) that integrates a programmer's editor, compiler, and debugger into one Microsoft Windows application. This version of Quincy is adapted to the PAWN scripting language.

Al Stevens wrote Quincy as a teaching tool distributed on CD-ROM with books that he wrote about C and C^{++}. Al Stevens has since retired from the programming and book authoring business, but his work lives on. The original versions of the Quincy IDE are still available at http://www.alstevens.com/quincy.html.

This document assumes that you already know how to run Windows and its applications. Much of the information presented here has its roots in the manual that Al Stevens wrote for Quincy.

What Does the Name Quincy Mean?

Quincy is named after that cat of Al Stevens' daughter Wendy. As a child in the 1970s, Wendy was a fan of the TV shows, The Odd Couple and Quincy, both of which starred Jack Klugman, who played Oscar Madison and a medical examiner named Quincy in those shows. When Wendy brought home a tiny white kitten with blue eyes, she didn't know its sex. Choosing from Jack, Oscar, and Quincy, she decided that Quincy was the most gender-unspecific.

Quincy lived many years and was a beloved pet to Wendy as a child, Mr. and Mrs. Stevens when Wendy went to college, and then to Wendy and her family after Wendy married and had children of her own.

Oh, yeah, Quincy was a female.

Starting and stopping Quincy

There are two ways to start Quincy:
1. Open the Quincy submenu on the Start/Programs menu.
2. Click the Quincy command.

Or:
1. Double-click the Quincy icon that the Setup program optionally added to your desktop.

Quincy always loads the source code files from your most recent Quincy session. The following screen shot shows the Quincy application window with a source code file loaded and ready to go. (The very first time you start Quincy, there will be no source code document loaded.)
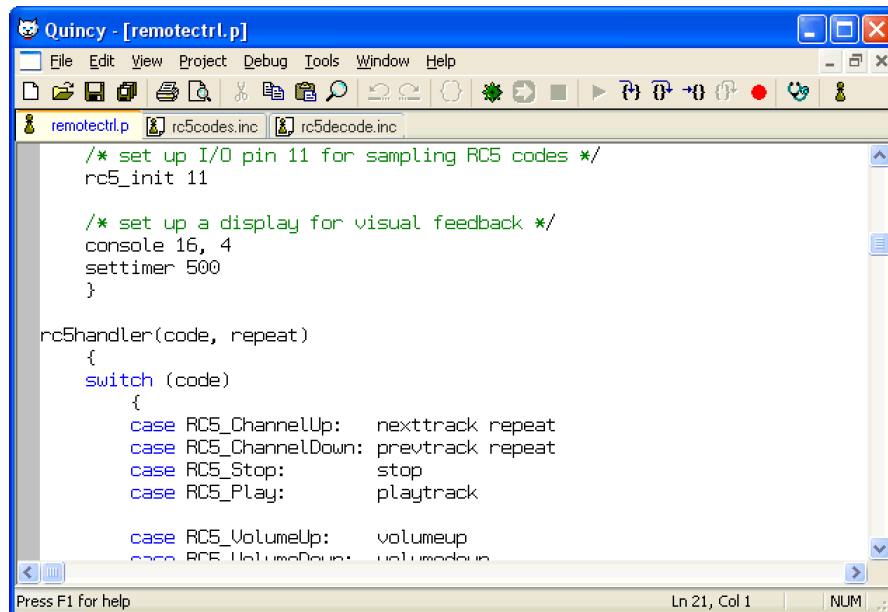
Exiting Quincy

To exit from Quincy, use one of the following:
1. choose the Exit command on the File menu,
2. or click the × button in the upper right corner of the application title bar,
3. or press **Alt+F4**

If any documents have been changed and not saved, a dialog box asks if you want to save them before exiting. The dialog box asks the question once for each modified document.

Setting Options

There are several options for how a PAWN program is to be "built" from source code into an executable form. You set these options prior to compiling and running the program. Quincy remembers the option settings from session to session.

