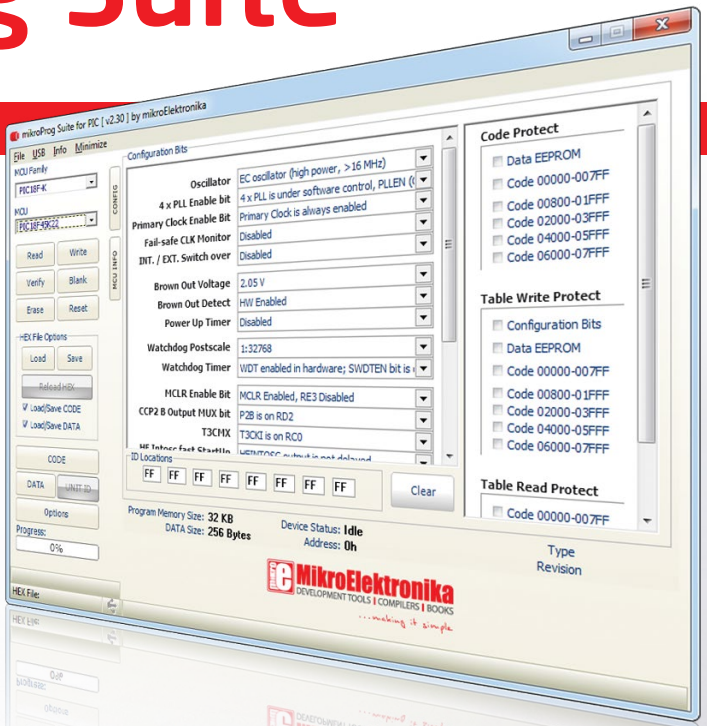
mikroProg Suite™ for PIC®

programming software



mikroProg Suite™ for PIC® is a free software used for programming all of Microchip® microcontroller families, including PIC10®, PIC12®, PIC16®, PIC18®, dsPIC30/33®, PIC24® and PIC32®. It features a user friendly interface with simple to use options and menus.

MikroElektronika
DEVELOPMENT TOOLS | COMPILERS | BOOKS

TO OUR VALUED CUSTOMERS

I want to express my thanks to you for being interested in our products and for having confidence in MikroElektronika.

The primary aim of our company is to design and produce high quality electronic products and to constantly improve the performance thereof in order to better suit your needs.

Nebojsa Matic
General Manager

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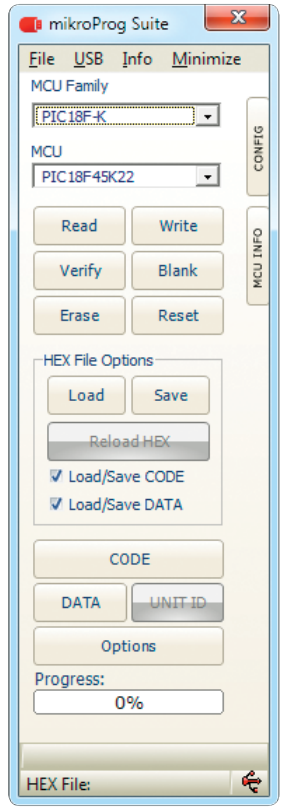
Introduction to mikroProg Suite™ for PIC®

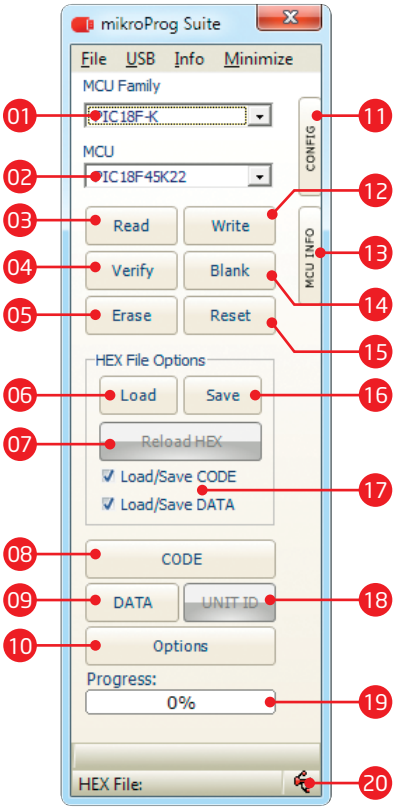
Program **mikroProg Suite™ for PIC®** is intended for programming **PIC®**, **dsPIC®** and **PIC32®** microcontrollers from Microchip®. The graphic interface of this program is clear and easy-to-use, which makes the use of this program faster. The program main window includes basic options for programming microcontrollers. In addition, there are advanced programming options that enable experienced users to set configuration bits on their own. The program includes views providing basic information about the selected MCU, voltage monitoring, etc.



