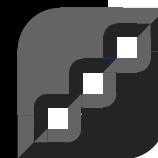
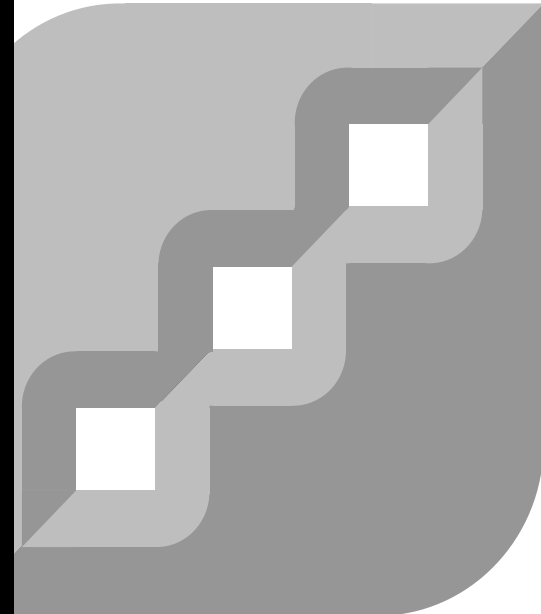
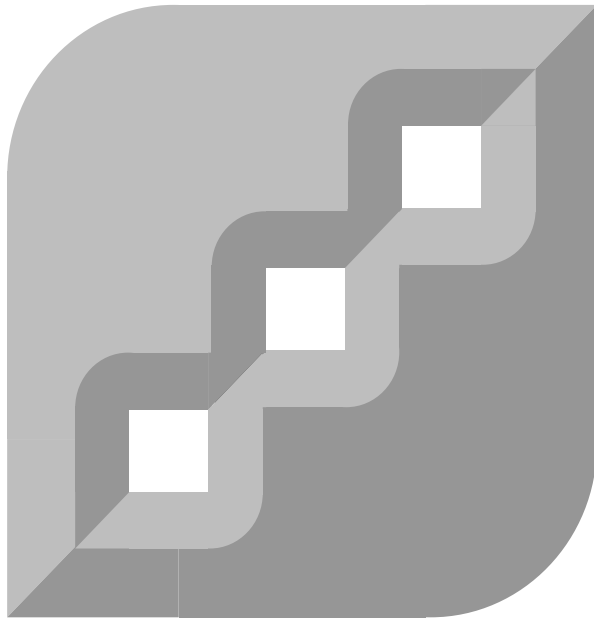


Getting started guide



FLOWCODE4TM
NO CODING, NO LIMITS...

www.matrixmultimedia.com

Minimum system requirements

Personal computer
 Pentium processor or greater
 Windows XP +
 CD ROM drive
 256MB RAM
 100MB hard disk space

An internet connection is recommended for product activation.

Flowcode 4 installation

Installation can be started by running the program 'FlowcodeV4.exe' in the root directory of the CD ROM. To do this select START...RUN from the main Windows menu and enter 'D:\FlowcodeV4.exe', where 'D' represents the letter corresponding to your CD ROM drive. The Flowcode installation routine will guide you through the installation process including the installation of any subsidiary programs or tools required by the software.

Before starting the installation process please refer to the README.TXT file on your CD ROM drive which contains additional information about the installation process.

Network installation

If you have bought a network version of this product then you have two options for installation:

1: You can install this program on each of the machines on which it will be used and for which you have a license. The number of machines this can be installed on is limited to the license number: for example if you have a 10 user license you can install it on 10 machines

2: If you have a network management system then you can use the MSI script provided in the SETUP directory of the CD ROM to automate the installation process.

There is a document in the "docs" directory of the CD ROM that explains the network installation process in more detail.

Commercial use: Some versions of Flowcode do not allow commercial use of the product. to develop programs for commercial applications a valid commercial licence of Flowcode must be purchased.

Version summary

	Free version	Home version	Flowcode Pro	Flowcode 10 concurrent users	Flowcode 50 concurrent users	Annual student rental for site licence holders
Unlimited icons	N	Y	Y	Y	Y	Y
Code size limit	2K	4K	-	-	-	-
All devices	N	Y	Y	Y	Y	Y
All components	N	N	Y	Y	Y	Y
In circuit debug	N	N	Y	Y	Y	Y
Virtual netw orks	N	N	Y	Y	Y	Y
Code customization	N	N	Y	Y	Y	Y
Licence for commercial use	N	N	Y	N	N	N
Multi-user license for education	N	N	N	Y	Y	N

PIC and PICmicro are registered trademarks of Arizona Microchip inc.

