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- **Free Flowcode symbolic compiler**

John Iovine

PIC Projects for Non-Programmers

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PIC Projects for Non-Programmers

This book comes with a free version of Flowcode 4.5, which is available on its companion site at www.elsevierdirect.com/companions. This free version of Flowcode 4.5 has a few restrictions, which are removed if you chose to purchase a full license for the software, though this is not necessary in order to use the book.

For further information on Flowcode and about the author, please visit John Iovine's website at http://www.imagesco.com

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FLOWCODE PROGRAM INSTALLATION

This book comes with a free version of Flowcode 4.5, which is available on the companion site (please visit www.elsevierdirect.com/companions and follow the instructions there). The free version of Flowcode 4.5 has a few restrictions, which are removed when one purchases a license. The free version has a 2 KB code limit in addition to limited icon components. The student version of Flowcode 4.5, which as of 2011 is under $100.00 USD, eliminates these restrictions.

Minimum System Requirements

- Personal Computer
- Pentium processor or greater
- Windows 98, XP, Vista and WIN7 compatible
- CD Rom drive
- 256 MB RAM
- 50 MB hard disk space.

Step 1

Open Windows Explorer, copy the URL into the address bar and select the Flowcode software. Start the installation by running the "SETUP.EXE." The start-up installation screen is shown in Figure 1.1.

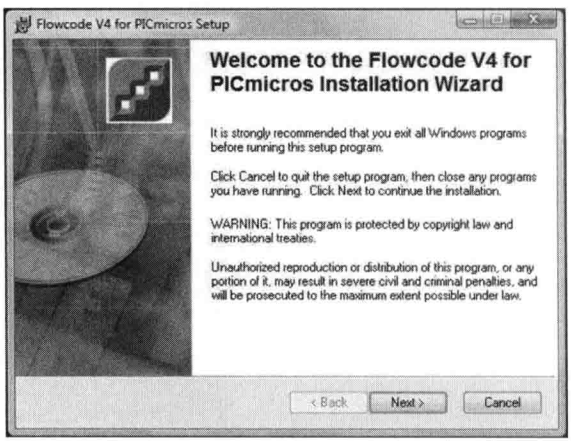

Figure 1.1

Step 2

If the install program asks you if you want to install the PPP program (see Figure 1.2), the PPP program is specific

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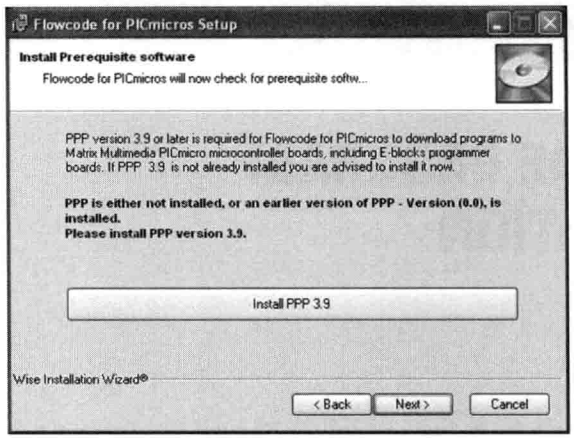

Figure 1.2

to the use of Matrix Multimedia's own PIC programmer hardware. If you elected not to use this programmer, you do not need this software. I chose to use the PPP programmer as well as microEngineering's EPIC USB programmer. The Matrix Multimedia PIC programmer is a combination programmer/developer board that allows development. It has multiple DB9 connectors for connecting Matrix's proprietary I/O boards. This programmer is discussed further in Chapter 3.

Step 3

The next screen asks you to input your name and affiliate organization (if any) (see Figure 1.3). Fill in the required information and select "Next."