Main window

mikroProg Suite™ for PIC® window contains all the programming options. These options are graphically presented in the form of buttons, drop-down lists and check boxes.

01 MCU family selection list
02 MCU type selection list
03 Read program from MCU
04 Verify the loaded program
05 Erase MCU memory contents
06 Browse for a .hex file on your PC
07 Reload previously loaded .hex file
08 Preview program which is in buffer and ready for uploading in MCU FLASH memory
09 Preview program which is in buffer and ready for uploading in MCU EEPROM memory
10 Various settings of visual, advanced and programming options.
11 Expand configuration bits menu
12 Upload .hex file in to MCU memory
13 Expand MCU info menu
14 Check whether the MCU is empty
15 Reset the microcontroller
16 Save buffer to a .HEX file
17 Load/Save CODE/DATA in buffer
18 Used for some MCU-s ID
19 Progress bar
20 Shows that programer is connected to USB port on a PC (red if connected)

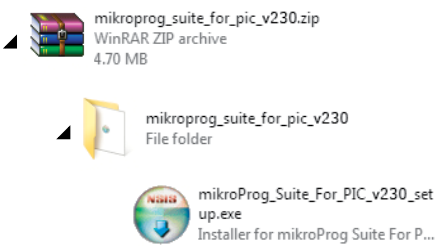


1. Installation

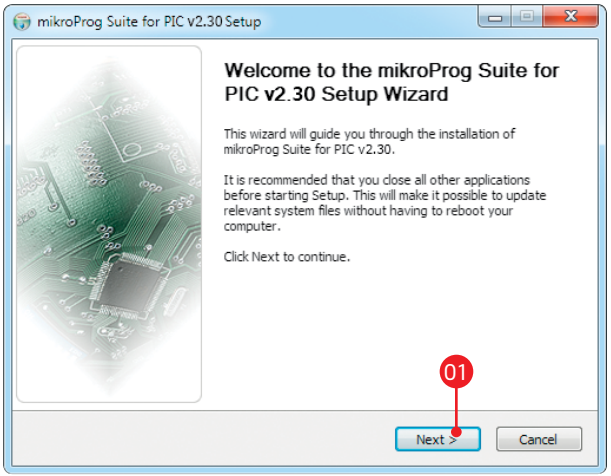
mikroProg Suite™ for PIC® setup executable can be downloaded from link below:

www.mikroe.com/downloads/get/1201/mikroprog_suite_for_pic_v230.zip

When you locate and download the setup, please extract files from the ZIP archive. Folder with extracted files contains setup executable. Double click it to start the setup wizard.