AVR and ARM are registered trademarks of Atmel inc.

Licensing and versions

The features that you have in your version of Flowcode will depend on which version you have bought. There are several versions of Flowcode 4 that you can see in the table on the right. The differences in functionality are also shown in the table. The terms used in the table are explained below:

Code size limit: For lower specification versions there is a limit on the size of compiled code that Flowcode will produce. In this case the code will limit to 2KB of compiled and assembled code. (18 series is 4K)

Limited components: Some versions do not have all components. Limited component versions include LED, Switch, ADC, LCD, 7-segment display, Keypad, Quad 7-segment display, Burglar alarm and Buggy. These versions can not have more components added to them as free downloads. Advanced components include: SPI bus, I²C bus, Internet, Webserver, CAN bus, LIN bus, EEPROM, IrDA, Bluetooth, and RS232. Other components may be added to this list.

Multi-user education: The software license for multi-user versions is for educational use only. Industrial users who need more than one license will need to purchase each license separately. Only 10 and 50 multi-user versions are available. Those requiring between 10 and 20 users will need to purchase 2 off 10 user versions.

Upgrading licenses: If you want to upgrade your version from one type of license to another, then you simply pay the price difference between the two versions.

Limited devices: Some versions do not have all devices. Limited device versions only include a preset number of the more popular devices as well as the Matrix custom devices.

In circuit debug: Some versions of Flowcode do not have the ICD functionality. These versions will still work with the Matrix ICD hardware but the ICD operation will be disabled.

Virtual networks: Some versions of Flowcode do not have the Virtual network simulation functionality. These versions will not be able to host or join the virtual network.

Code customization: Some versions of Flowcode do not have the code customization feature. These versions will not be able to view or modify the component code.

Licenses and activation

For anti-piracy reasons all copies of Flowcode must be activated. Once installed Flowcode will be fully functional for 30 days until it is activated. To activate Flowcode click on the "Activate Licence" button, which appears when you start Flowcode, to send in the activation data and receive a registered license key. If you do not have an internet connection please call us.

Driver installation

Driver files for various Matrix products can be found on the Flowcode CD ROM. To find the driver installation files by selecting START...RUN from the main Windows menu and enter 'D:\', where 'D' represents the letter corresponding to your CD ROM drive.

The Matrix USB driver installation routine is detailed in the following pages below the Flowcode installation details.

Example installation

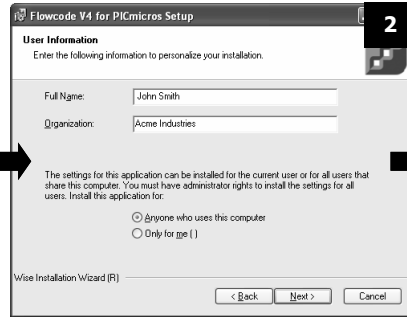
A set of 100+ example files demonstrating Flowcode's operation and components are available on the CD ROM. To access the example files the Examples folder must first be copied onto your hard drive to allow the files to be edited and compiled. To find the example files select START...RUN from the main Windows menu and enter 'D:\', where 'D' represents the letter corresponding to your CD ROM drive.

Technical support

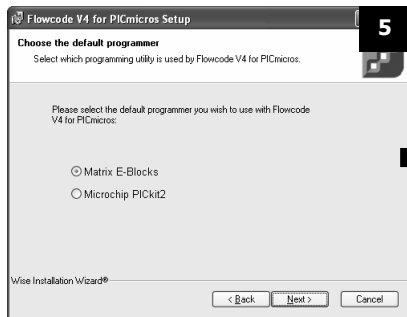
Technical support for this product is available on our web site: www.matrixmultimedia.com.



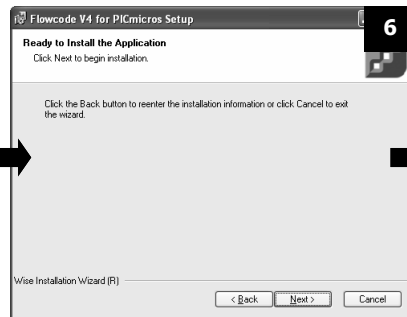
This is the first installation screen. Please read the instructions and press NEXT when you are ready to continue.