If you are using Quincy with the tutorial examples as described in the section "Example Programs", the tutorial command files set the options that each example uses. You can override these options during the session, but the tutorial command files are not affected when you do. The next time you open the tutorial, its programmed options are restored.

To set Quincy's options choose the Tools menu option and then the Options... sub-menu. Quincy opens the options dialog, a tabbed dialog with tabs for Build options, Run options, Editor options and Miscellaneous options.

Build Options

These are the options that control how Quincy builds a program, including how the PAWN compiler processes the source code, what kind of code is generated, and where the compiler looks for header files and libraries.

To review and change the Build options, select the Build tab of the Options dialog as shown above.

◇ Check the Add debugging information if you want to use the IDE to debug the program.

◇ When writing large scripts that must fit in little memory, check the option Overlay code generation. Overlay code is *incompatible* with the Just-In-Time compiler (JIT).

◇ Adjust the optimization level when using a Just-In-Time compiler (JIT) or when you wish to verify the code generation. For standard use, full optimization is advised, because it creates the most compact and quickest code.

◇ If a host application or environment requires this, you may need to set the Standard executable filename option.

◇ For a summary on how much memory the script uses, set the option Report memory usage.
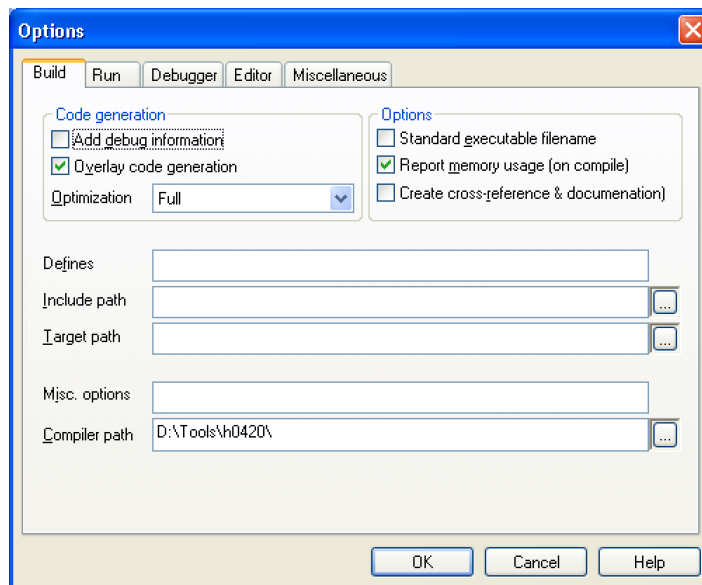
Figure 1: *Build options dialog*

◇ The option Create cross-reference & documentation creates a detailed report and mixes this with the documentation that it finds in the source code of the script. This report is in an XML file, which can be viewed in a web browser.

◇ Enter any preprocessor macros that the program needs in the Define field. Whatever you type here will be treated as if you put it at the front of the source code as the arguments to a #define preprocessor directive with this exception: to define a global symbol with a value, use an equals sign (=) as shown here:

```
ScriptVersion=2.5
```

The example just shown compiles as if the source code file included this statement:

```
#define ScriptVersion 2.5
```

If you need more than one macro, separate them in the "Define" field with a space character as shown here:

```
ScriptVersion=2.5 QueueSize=50
```

◇ Enter paths to folders where the PAWN compiler can search for header files specified with the #include <file.h> directive. Separate the paths with semicolons. You can use relative paths or fully qualified paths. The compiler searches the

paths in the order you enter them here. If the header file is not in one of these paths, then it searches the compiler's standard directories for include files.

◇ Set the path where the target file has to be generated, if you wish this path to be different from the location of the source file(s).

◇ Enter any additional command line arguments that Quincy should pass to the PAWN compiler program. For example, adding -c1252 causes Quincy to interpret the source code in the codepage 1252 (Latin-1).

◇ Enter the path where the PAWN compiler is installed. If you leave this field blank, Quincy looks for the compiler in the "/bin" subdirectory under the directory where the PAWN toolkit is installed.