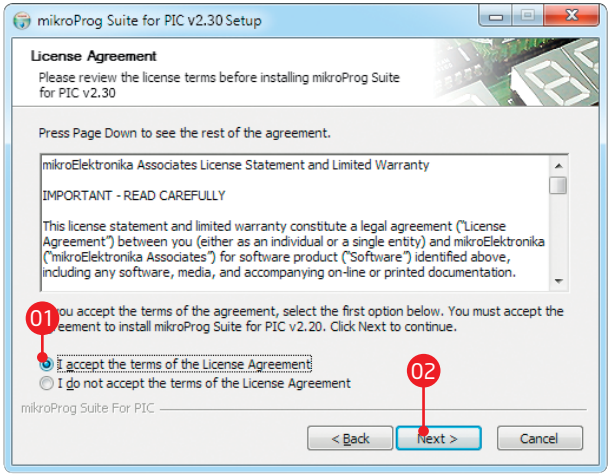


step 1 - Start installation



01 Welcome screen. Click **Next** to proceede.

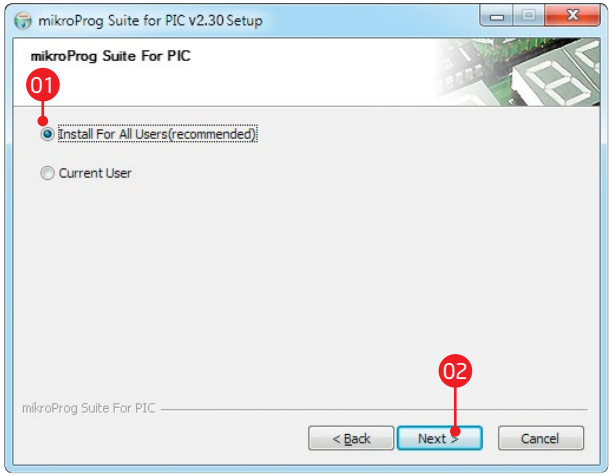
step 2 - Licence agreement



01 Carefully read the **E**nd **U**ser **L**icense **A**greement.

02 If you agree with it, click **Next** to procede.

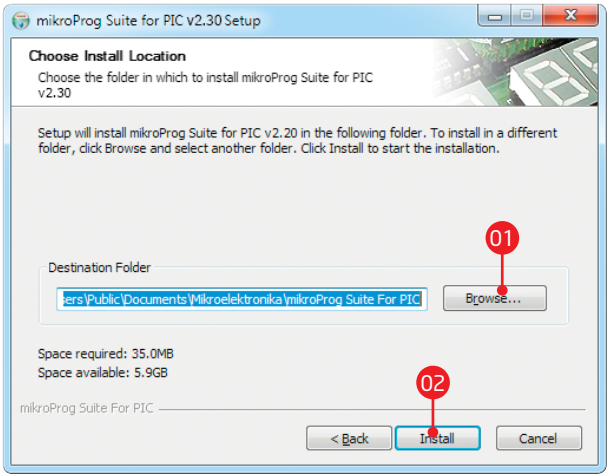
step 3 - Select user



01 It's recommended to select **Install For All Users** option.

02 Click **Next**.

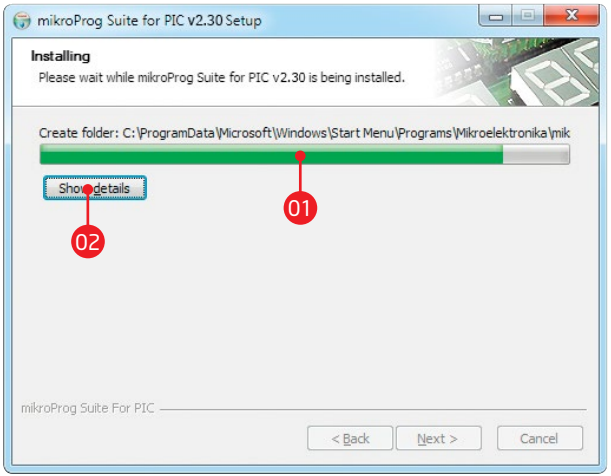
step 4 - Choose destination



01 Use the suggested destination folder or select a different installation path by clicking the **Browse** button.

02 Click the **Install** button.

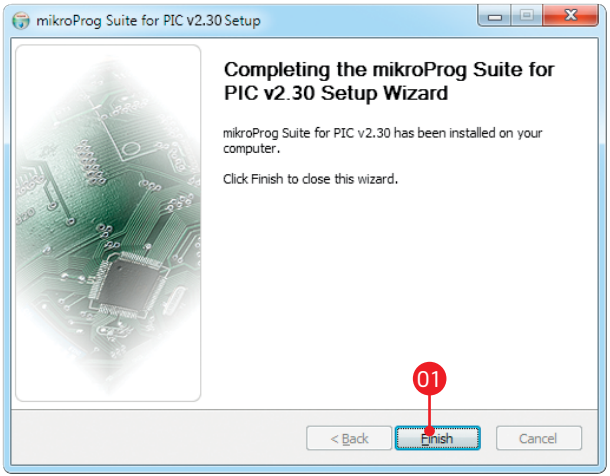
step 5 - Progress bar



01 Installation progress bar.

02 Click the **Show details** button to monitor the installation process more closely.

step 6 - Finish installation



01 Click the **Finish** button to close the Setup Wizard.

After the installation process is finished mikroProg Suite™ for PIC® shortcut will appear on your desktop.

Double click it to start mikroProg Suite™ for PIC® software.

2. Quick start

To program your microcontroller with a desired .HEX file just follow these few steps:

Before you begin, connect your device (programmer) with a PC via USB cable. Notice the USB icon in the bottom right corner of the **mikroProg Suite™ for PIC®** main window: it will turn red when the device is connected.

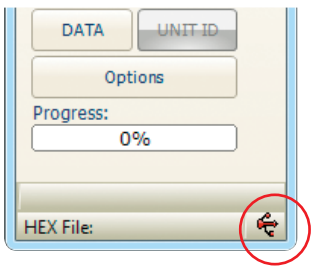
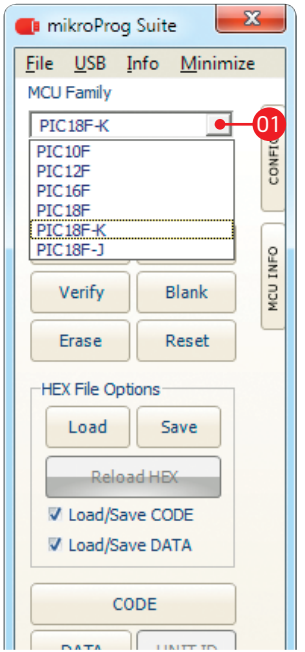


