



PICKIT2

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OVERVIEW

PICKIT2



The PICKit 2 Development Programmer/Debugger is a low-cost development programmer. It is capable of programming most of Microchip's Flash microcontrollers and serial EEPROM devices.

The PICKit 2 Development Programmer/Debugger kit contains the following items:

1. The PICKit 2 Development Programmer/Debugger
2. USB cable
3. PICKit Starter Kit and MPLAB IDE

PICKIT2 USER'S GUIDE

USB Port Connection

The USB port connection is a USB mini-B connector. Connect the PICKit 2 to the PC using the supplied USB cable.

Status LEDs

The Status LEDs indicate the status of the PICKit 2.

1. **Power** (green) . Power is applied to the PICKit 2 via the USB port.
2. **Target** (yellow) . The PICKit 2 is powering the target device.
3. **Busy** (red) . The PICKit 2 is busy with a function in progress, such as programming.

INSTALLATION OF PICKIT2

- Download the pickkit2 software.
- Run the setup.exe file



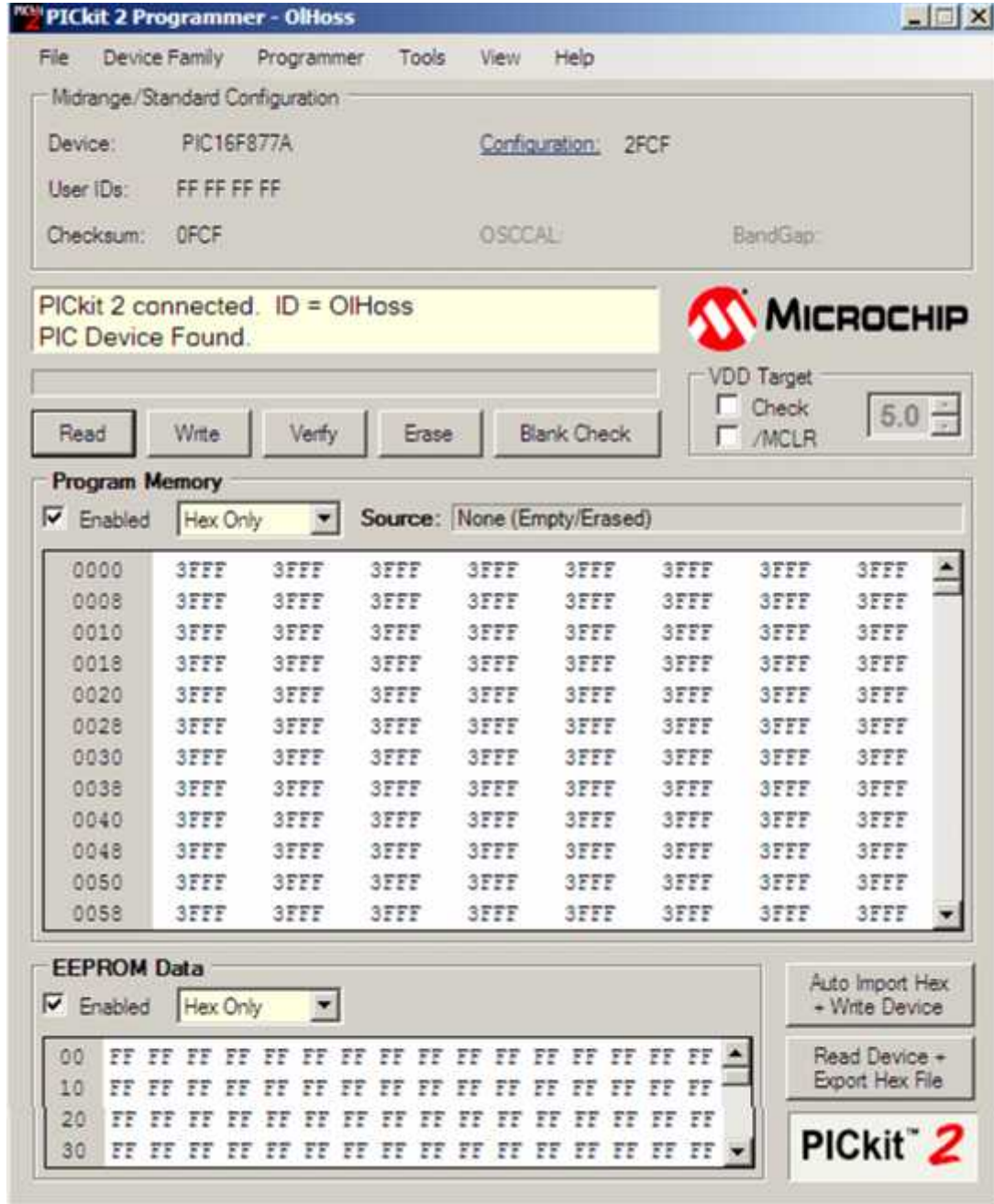
- Click on next.





- Click on next ->Exit

PICKIT2 PROGRAMMER APPLICATION



PICKIT 2 Programmer - OlHoss

File Device Family Programmer Tools View Help

Midrange/Standard Configuration

Device: PIC16F877A Configuration: 2FCF

User IDs: FF FF FF FF

Checksum: 0FCF OSCCAL: BandGap:

PICKIT 2 connected. ID = OlHoss
PIC Device Found.