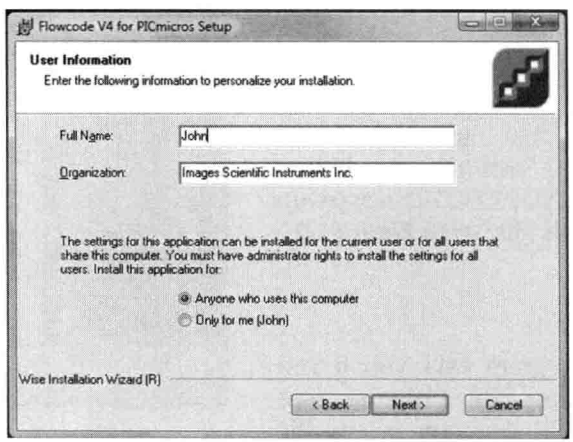

Figure 1.3

Step 4

The next screen is a standard license agreement form (see Figure 1.4). Select the acceptance radio box and hit "Next."

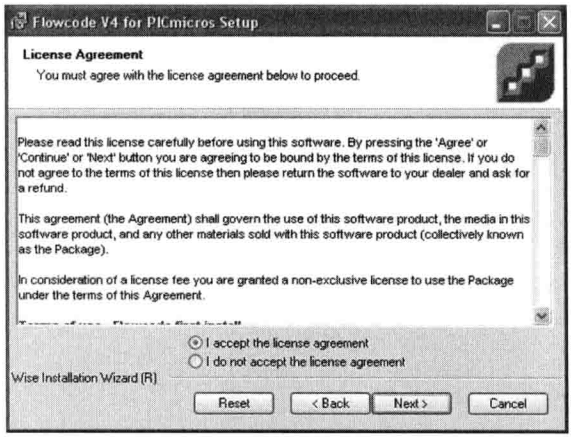

Figure 1.4

Step 5

Unless you have a reason to change the destination folder for the installation, keep the folder at its default location (see Figure 1.5) and select "Next."

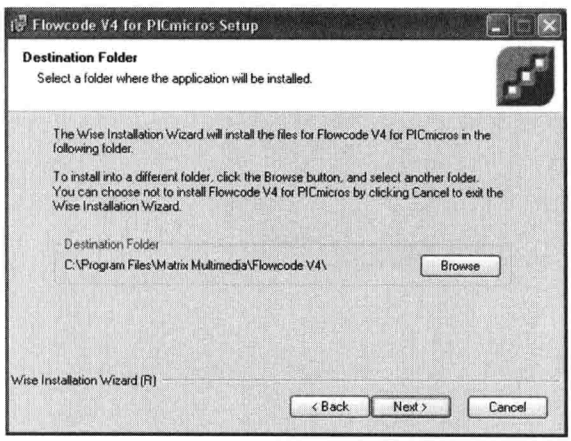

Figure 1.5

Step 6

The following install screen asks you to confirm features installation, followed by the default programmer (see Figures 1.6 and 1.7).

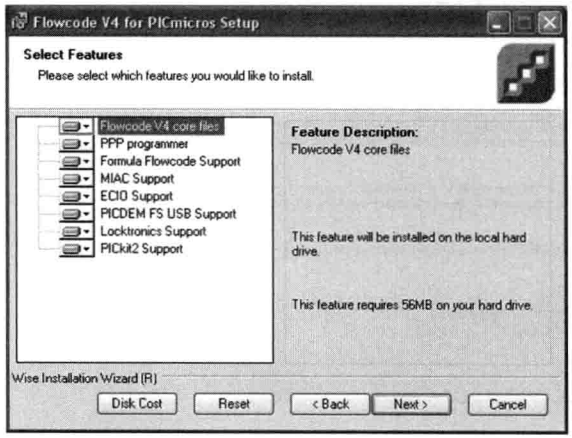

Figure 1.6

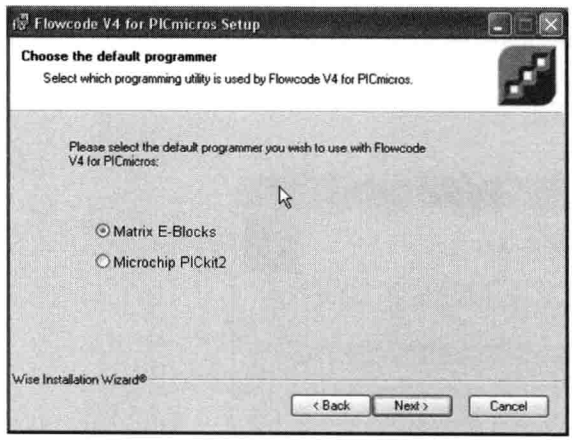

Figure 1.7

Step 7

The next screen asks you to confirm the installation, followed by the installation (see Figures 1.8 and 1.9).