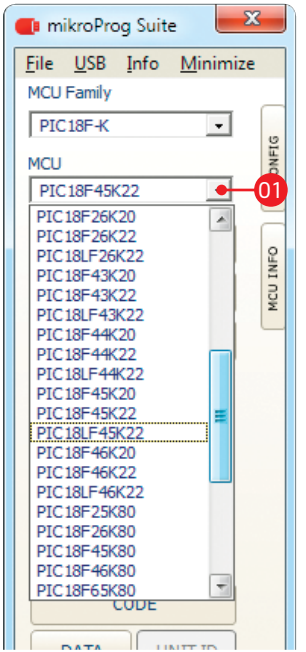
Figure 2-1: USB icon in bottom right corner

step 1 - MCU family



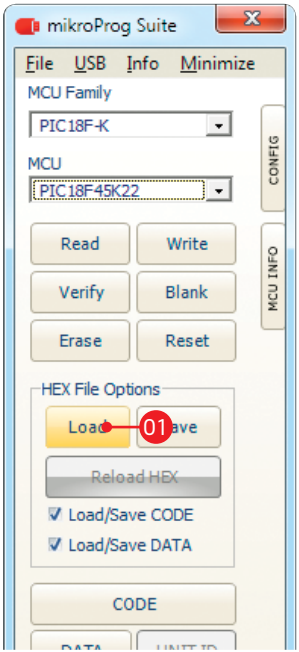
01 From the drop down list select MCU family of your device (here PIC18F-K)

step 2 - MCU type



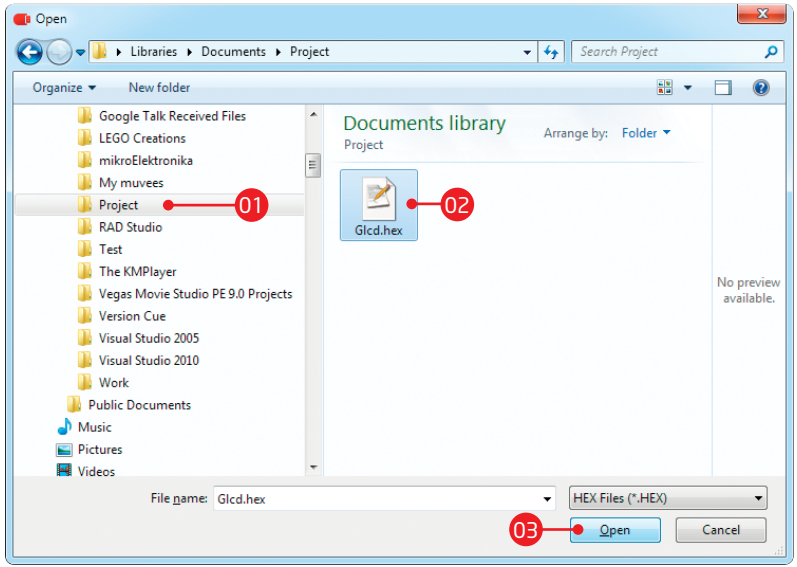
01 From the drop down list select MCU type (in this case PIC18F-K)

step 3 - Load .HEX



01 Click **Load** to find a .HEX file

step 4 - Browse for .HEX file



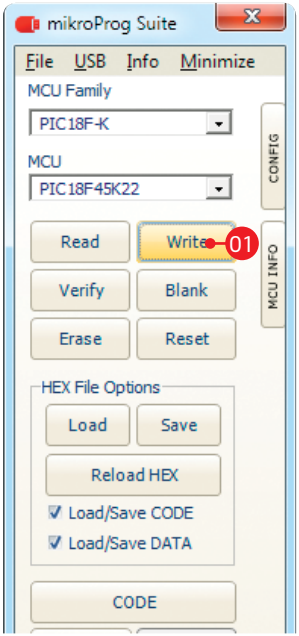
01 Locate the folder that contains the target HEX file

02 Select .HEX file

03 Click the **Open** button

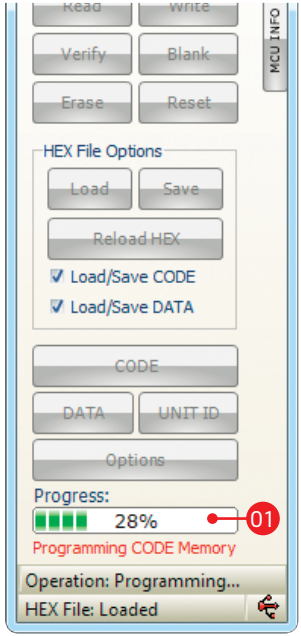
** Note that you can also load the HEX file by dragging and dropping it onto the mikroProg Suite™ for PIC® window.*

step 5 - Write HEX



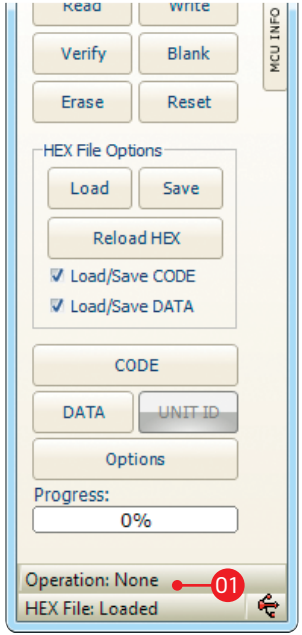
01 Click **Write** to start programming the microcontroller.