MICROCHIP

VDD Target
 Check
 /MCLR
 5.0

Read Write Verify Erase Blank Check

Program Memory

Enabled Hex Only Source: None (Empty/Erased)

0000	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0008	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0010	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0018	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0020	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0028	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0030	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0038	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0040	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0048	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0050	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0058	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF

EEPROM Data

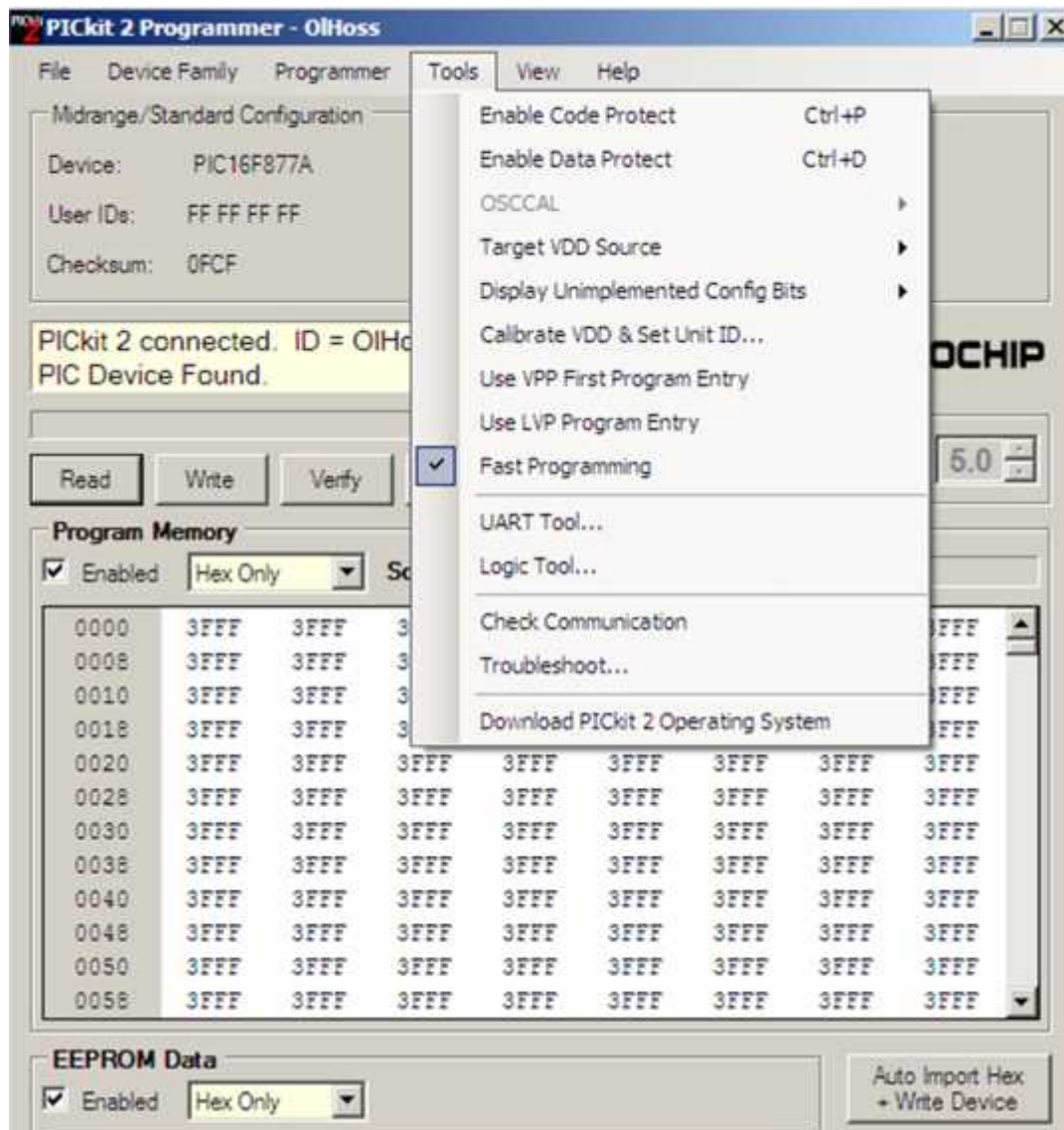
Enabled Hex Only

00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
10	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
20	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
30	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