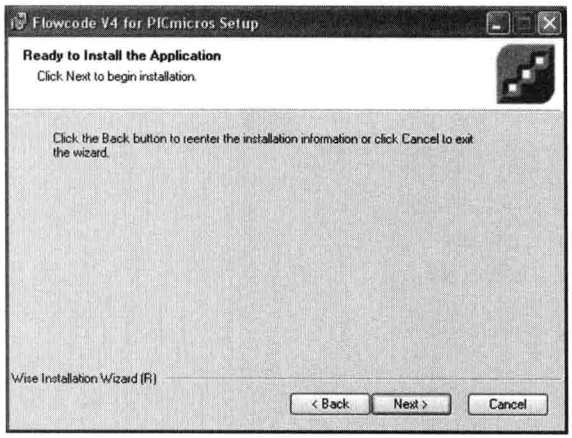

Figure 1.8

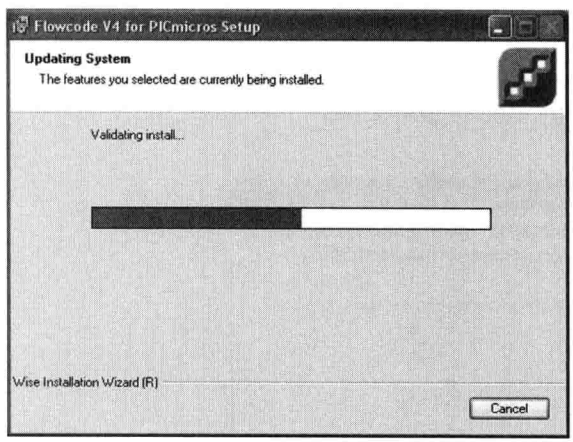

Figure 1.9

Step 8

The following screen asks for license key information (see Figure 1.10). If you are using the free version of Flowcode, select the "Do not enter a key" radio option and leave the key information blank. Hit the "Next" button.

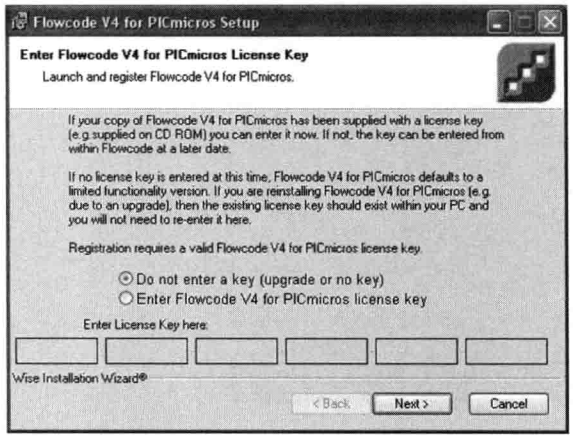

Figure 1.10

Step 9

The following screen informs and confirms that you installed Flowcode sucessfully (see Figure 1.11).

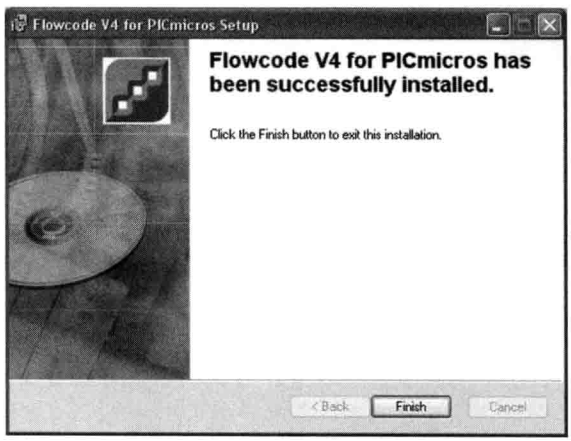

Figure 1.11

The following screen is the start-up screen for Flowcode (see Figure 1.12).