step 6 - Progress bar



01 **Progress bar** displays programming progress.

step 7 - Finish upload



01 When uploading is finished your MCU is programed and ready for use

3. Menus

mikroProg Suite™ for PIC® comes in the form of a graphical user interface which consists of buttons, check boxes, and menus.

File menu

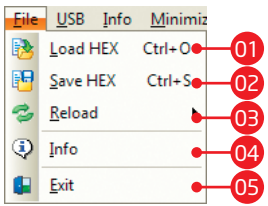


Figure 3-1: File menu

01 Load .HEX file
02 Save .HEX file under different name
03 Reload .HEX file
04 Display information about .HEX file
05 Close mikroProg Suite™ for PIC®

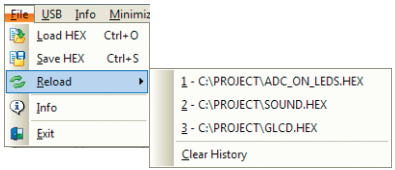


Figure 3-2: Reload

Reload menu shows previously loaded .HEX files which can be reloaded with a single click. Click the **Clear History** option any time to erase the list.

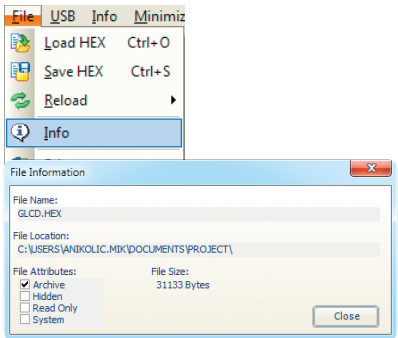


Figure 3-2: File information

USB menu

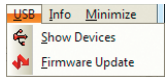


Figure 3-3: USB menu

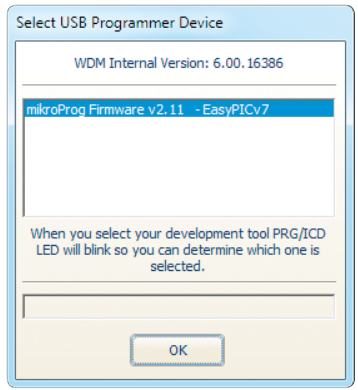


Figure 3-4: USB menu

Under the USB menu click the **Show Devices** option. A new window will appear containing information about the connected USB device and firmware version.

It is also possible to connect two devices at the same time, Figure 3-5.

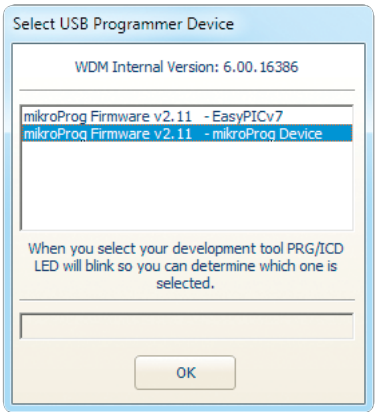


Figure 3-5: USB menu

When two devices are connected at the same time it is necessary to choose which one is used for programming your target device. Note that it is not possible to use multiple programmers at the same time.

Info menu

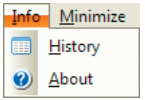


Figure 3-6: Info menu

Info menu contains History and About options. Click **History** to get information about program changes throughout releases. The **About** option contains information about the development team.

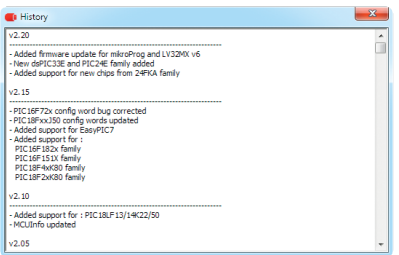


Figure 3-7: History window

Minimize

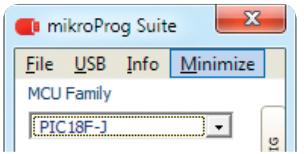
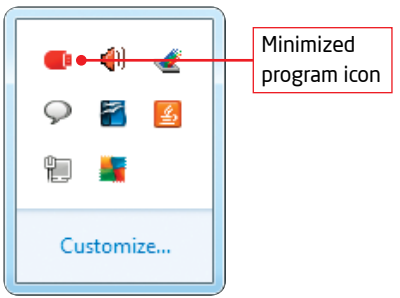


Figure 3-8: Minimize option

Minimize option minimizes program to tray. The program stays active until explicitely closed.