Auto Import Hex + Write Device

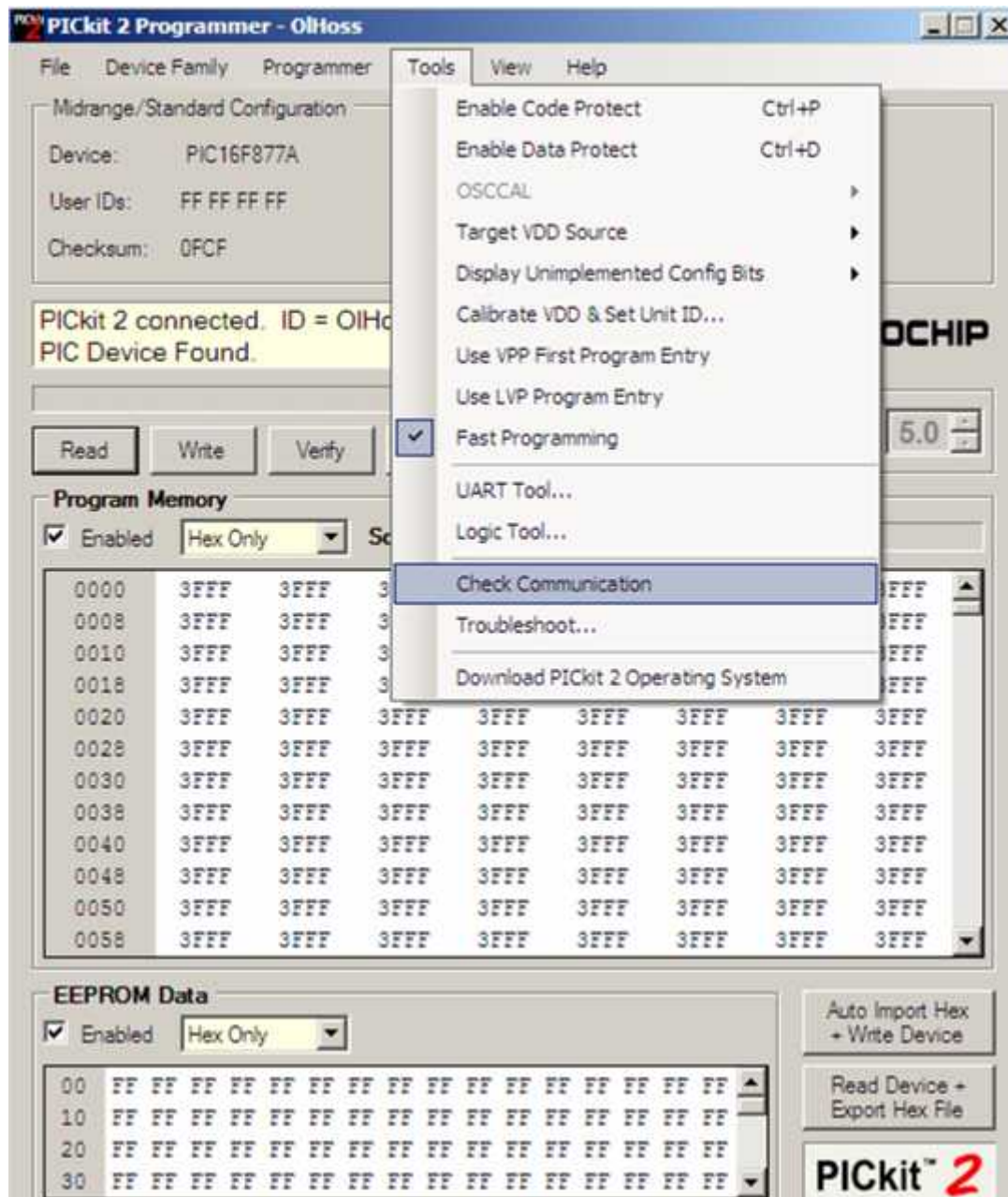
Read Device + Export Hex File

PICKIT™ 2



Check communication

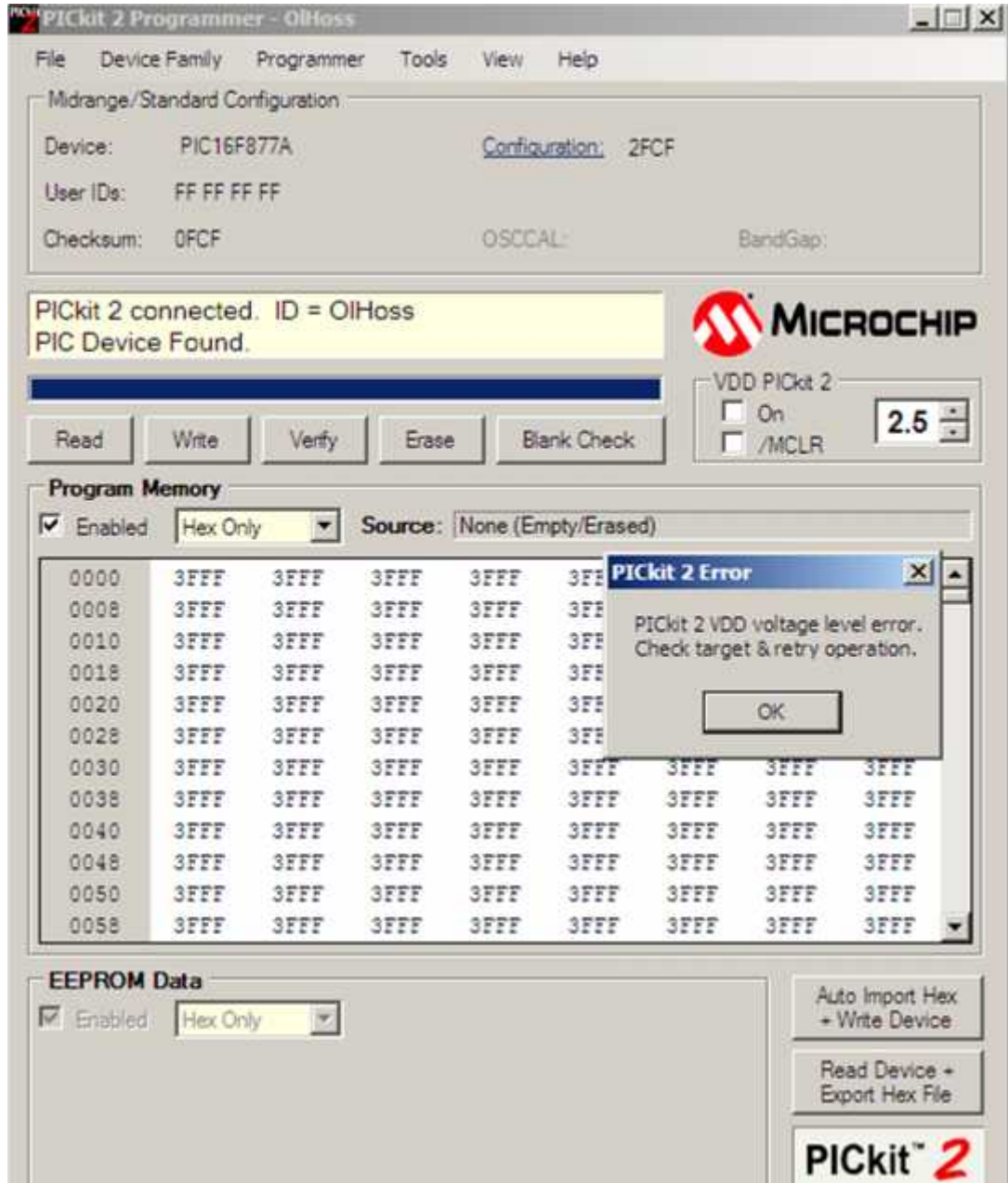
Check Communication . Verifies USB communication with the PICKIT 2 and ICSP communication with a target device by attempting to identify the connected device by its device ID.



Setting the VDD

- This will automatically set VDD when external supply is given .
- If there is no external supply

Calibrate VDD & Set Unit ID . Opens a wizard that steps the user through calibrating the PICKit 2 VDD supplied voltage so it is more accurate, and optionally assigning a Unit ID to identify between multiple PICKit 2 devices