For the Include path, Target path and Compiler path fields you can click the browse button ("...") at the right of these fields to open the Browse for Folder dialog shown here. Browse to the folder you want to add to the list in the Option dialog's Build tab, and click OK.
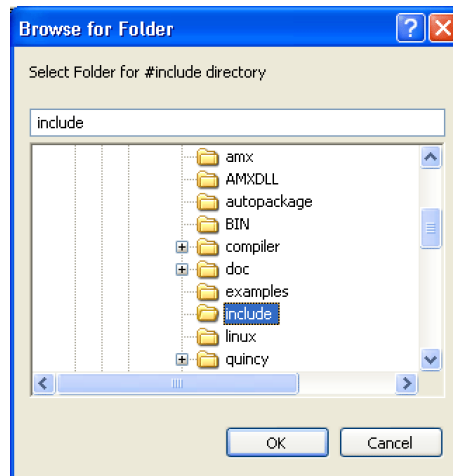
Run Options

Select the Run tab on the Options dialog as shown here.

◇ Some scripts may use options that you specify on a command line. These options can also be passed to the script through Quincy.
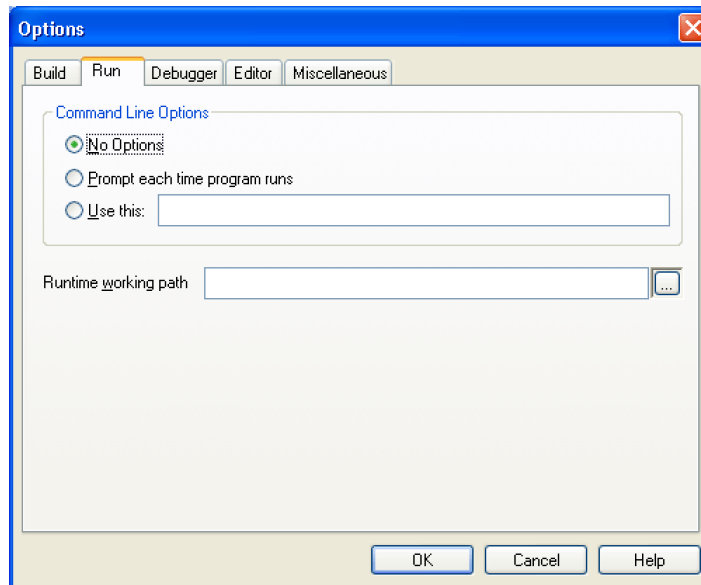 • Choose No Options if the program does not process command line parameters

Run options dialog

- Click Prompt Each Time... if you want Quincy to prompt for command line parameters every time you run the program
- Click 'Use this and enter the command line options in the accompanying text box control to always pass the same command line parameters to the program when Quincy runs it.

◇ Enter the path to the runtime working directory. Quincy will set that directory as the default one before running the program. The program will read and write data files with ambiguous path specifications relative to this path. Leave the path blank to have the program use the directory of its source code files as the runtime working directory.

Debugger Options

Select the Debug tab on the Options dialog as shown here.

When you wish to use the debugger, also make sure that you build the script with "debugging information", see the section **Build options**.
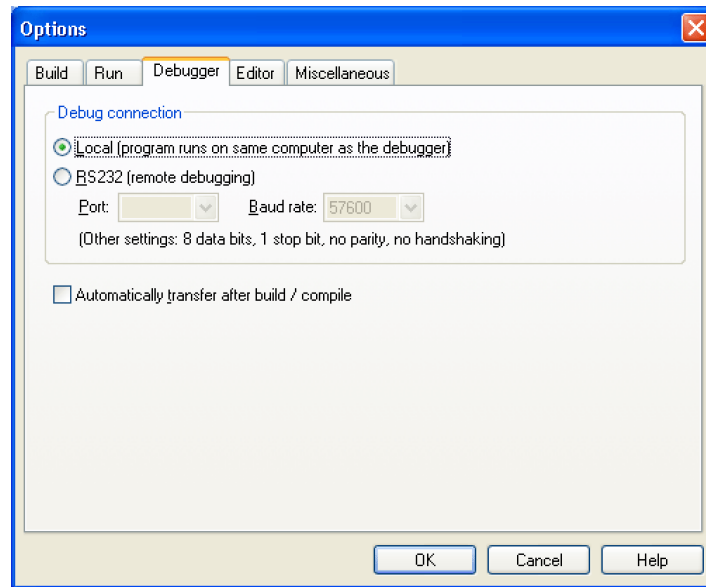
FIGURE 3: *Debugger options dialog*