4. Config window

Along the right side of the main window, you may notice a **CONFIG** button. Click it to expand the main window with an additional panel containing MCU configuration options. It's contents will be adjusted depending on the selected microcontrollers.

Common options for all MCU's are:

01 CONFIG button opens config window

02 Configuration Bits section is used to set specific options for the chosen MCU.

03 Protect parts of MCU memory from unauthorized reading and writing.

04 ID Location in MCU memory.

05 Basic information about selected MCU.

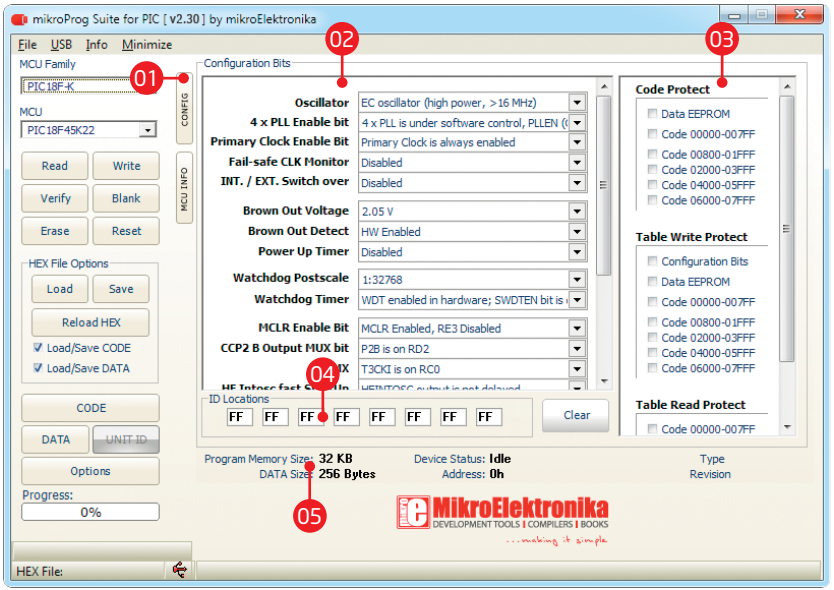


Figure 4-1: Config window

5. MCU Info window

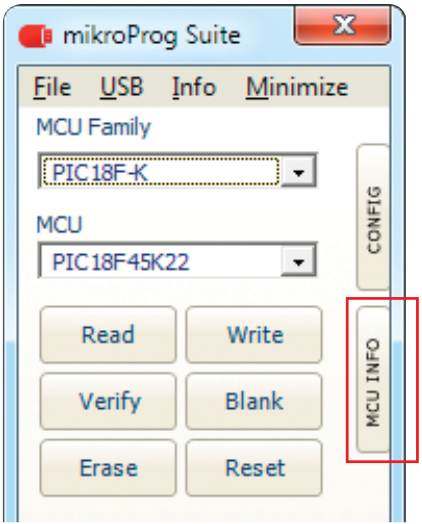
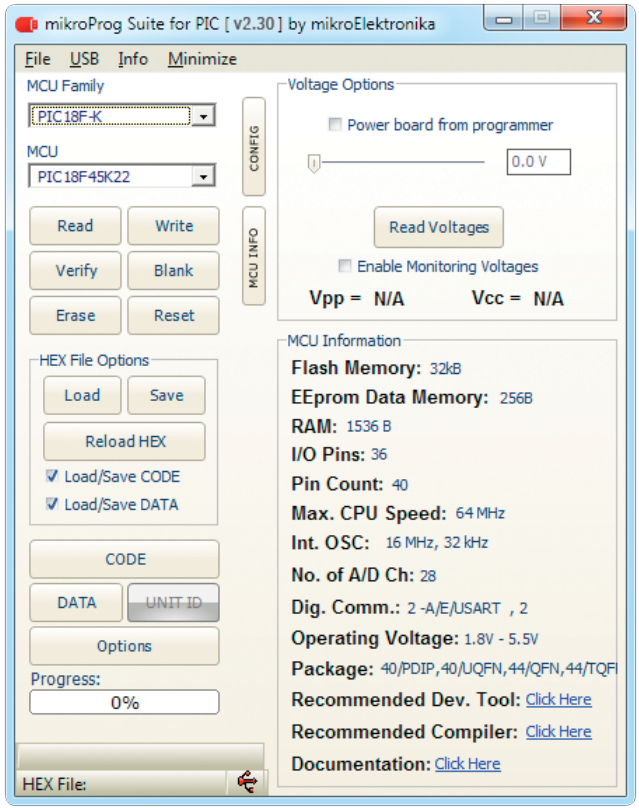