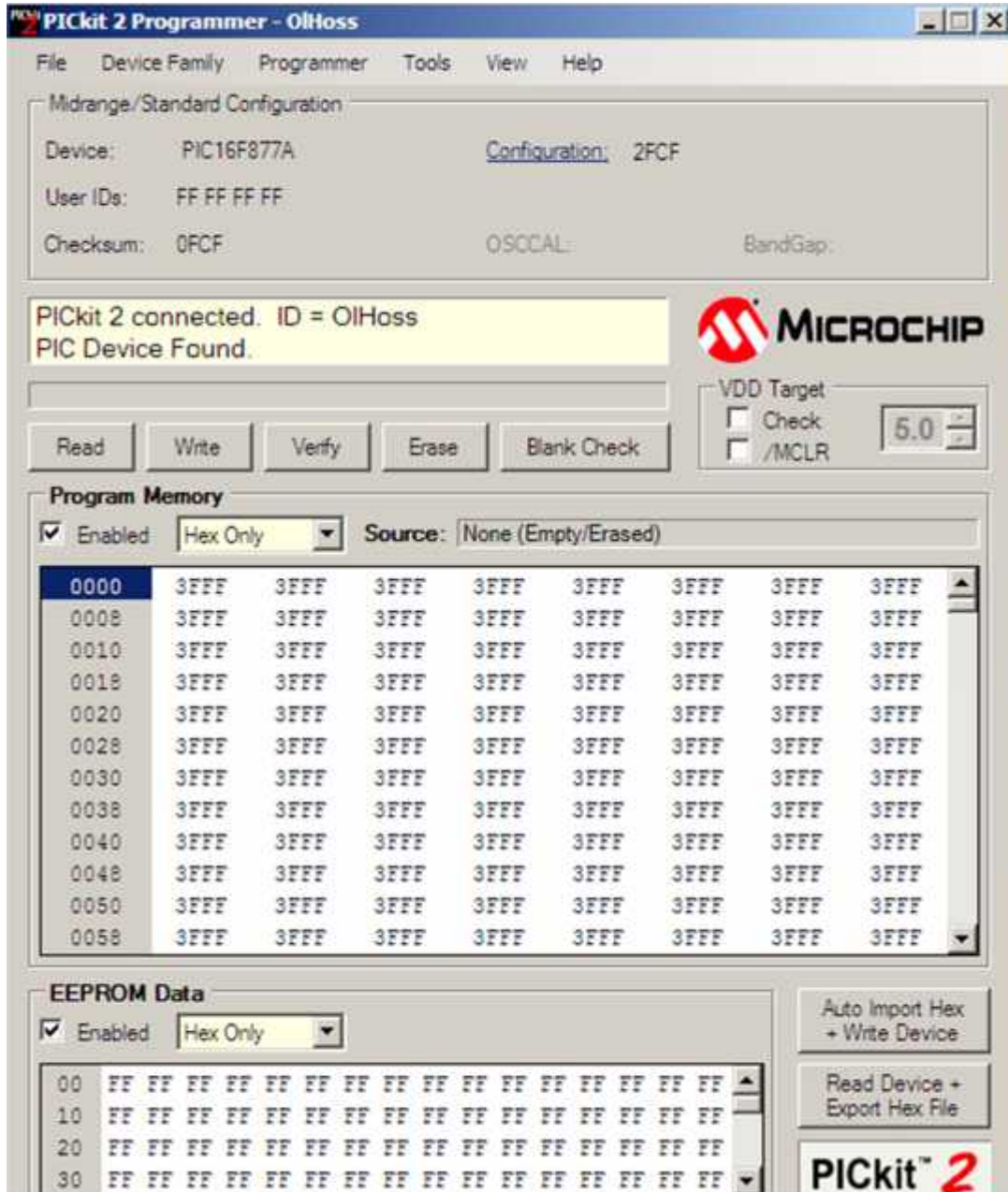


The screenshot shows the PICKit 2 Programmer software interface. The main window displays the following information:

- Midrange/Standard Configuration:**
 - Device: PIC16F877A
 - Configuration: 2FCF
 - User IDs: FF FF FF FF
 - Checksum: 0FCF
 - OSCCAL: (blank)
 - BandGap: (blank)
- Connection Status:** PICKit 2 connected. ID = OIHoss. PIC Device Found.
- Buttons:** Read, Write, Verify, Erase, Blank Check.
- VDD PICKit 2:** On (checked), /MCLR (unchecked), Voltage: 2.5V.
- Program Memory:**
 - Enabled:
 - Source: None (Empty/Erased)
 - Hex Only (selected)
 - Memory dump showing 0000 to 0058 addresses, all containing 3FFF.
- EEPROM Data:**
 - Enabled:
 - Hex Only (selected)
- Buttons:** Auto Import Hex + Write Device, Read Device + Export Hex File.

An error dialog box titled "PICKit 2 Error" is overlaid on the memory dump, displaying the message: "PICKit 2 VDD voltage level error. Check target & retry operation." with an "OK" button.

After setting the VDD



PICKit 2 Programmer - OIHoss

File Device Family Programmer Tools View Help

Midrange/Standard Configuration

Device: PIC16F877A Configuration: 2FCF

User IDs: FF FF FF FF

Checksum: 0FCF OSCCAL: BandGap:

PICKit 2 connected. ID = OIHoss
PIC Device Found.

MICROCHIP

VDD Target
 Check
 /MCLR
 5.0

Read Write Verify Erase Blank Check

Program Memory

Enabled Hex Only Source: None (Empty/Erased)

0000	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0008	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0010	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0018	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0020	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0028	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0030	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0038	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0040	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0048	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0050	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0058	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF

EEPROM Data

Enabled Hex Only

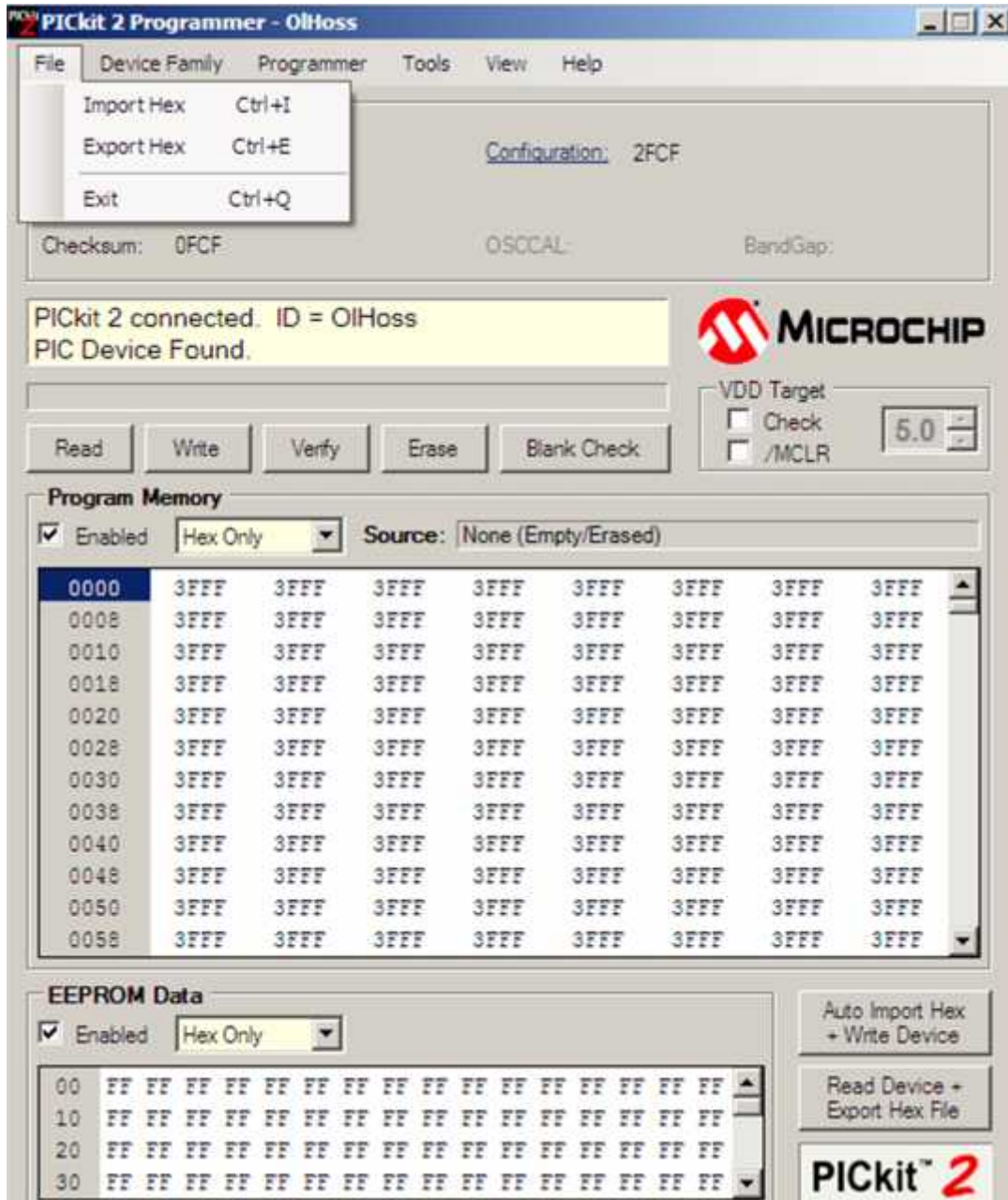
00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
10	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
20	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
30	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

Auto Import Hex + Write Device

Read Device + Export Hex File

PICKit™ 2

Load the hex file

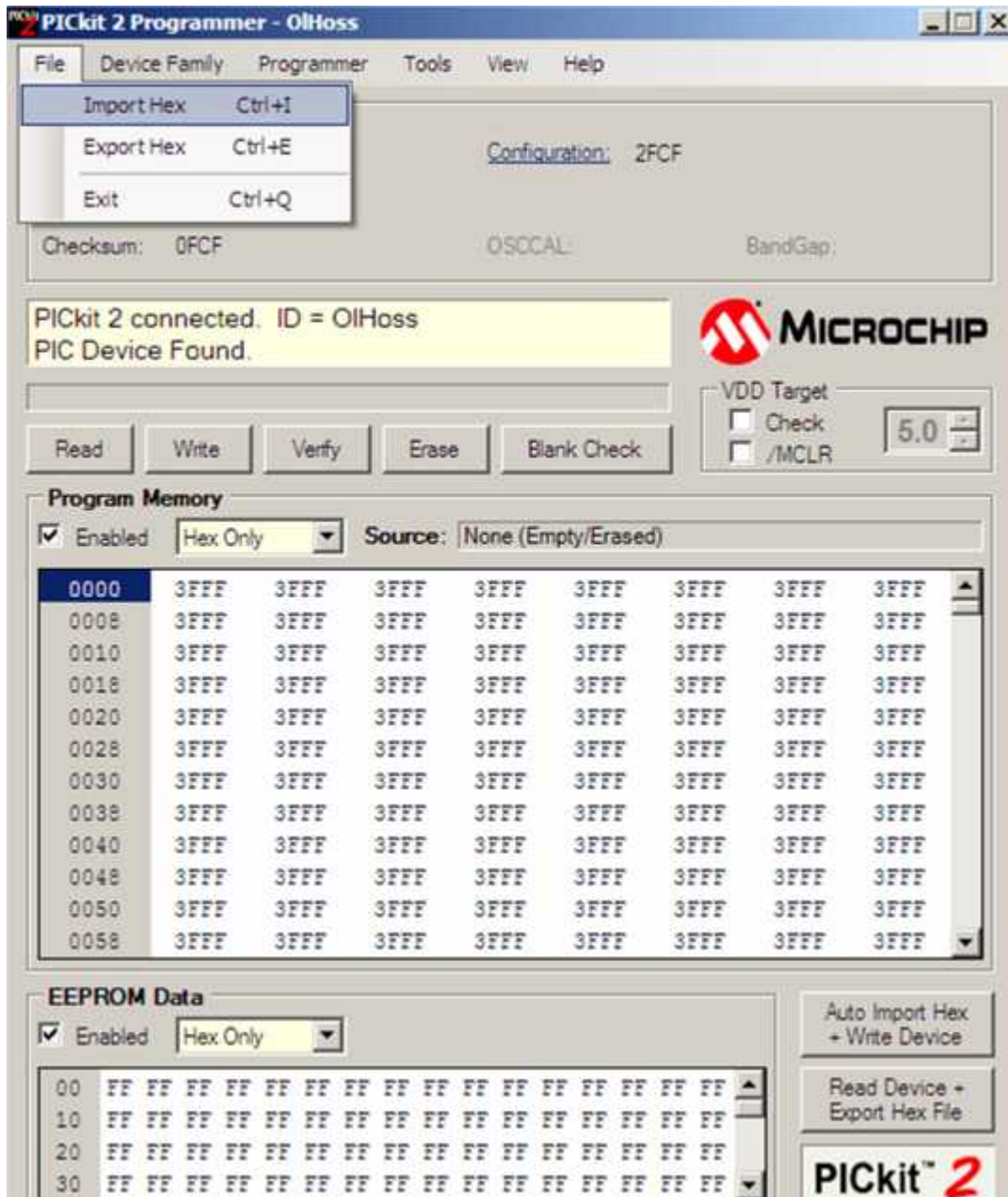


The screenshot shows the PICkit 2 Programmer software interface. The 'File' menu is open, displaying the following options:

