CREATING THE FIRST PROJECT in mikroC for PIC

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Project

The *mikroC for PIC* organizes applications into projects consisting of a single project file (extension .ppc) and one or more source files (extension .c). *MikroC for PIC IDE* allows you to manage one project at a time. Source files can be compiled only if they are part of a project.

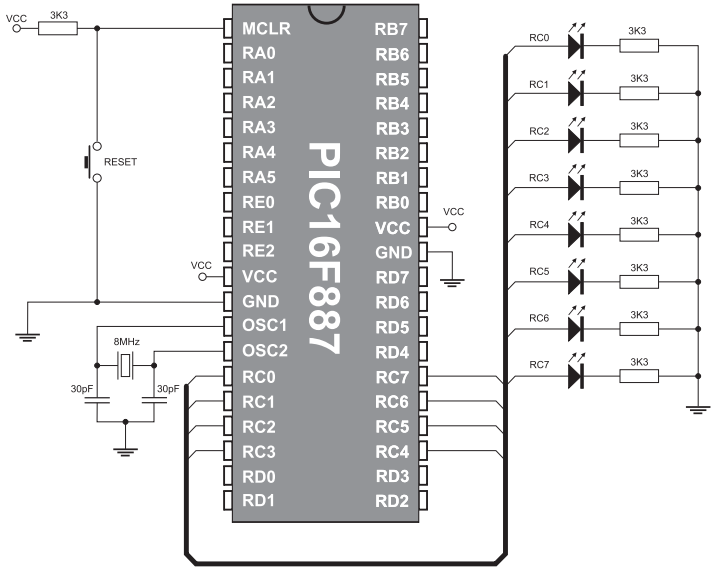
A project file contains the following information:

- Project name and optional description;
- Target device;
- Device flags (configuration word);
- Device clock;
- List of the project source files;
- Binary files (*.mcl); and
- Other files.

In this manual, we will create a new project, write code, compile it with *mikroC for PIC* and test the results. Our example will make LED diodes blink and it will be easy to test it on PIC microcontroller therefore.

Hardware Connection

The connection schematic shown below is needed for testing the code for PIC microcontroller. LED diodes are connected to PORTC. In this example you can use only PORTC because this simple program will change the state of this port only.



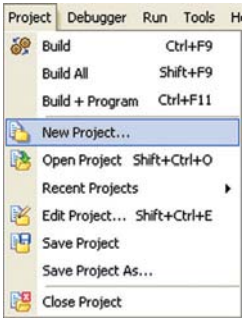
Prior to start, you have to go through the following steps:

Step 1: Install the compiler
Insert the product CD, D:/zip/mikroc/mikroc_8200_setup.zip and install the *mikroC for PIC* compiler. Desktop shortcut and start menu shortcuts will be created.

Step 2: Run the compiler
Run the *mikroC for PIC* compiler. The *mikroC for PIC IDE* (Integrated Development Environment) will appear.

After these two steps you are ready to create a new project.

New Project

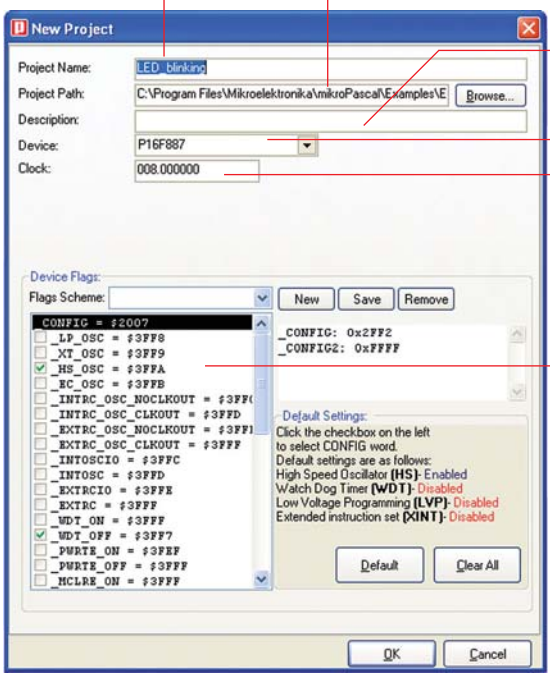


The process of creating a new project is very simple. Select **New Project** from the **Project** menu, as shown in Figure on the left.