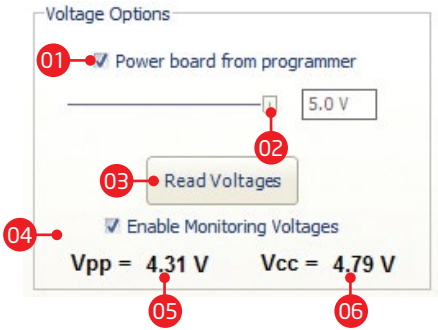
Figure 5-1: Unfold MCU Info section using button in the main window

A click on the **MCU INFO** button opens a window containing basic data about the selected microcontroller as well as voltage monitoring options.



Voltage options section

The programming voltage (Vpp) is provided by the programmer during the programming procedure. Depending on the type of the microcontroller, the Vpp programming voltage can be up to 13V.



01 Check box for enabling supply voltage from programmer

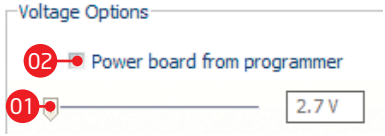
02 Setting supply voltage value from 2.7 to 5V (max 250mA)

03 Manually read voltages on Vpp and Vcc MCU pins

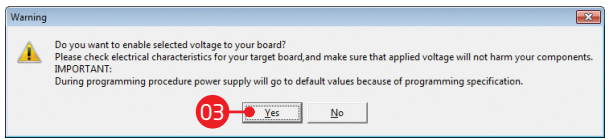
04 Check box for enabling automatic voltage monitoring

05 Current Vpp value (programming voltage)

06 Current Vcc value (power supply voltage)



After programming is finished it is possible to power up the target device via mikroProg™ programmer. While the device is connected to the programmer set the desired voltage using the slider. Max supply voltage is determined by the MCU's power supply voltage while minimum voltage is 2.7V (max 250mA). When voltage is set just check **"Power board from programmer"** check box.



A warning window will appear. If electrical characteristics of the target device are correct click **Yes**. Otherwise click **No** and set appropriate electrical characteristics of the connected device.

01 Move slider to set required voltage level

02 Tick "Power board from programmer" box

03 Click **Yes** after the electrical characteristics of connected device are met.

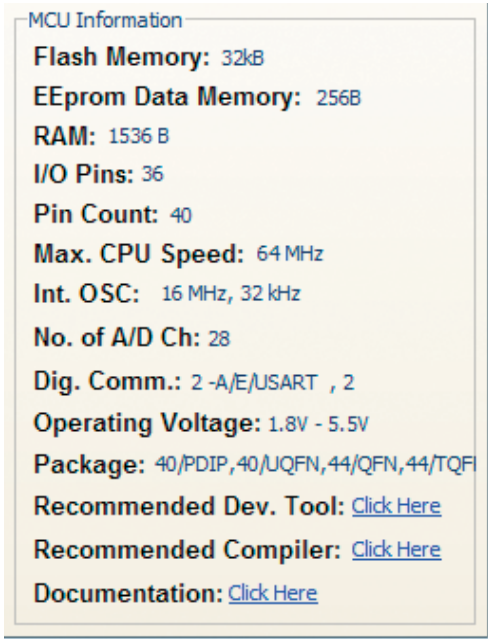


Figure 5-2: MCU information section

MCU information section

Example in Figure 5-2 shows information on the PIC18F45K22 microcontroller such as: microcontroller memory size, number of integrated modules and I/O pins, operating speed, package etc. In addition, there are links to web pages where you can find the recommended development system and compiler for the selected microcontroller. There is also a link to the MCU manufacturer website where you can find a complete documentation for the selected microcontroller.

6. Advanced options

Click the **Options** button, and a window containing Program/Verify Options, Advanced Options and Visual Settings will appear.