- Import Hex (Ctrl+I)
- Export Hex (Ctrl+E)
- Exit (Ctrl+Q)

The main window displays the following information:

- Configuration: 2FCF
- Checksum: 0FCF
- OSCCAL: BandGap:
- PICkit 2 connected. ID = OlHoss
- PIC Device Found.
- MICROCHIP logo
- VDD Target: Check, /MCLR, 5.0
- Buttons: Read, Write, Verify, Erase, Blank Check
- Program Memory:
 - Enabled: Hex Only
 - Source: None (Empty/Erased)
 - Memory dump showing addresses 0000 to 0056, all containing 3FFF.
- EEPROM Data:
 - Enabled: Hex Only
 - EEPROM dump showing addresses 00 to 30, all containing FF.
- Buttons: Auto Import Hex + Write Device, Read Device + Export Hex File
- PICKIT™ 2 logo



PICKIT 2 Programmer - OlHoss

File Device Family Programmer Tools View Help

Import Hex Ctrl+I
Export Hex Ctrl+E
Exit Ctrl+Q

Configuration: 2FCF

Checksum: 0FCF OSCCAL: BandGap:

PICKit 2 connected. ID = OlHoss
PIC Device Found.

MICROCHIP

VDD Target
 Check 5.0
 /MCLR

Read Write Verify Erase Blank Check

Program Memory
 Enabled Hex Only Source: None (Empty/Erased)

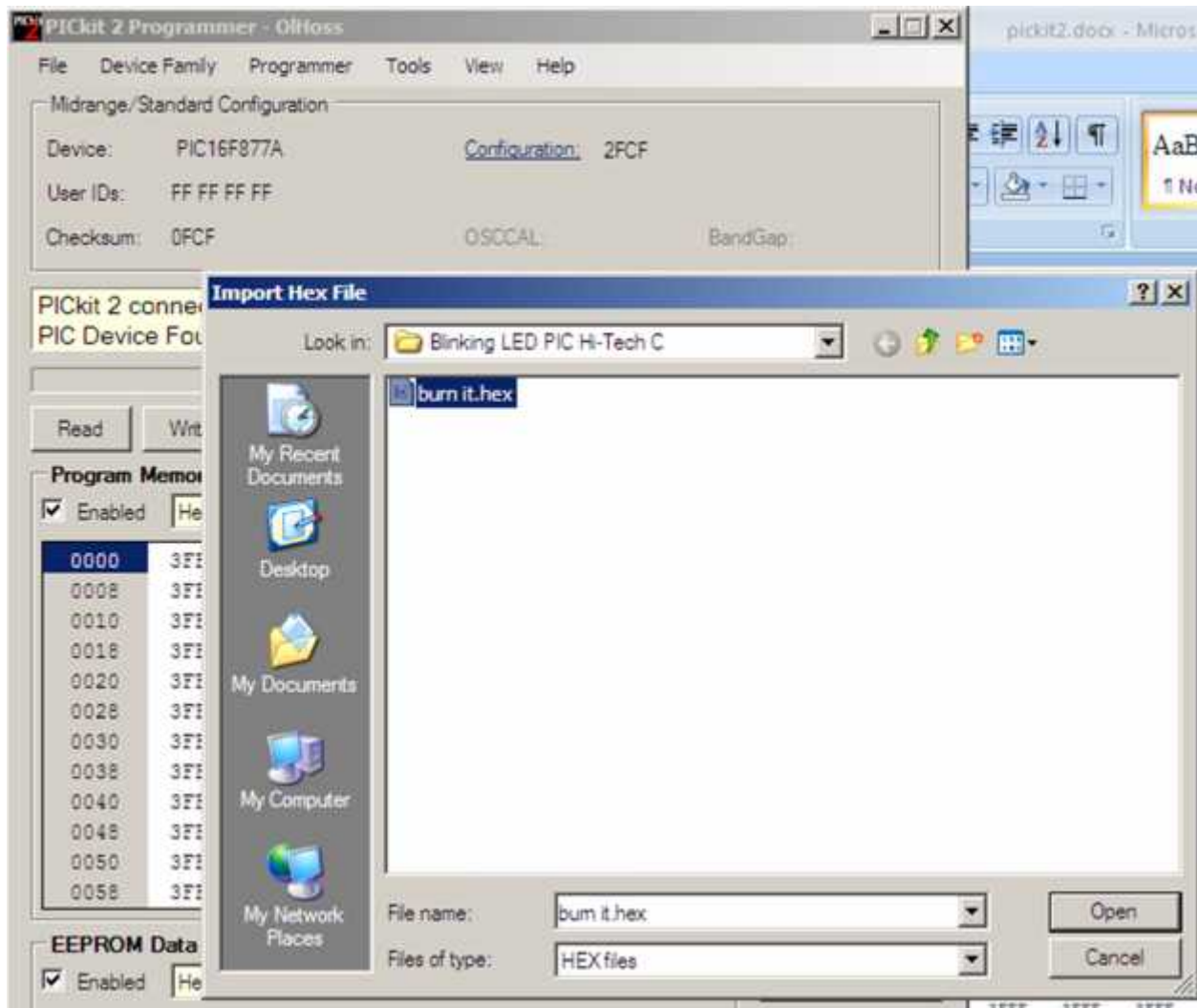
0000	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0008	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0010	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0018	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0020	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0028	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0030	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0038	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0040	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0048	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0050	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF
0058	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF	3FFF