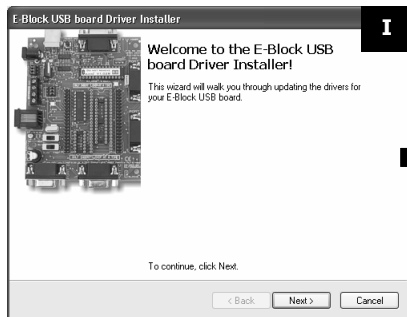
Here you can select whether Flowcode is made available for all people who use your PC, or just for you. Press NEXT to continue.



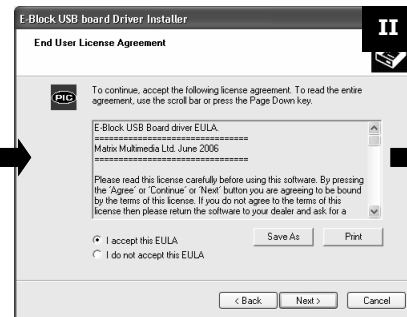
This screen allows you to select your default programmer type. If you do not have either programmer type then simply click NEXT.



If you are happy with the installation choices you have made click NEXT, or click BACK to make changes.



This is the first driver installation screen. Please read the instructions and press NEXT when you are ready to continue.



This shows you the driver End User License Agreement (EULA). Please read this and, if you agree, check the 'I accept' radio button, then select NEXT.

4 You are now ready to download your first program. Click on the Compile to CHIP button on the Toolbar. If your hardware is set up correctly you should now see 5V output on A0.

5 If it does not work here are some common reasons:

Clock settings: Have you chosen HS for High Speed crystals (> 4MHz), or XT for low speed crystals (<= 4MHz)? If you have selected RC do you have an RC network connected to the chip? If you have selected Crystal oscillator have you selected HS or XT - it matters! If you have option switches on your hardware are they in the correct position? If you have a separate selection for PICmicro MCU device in the programming utility is it correctly set up? If you have options on how you set up hardware LEDs and switches have you set them correctly? Have you got the latest version of your download utility? If you have options for Low Voltage Programming on your hardware, and you are using LVP, have you made the appropriate settings in your software, and on your development hardware?

Getting further information

Once you have got your first program running inside your PICmicro microcontroller you are ready to start to develop more sophisticated programs than the one we have just seen. To help you learn more there are several places where you can go for further information:

Help file: contains help on Flowcode software itself

Component Help Files: contains help on specific Flowcode components

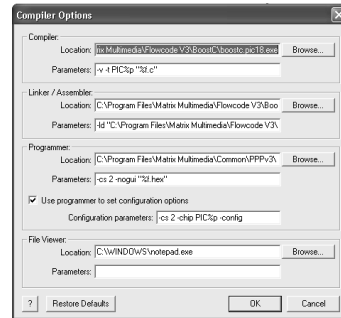
Example files: On the Flowcode CD ROM you will find around 100 example files demonstrating principles of Flowcode and component operation.

Learning Centre: on the Matrix Multimedia web site you will find a number of articles, learning resources and manuals on how to use Flowcode. This includes a range of videos that explain how programs are constructed with Flowcode.

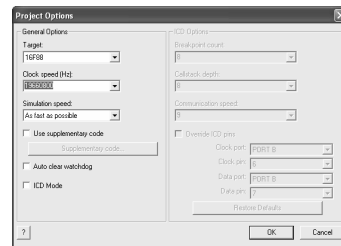
Forum: if you get stuck in installing Flowcode or in using Flowcode for a particular application then please refer to the Forum at: www.matrixmultimedia.com Here you can search for those who have had similar problems and find fixes. You can also post your questions to our engineers who answer Forum queries as a priority over other technical support enquiries.

Preparing to download

1 Before downloading to your PICmicro microcontroller you need to make some decisions about Flowcode option settings. Select **CHIP...COMPILER OPTIONS**. Compiler and Linker/Assembler sections should not need changing. The default programming software is Matrix Multimedia's PPP which complements Matrix's own hardware systems. If you are using other hardware please refer to your manual for further information - you should be able to set up Flowcode to work with your own hardware.