◇ In most cases, the script that you wish to debug runs on the same system as the one that you are compiling on. This is known as "local debugging". Quincy also supports "remote debugging", where the script runs on one system and Quincy's debugger on another system.

◇ The two systems must be connected with a serial cable. You must also select which port to use and what baud rate the serial transfer uses.

◇ When using remote debugging, Quincy can optionally use the same serial line to transfer the script to the remote system. The option Automatically transfer after build/compile lets Quincy transfer the script immediately after a successful compile. If this option is unchecked, you can still transfer the script over the serial line explicitly.

Editor Options

Select the Editor tab on the Options dialog as shown here.

As you change the editor's settings, the simulated source code display in the Editor tabbed dialog reflects your changes.
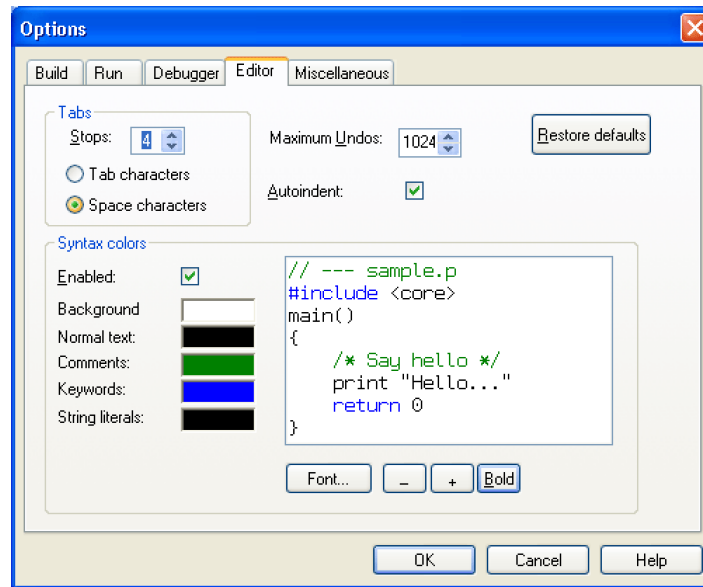
<small>Figure 4:</small> *Editor options dialog*

◇ Select the number of character positions for each tab stop by changing the scroll button control.

◇ Select whether the editor inserts space characters or tab characters into the text when you press the Tab key or use the autoindent feature.

◇ Select the maximum number of edit action undos that Quincy stores.

◇ Enable or disable the autoindent feature by clicking the Autoindent check box control. With autoindent disabled, Quincy always returns the insertion cursor to the left margin when you press Enter.

◇ Enable or disable syntax color highlighting.