EEPROM Data
 Enabled Hex Only

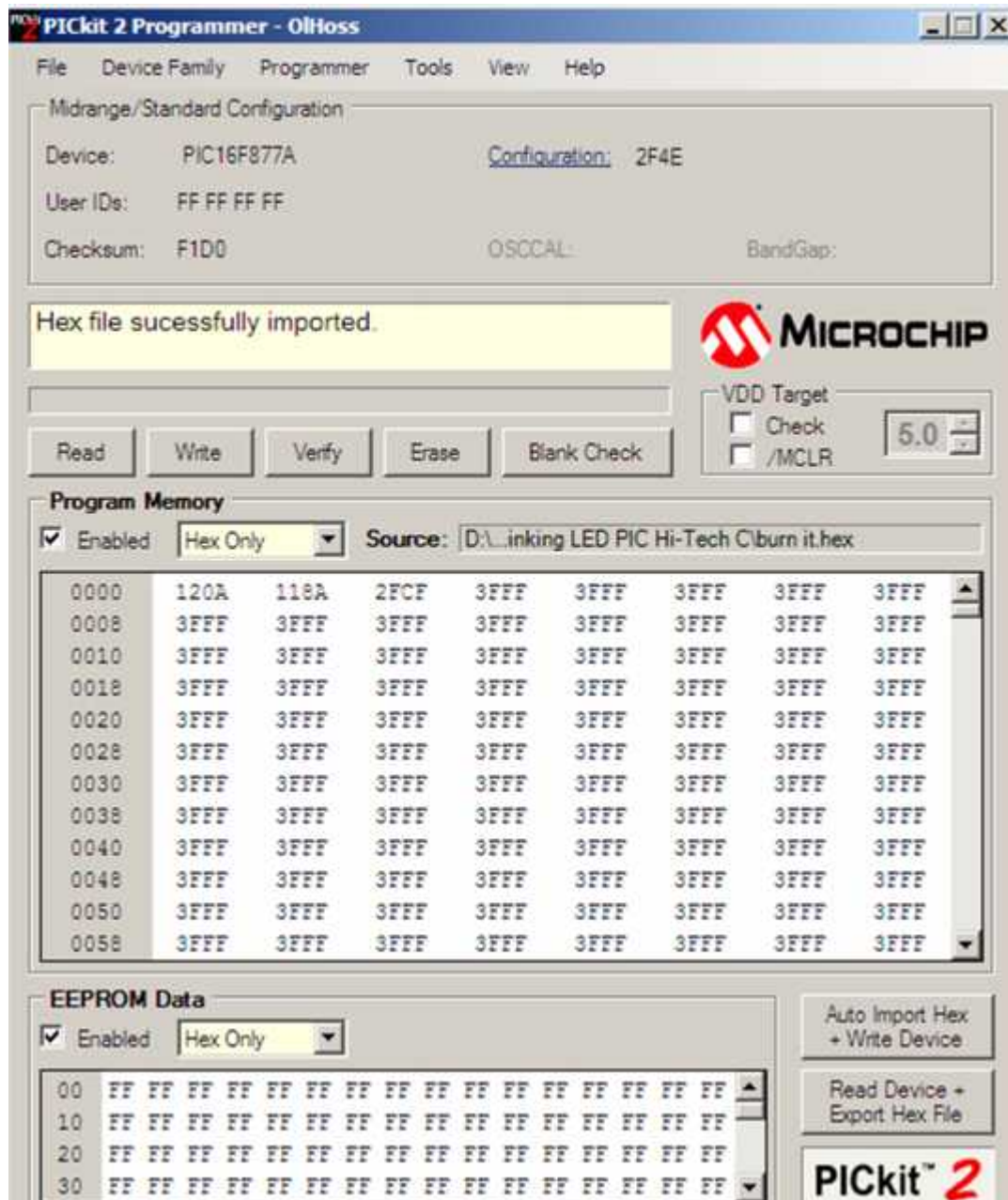
00	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
10	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
20	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF
30	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF	FF