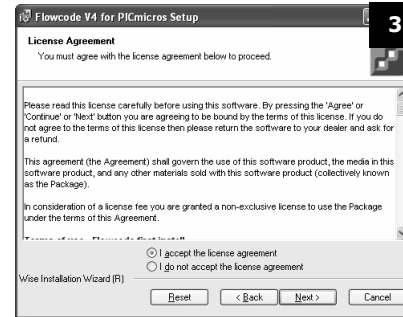
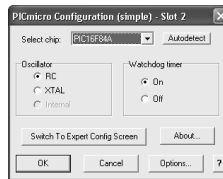


2 Before downloading you will need to enter the oscillating frequency of your crystal or oscillator. To do this select **EDIT...PROJECT OPTIONS** and enter the frequency in Hz. You need to tell Flowcode the correct oscillator frequency so that it can accurately implement the Delay function which is derived by counting clock pulses.

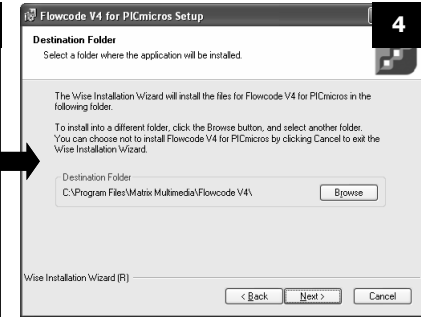


Notice that at this point you can also set the simulation speed. Try setting this to 1 and select **RUN...PLAY** from the menu.

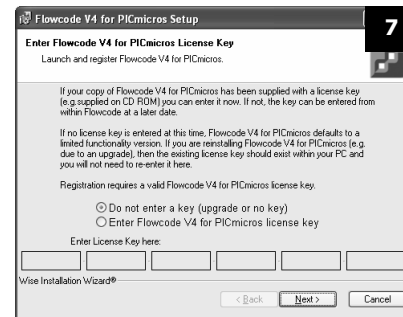
3 If you have carried out step 1 correctly then when you select **CHIP...CONFIGURE** you will start up the download utility with the PICmicro set up screen. Here you will need to make further settings referring to the clock circuit you are using (Resistor/Capacitor, external, crystal etc.) the type of chip etc.



Read the license agreement and, if you agree, check the 'I accept' radio button, then select **NEXT**.



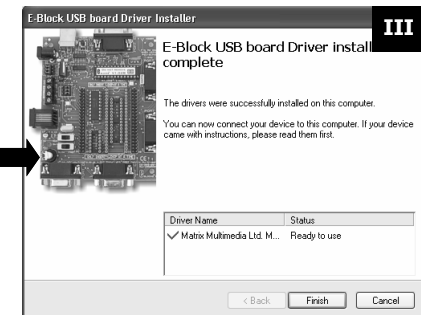
This screen allows you to choose where to install Flowcode. Use the **BROWSE** button to choose the installation directory, when finished click **NEXT**.



Once installed Flowcode will ask you for a License key, which can be found inside the CD case. If you do not have a license key contact your dealer. Selecting 'Do not enter key' will enable you to use a feature limited demo version of Flowcode.



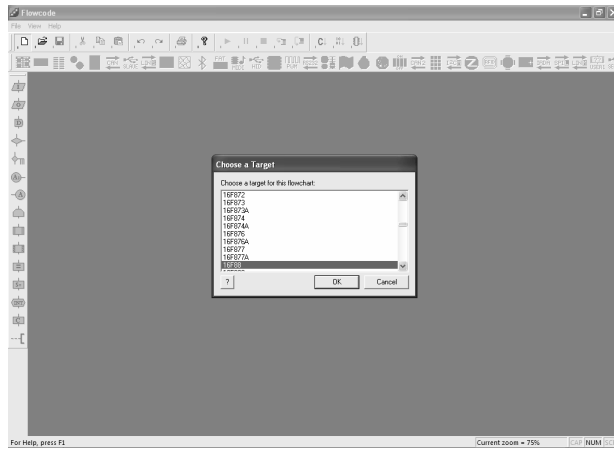
If you see this screen don't panic: Matrix hardware is not registered with Microsoft which is why this screen appears. The driver software is fully tested and safe to use. Select **CONTINUE ANYWAY**.