◇ With syntax color highlighting:
  • Click one of the color bars next to the text feature you want to highlight with color. This action opens the Color dialog shown here.
  • Click the color you want to use for the text feature selected.
  • Click OK.
  • To revert to Quincy's default color scheme, click Restore Defaults.
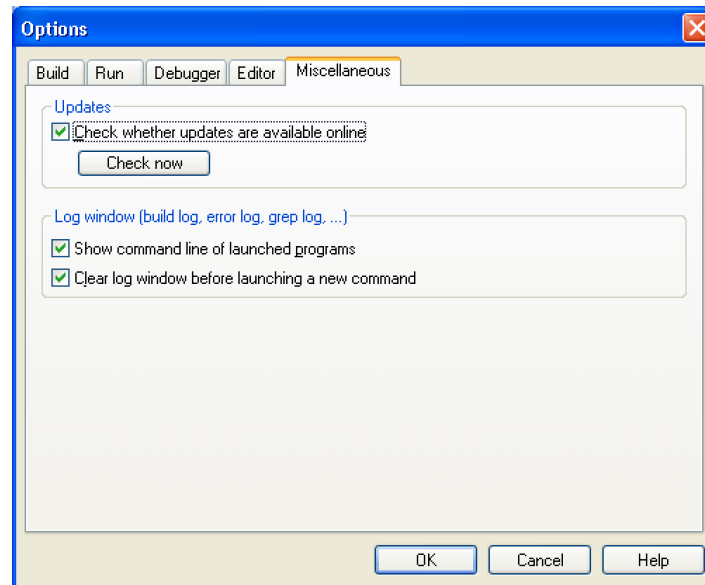
FIGURE 5: *Miscellaneous options dialog*

◇ Change the font style with the Font... button, the font size size by clicking the + and the − buttons, and click the Bold button to toggle the font between normal width and boldface.

Miscellaneous Options

Select the Miscellaneous tab on the Options dialog as shown here.

◇ Quincy can verify whether updates are available. If the option Check whether updates are available online is set, Quincy will access the Internet approximately once a week to look for updates. You can also ask Quincy to verify immediately, with the button Check now.

◇ In the "build log" that appears when compiling a program or transferring a program, name (nd its options) of the program that Quincy launches to to the actual work may optionally be included. To display this information, set the option Show command line of launched programs. To suppres this information, clear this option.

◇ The build log may keep the results of multiple compilation/transfer sessions in an ever growing log, or it may show only the results of the most recent build action, depending on the state of the option Clear window log before launching a new command.

Recording your option settings

◇ When you have made all the options changes you want to make, click OK on the Options dialog.

◇ Or, to nullify any changes you might have made, Click Cancel on the Options dialog.

If you are working with "workspace files" and you wish to store any altered options in the workspace as well, you need to explicitly save the active workspace after changing the options.

Creating a program

You write a new program by building a source code file, setting options for the program, saving the program to disk, and then compiling the program. First you must create a new file.

Creating a source code file

To create a source code file from scratch, choose the New command on the File menu (alternatively, click the "New" tool button or type **Ctrl+N**).

Quincy opens the "New file..." dialog shown here.
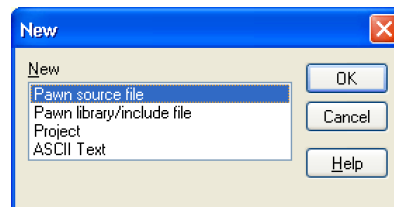
Then select the kind of source code file you are building. A PAWN source file will be saved with the `.p` file extension and will be compiled by the PAWN compiler. An include file (or source code module) will be saved with the `.inc` extension, signifying a header file you include in your PAWN source code files.

After you click OK, Quincy creates an empty text file with the name Text$n$, where n is the next available number for Quincy to assign to a text file. You will probably want to change the name to something more meaningful when you save the file. This file has not been saved to disk yet. You cannot compile the program until you have saved the source code file.

Now you can use the text editing commands discussed in section **Editing source code** to write your program.

If you scroll the list in the New dialog, you will see that Quincy supports editing one more kind of files: ASCII files. ASCII text files are plain text files. Quincy will save them with the extension `.txt`.

Saving a source code file

Before you can compile and test your program, you must save it to disk. Before you can compile a program that includes a header file in a source code file, you must save the header file to disk.

To save the source code file, choose the Save command on the File menu (alternatively, click the "Save" tool button, or type **Ctrl+S**).