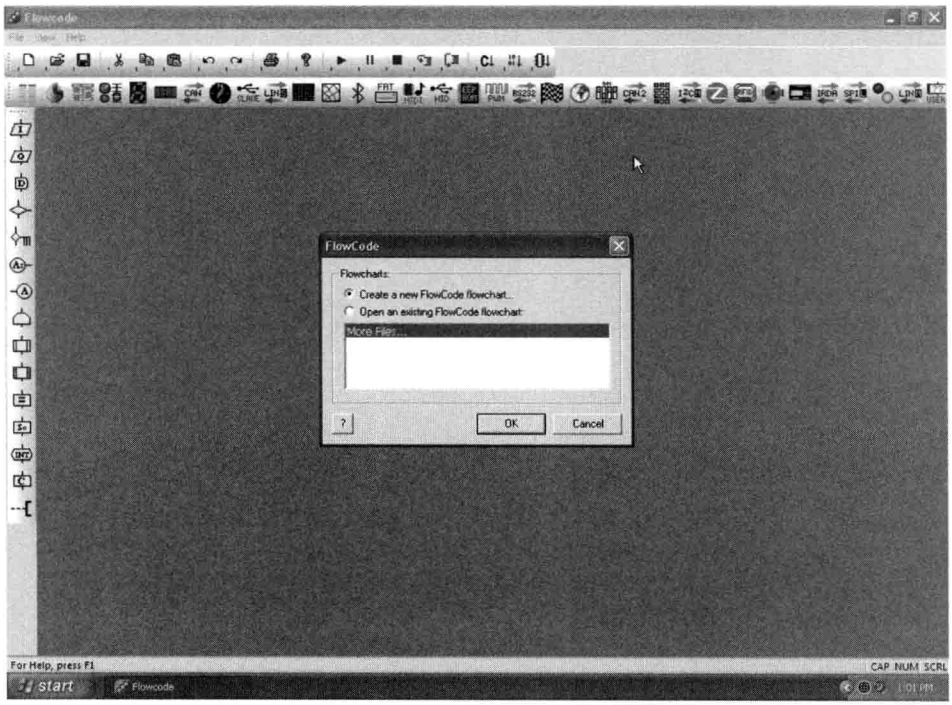

Figure 1.12

With Flowcode installed, proceed to Chapter 2.

2

WRITING OUR FIRST PROGRAM "WINK"

In Chapter 1 we installed Flowcode onto our computer. Now let's jump in and use it. Usually one explains the syntax (language) of a particular compiler before jumping in to write a program. Since Flowcode is a flow-charting graphic language technically there is no syntax, so let's see how easy it is to write a working program using its graphic interface. Being a graphic interface, there are screen images to guide you through.

Our first Flowcode program is titled "Wink." What Wink accomplishes is to alternately light two LEDs connected to two Input and Output (I/O) lines to a PIC microcontroller. While this is a simple program, we still have a number of options to consider before we start writing our flowchart program. Each option has its own pros and cons.

Option 1: Write the program and run the program within Flowcode's built-in simulator.

Pros: Easy to do and immediate. Does not require PIC microcontroller, or any external components; no hardware is required. This is a great educational tool to get you up and running.

Cons: Program execution is a simulation. It's not the real thing and things happen in the real world unaccounted for in simulations.

Option 2: Write the program; compile the program into Hex code. Upload the Hex code program (firmware[1]) file into a PIC microcontroller using a PIC-compatible programmer.

[1]**Firmware** is the programmable content of a hardware device, which in our case is the PIC microcontroller. Typically firmware is loaded into a hardware device and not updated. An example would be the various timing and wash cycles programmed into a washing machine or dishwasher's microcontroller.

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