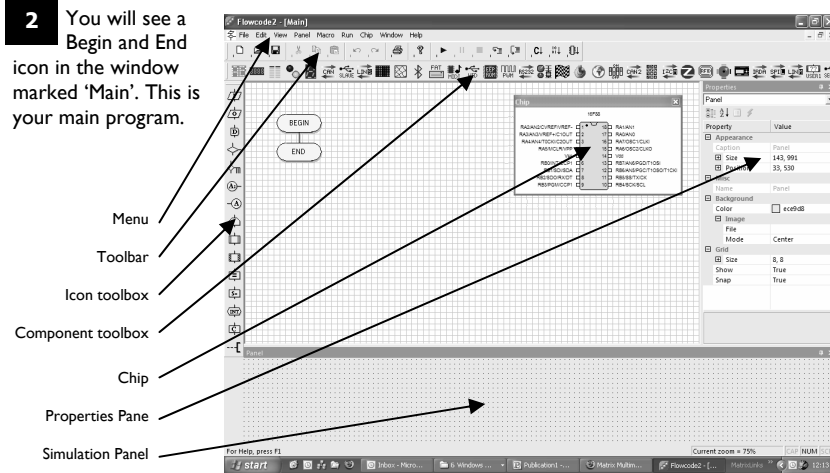
This is the last screen of the driver installation. When you click **FINISH** the driver is installed and when you plug in your Matrix Multimedia hardware it will be automatically recognized by your PC.

Making your first program

1 When you first load Flowcode you will be given a choice of creating a new flowchart or opening an existing chart. Click on the first option and you will be asked to choose a target MicroController Unit (MCU) device.



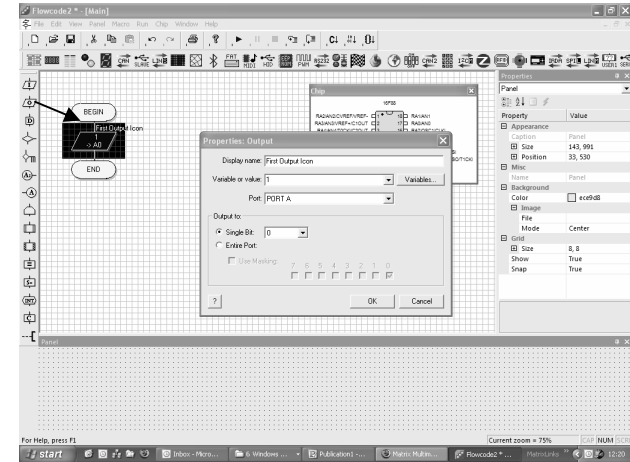
2 You will see a Begin and End icon in the window marked 'Main'. This is your main program.



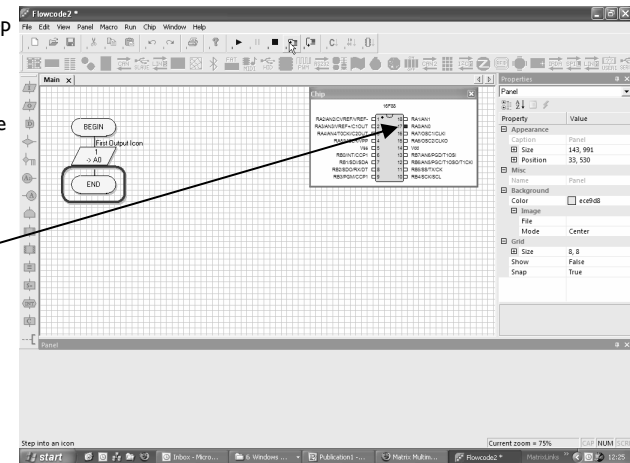
This graphic shows the functions of icons on the Toolbar. To find out what an icon's function is simply hold the mouse pointer over the icon and a small 'tool tip' will give you a clue.



3 From the Icon toolbox drag an Output icon onto the space between the Begin and End icons. Then click twice on the icon to bring up the properties window. Set the properties as shown. (Variable = I, Port = PORTA, single bit)



4 Click on the Step Into icon (see below) or select RUN...STEP INTO on the menu. You can use this to step through your program. Notice A0 on the chip goes red to indicate logic 1 output.



This is your first program. You can use the help file (click on HELP in the Menu) to understand how all the icons and the components work. On the Flowcode CD ROM you will find a number of example files, of varying degrees of sophistication, which will help you to understand how to construct more functional programs. To use the example files you must first copy them from the CD ROM onto your local hard drive.

Please refer to the forum at www.matrixmultimedia.com for any technical support issues.