A new window will appear. Refer to Figure below. As seen, there are a few data fields such as project name, project path, description, device and clock value, that you should fill in. The device flags panel is used for microcontroller configuration settings.

Project Name: type the name of your project

Project Path: select a project path



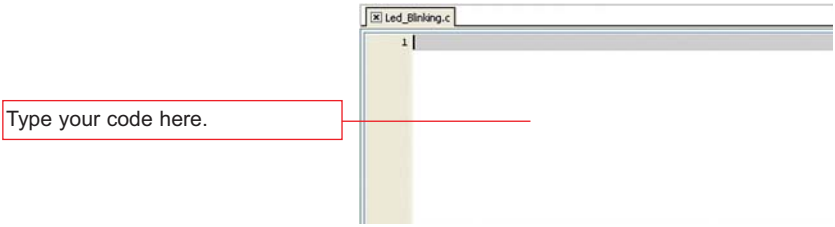
Description: enter project description (optional)

Device: chose a microcontroller

Clock: set the microcontroller clock (required)

Device Flags: select the microcontroller settings. Use default if you are not sure which flags to select.

After specifying all these options, click OK and a new blank window to enter a program code in will appear. See the Figure below.



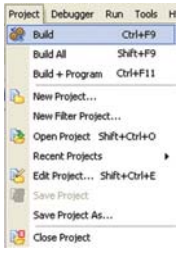
Your code should look like this one.

Led_Blinking.c

```
1  /*
2   * Project name:
3       LED_Blinking (Simple 'Hello World' project)
4   * Copyright:
5       (c) MikroElektronika, 2005-2008
6   * Description:
7       This is a simple 'Hello World' project. It turns on/off diodes co
8       PORTC. It uses bitwise negation to toggle PORTC pins.
9   * Test configuration:
10      MCU:              PIC16F887
11      Dev.Board:        EasyPIC5
12      Oscillator:       HS, 08.0000 MHz
13      Ext. Modules:     -
14      SW:               mikroC v8.0
15  * NOTES:
16      None.
17  */
18
19 void main() {
20   PORTC = 0;                 // Initialize PORTC
21   TRISC = 0;                 // Configure PORTC as output
22   ANSELH = 0;                //Configure AN pins as digital I/O
23   ANSEL = 0;
24
25   while(1) {
26
27    PORTC =  ~PORTC;          // toggle PORTC
28     Delay_ms(1000);          // one second delay
29   }
30 }
```

Compilation

Once you have created the project and written the source code, it's time to compile it. Chose one of the build options from the **Project** menu:



- To create a HEX file select **Build** (Ctrl+F9) from the **Project** menu or click the *Build Icon* from the *Project Toolbar*.
- The **Build ALL** option builds all files from the project, library (if there is a source code) and def files for chip in use.
- The **Build + Program** (Ctrl+F11) option is very use ful. After the code is compiled mikroC will load .hex file in the PICFlash programmer used to program your microcontroller.

If there are errors, you will be notified in the *Message Window*. If no errors are encountered, the *mikroC for PIC* will generate output files.

Output Files

Upon successful compilation, the *mikroC for PIC* will generate output files in the project folder (folder containing the project file .ppc). Output files are summarized in the table below:

Format	Description	File Type
Intel HEX	Intel style hex records. Use this file to program PIC MCU.	.hex
Binary	mikro Compiled Library. Binary distribution of application that can be included in other projects.	.mcl
List File	Overview of PIC memory allotment: instruction addresses, registers, routines and labels.	.lst
Assembler File	Human readable assembly with symbolic names, extracted from the List File.	.asm