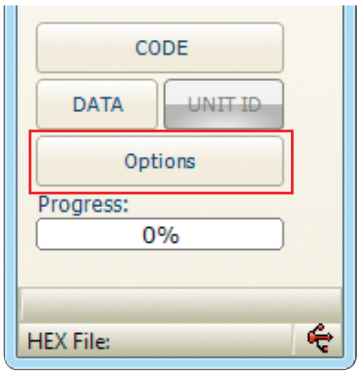


Figure 6-1: Options button

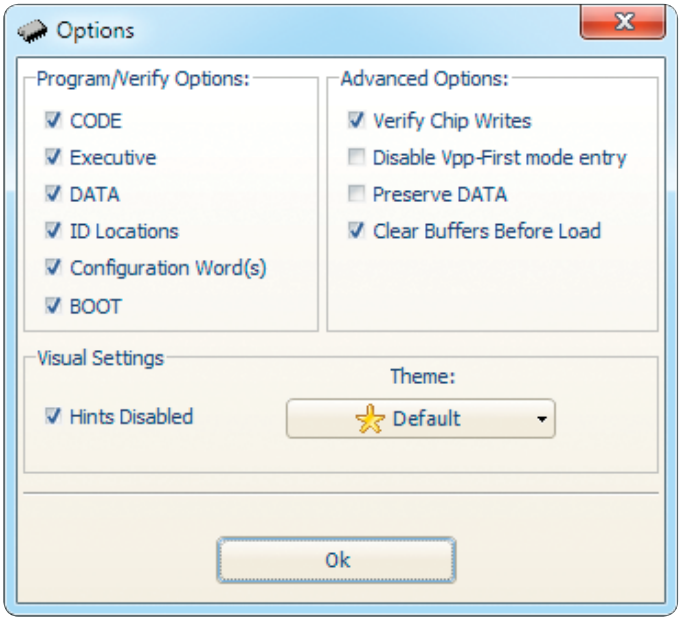
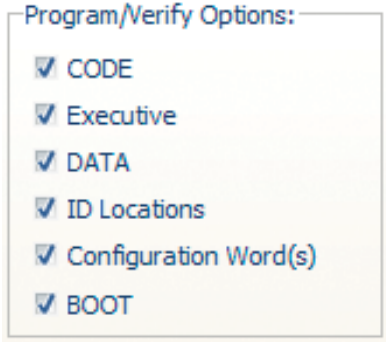
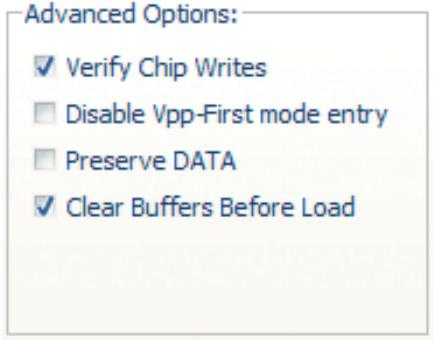


Figure 6-2: Options window



Within the **Program/Verify Options** section it is possible to disable programming /verification of the microcontroller memory: CODE, Executive, DATA, ID Locations, Configuration Words) and BOOT. Verification is performed by clicking on the Verify button in Main window, page 5.



The **Advanced Options** section includes:

Verify Chip Writes: After programing is finished .hex code verification is performed automatically. By verifying .hex code you eliminate the possibility of error in program execution.

Disable Vpp-First mode entry : prevent the device from entering program mode via VPP

Preserve DATA: EEPROM memory is not erased during MCU programming

Clear Buffers Before Load: Clears DATA and CODE buffers

The **Visual Settings option** is used to select visual program settings as well as to disable hints.

7. Keyboard shortcuts and command line parameters

Keyboard shortcuts

Alt+E	Erase the contents of the microcontroller memory
Alt+B	Program memory blank check (whether it is empty)
Alt+W	Write a hex code into microcontroller(F11 key may be optionally used)
Alt+V	Verify the loaded hex code
Alt+R	Read program memory
Alt+D	Change microcontroller type
Alt+F	Open File menu
Alt+U	Open USB menu
Alt+I	Open Info menu
Alt+M	Minimize man window
Ctrl+S	Save hex code
Ctrl+O	Open (load) file with hex code
Ctrl+R	Reload hex code

Command line

The mikroProg Suite™ for PIC® programmer may also be set up from the command line, which enables you to use it from some other software, compiler, etc. Here is a list of the command line parameters:

-w	Write to MCU
-v	Verify
-e	Erase program from MCU
-r	Read program from MCU
-p	Microcontroller type
-f	.hex file name (FLASH) "[<name should be enclosed within quotation marks>]"
-b	Memory blank check (whether it is empty)
-q	the mikroProg Suite™ for PIC® program after programming

Example 01

```
mikroProg Suite for PIC.exe -w -pPIC18F45K22 -v -f"C:\somefile.hex"
```

This command is used for loading C:\somefile.hex into the PIC18F45K22 microcontroller. This file will be verified immediately after being loaded into the microcontroller.

Example 02

```
mikroProg Suite for PIC.exe -r -pPIC18F45K22
```

This command is used for reading the contents of the PIC18F45K22 microcontroller program memory.

Example 03

```
mikroProg Suite for PIC.exe -e -pPIC18F45K22
```

This command is used to erase program from the PIC18F45K22 microcontroller.

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