If the file was already saved earlier, Quincy writes the current version over the old one. If the source code file is a new one that you have not yet saved, Quincy opens the "Save As ..." dialog box shown here.
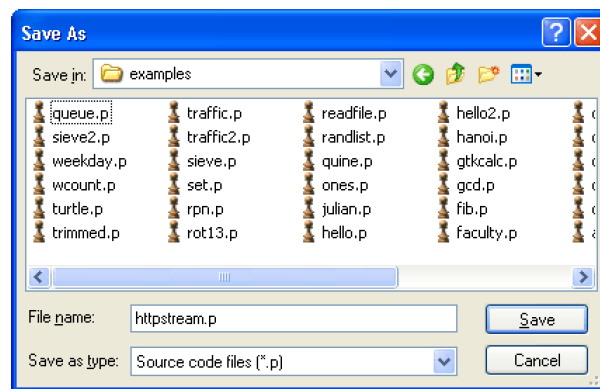

In this dialog:
1. Enter the source code file name in the File Name field. You can omit the extension. Quincy uses the extension selected in the "Save As Type" dropdown listbox.
2. Ensure that the "Save As" dialog box is positioned at the Windows folder where you want to save the source code file. If not, use the dialog box to navigate to the correct folder.
3. Click the Save button.

To save all the source code files loaded into the Quincy IDE, choose the Save All command on the File menu (or use the "Save All" tool button).

NOTE: Remember when you save header files to put them in the same folder as source code files that include them with the `#include "file.inc"` notation. If you save the header files in a different folder, the source code files that include them must use the `#include <file.h>` notation, and Quincy's options must be set to tell Quincy where to find such header files as explained in "Setting Options"
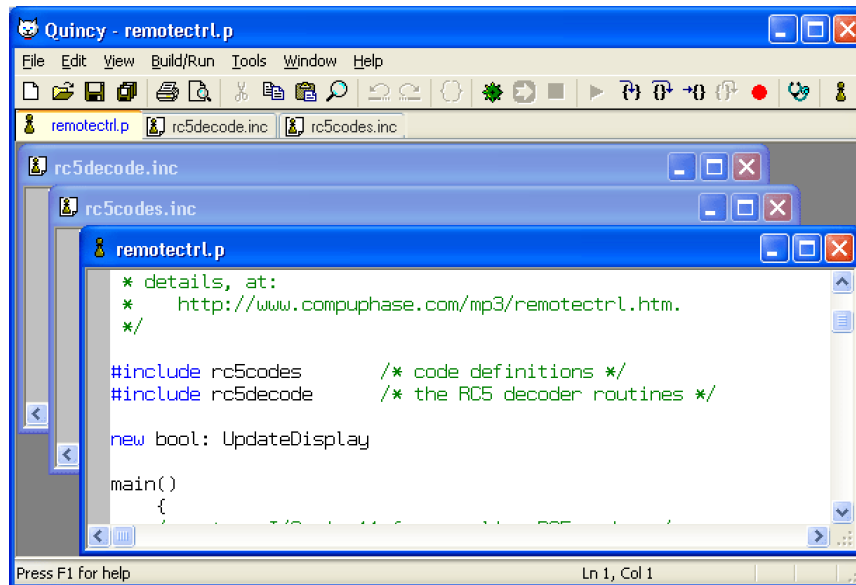
FIGURE 6: *Build options dialog*

Using Save As

You can save an existing file that was saved earlier and give it a different name by choosing the Save As command on the File menu to open the "Save As . . ." dialog box. See the section "Saving a source code file" for details on the "Save As" dialog. The original file is not changed by this procedure.

Working with multiple source code & include files

Quincy is a Windows Multiple Document Interface (MDI) application, which means that you can open and work with more than one source code file at a time as shown here.

If your program involves more than one file —that is, a combination one or more PAWN file plus one or more include files— it may be useful to store that set of files as a "workspace" file. To save a workspace file, use the option Save workspace. . . from the File menu. Quincy will pop up a "Save As" dialog, just like when saving a new file for the first time.

The workspace includes all files that are currently opened in the Quincy editor, plus the "build options". If you save a workspace, the current options are saved to that workspace file as well. If you load a workspace, the options are loaded from that workspace.