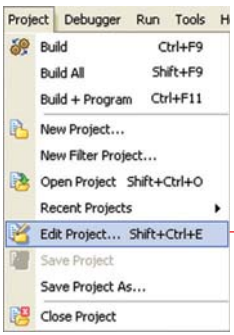
Assembly View

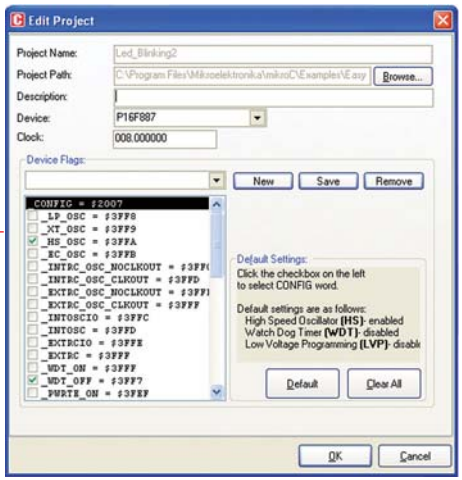
After compiling the program in the *mikroC for PIC*, you can click the *View Assembly* icon or select **View Assembly** from the **Project** menu to review the generated assembly code (.asm file) in a new tab window. Assembly language uses symbolic names and is easy to understand.

Customizing Projects

Edit Project

You can change the project settings such as type of chip, oscillator frequency and device flags in the *Project Settings* window. Any change in the *Project Setting* window affects only currently active project.

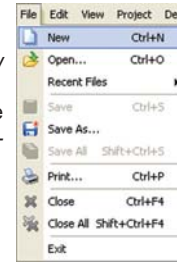




Source Files

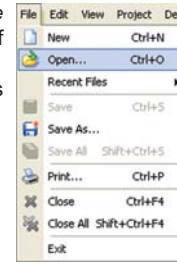
Creating a new source file

To create a new source file, do the following:



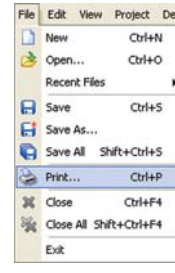
Select **New** from the **File** menu, or press CTRL+N or click the *New File* icon from the *File Toolbar*.
A new tab will be opened. It is a new source file. Select **Save** from the **File** menu, or press CTRL+S or click the *Save File* icon from the *File Toolbar* and name it as you want.

Opening an existing file



Select **Open** from the **File** menu, or press CTRL+O or click the *Open File* icon from the *File Toolbar*. In the *Open* dialog browse to the location of the file that you want to open, select it and click the *Open* button.
The selected file is displayed in its own tab. If the selected file is already open, its current *Editor* tab will become active.

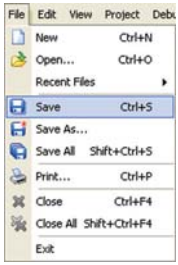
Printing an open file



Make sure that the window containing the file you want to print is active.
Select **Print** from the **File** menu or press CTRL+P.
In the *Print Preview Window*, set a desired layout of the document and click the OK button. The file will be printed on the selected printer.

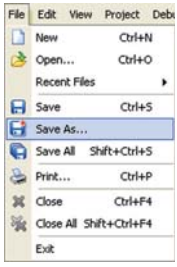
Saving file

Make sure that the window containing the file that you want to save is active.
Select **Save** from the **File** menu, or press Ctrl+S, or click the *Save File* icon from the *File Toolbar*.



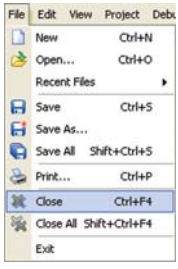
Saving file under different name

Make sure that the window containing the file that you want to save is active.
Select **Save As** from the **File** menu. The *New File Name* dialog will be displayed. In this dialog, browse to the folder in which you want to save the file.
In the *File Name* field, modify the name of the file you want to save.
Click the *Save* button.



Closing file

Make sure that the tab containing the file that you want to close is active.
Select **Close** from the **File** menu, or right click the tab of the file that you want to close and select the *Close* option from menu. If the file has been changed since it was last saved, you will be prompted to save your changes.



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