Auto Import Hex + Write Device
Read Device + Export Hex File

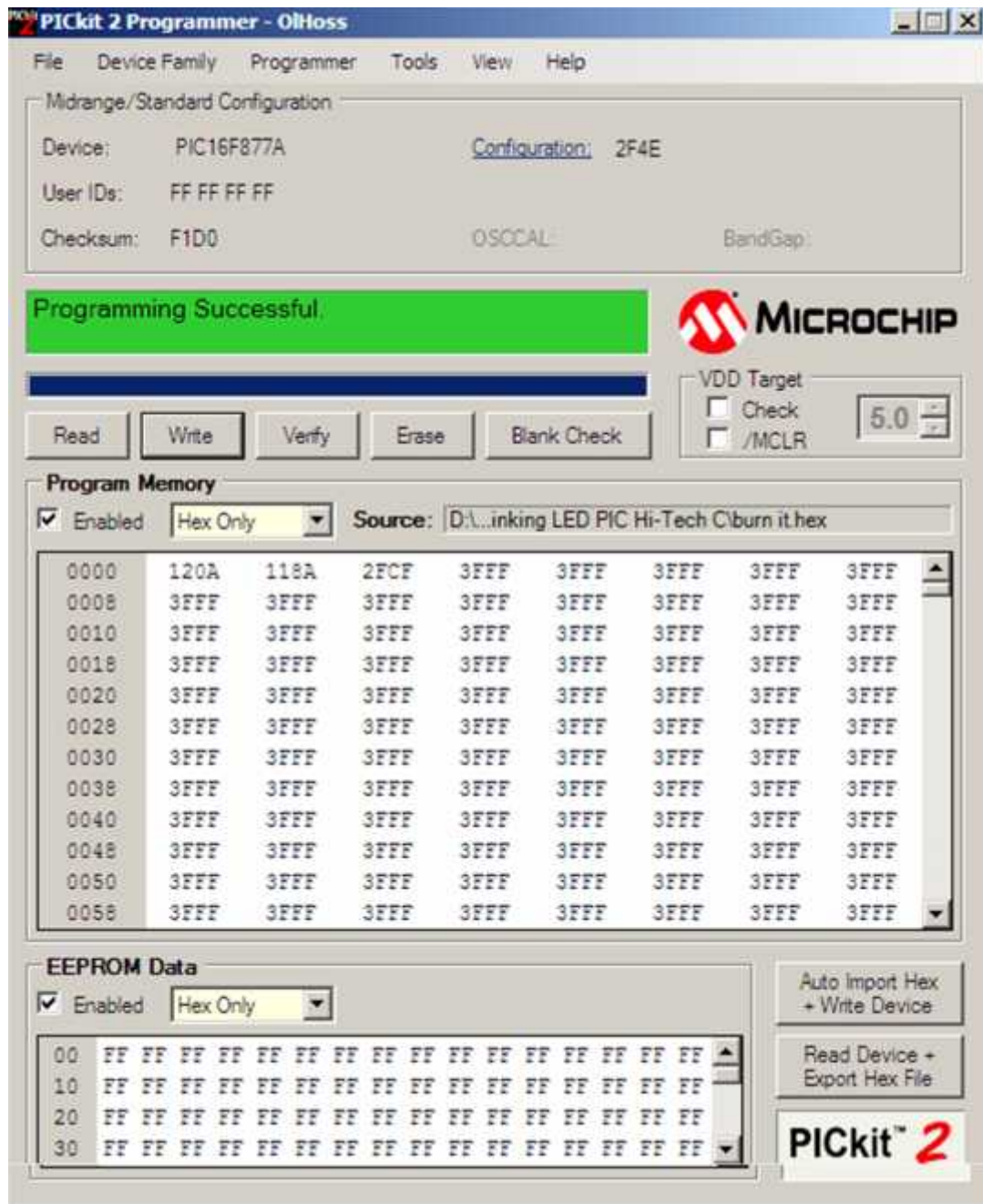
PICKIT 2



- Click on open



- Click on Write



To erase the memory

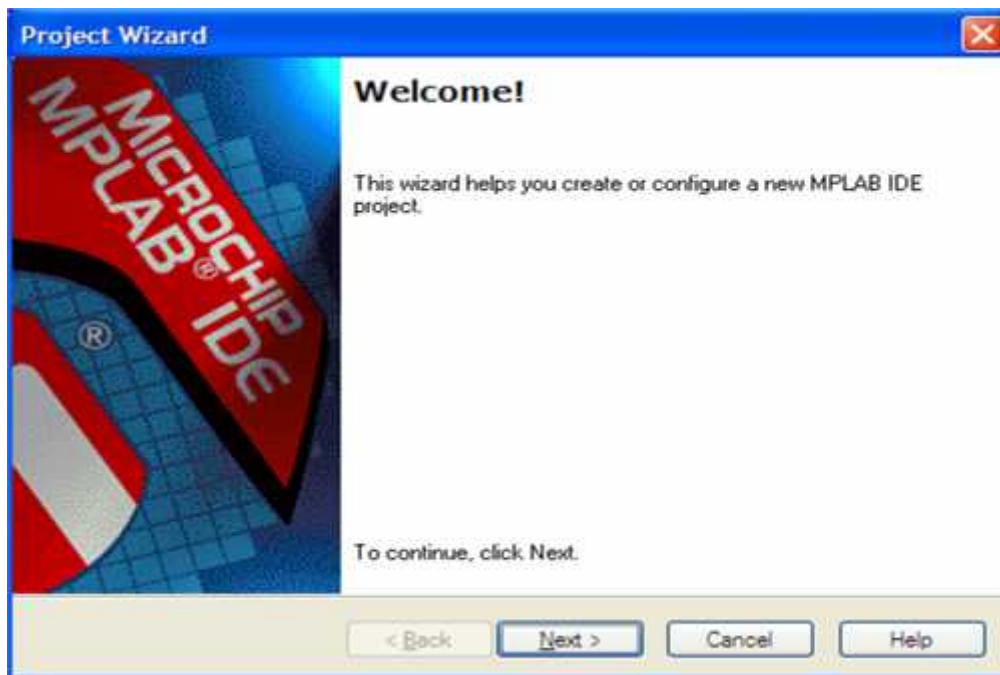
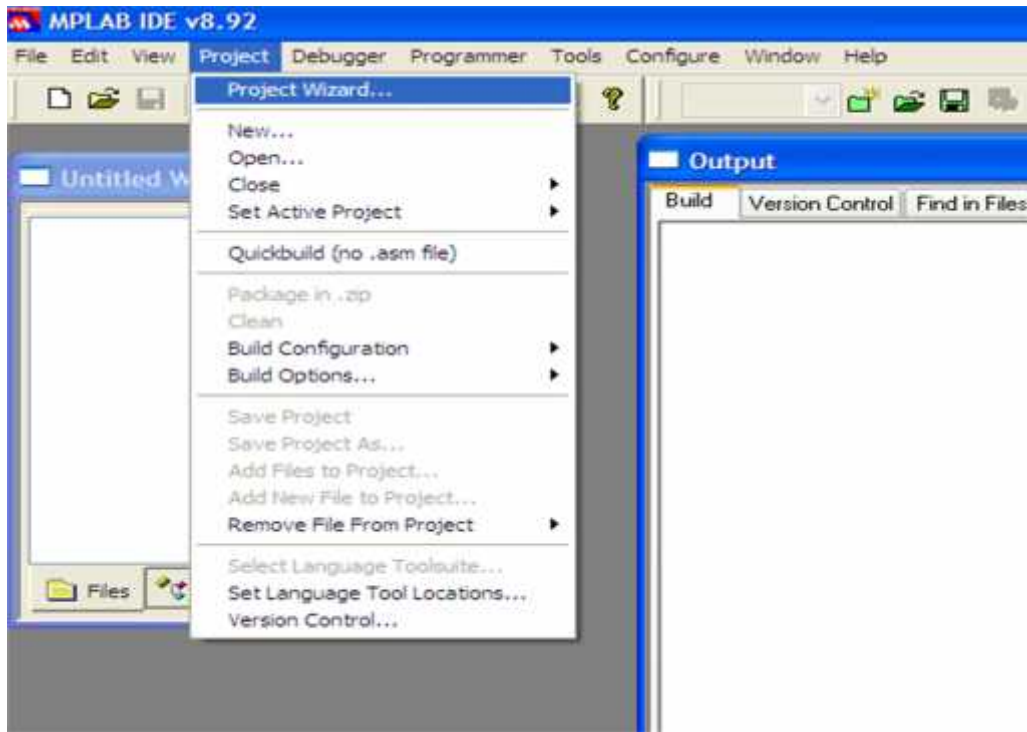
Click on erase



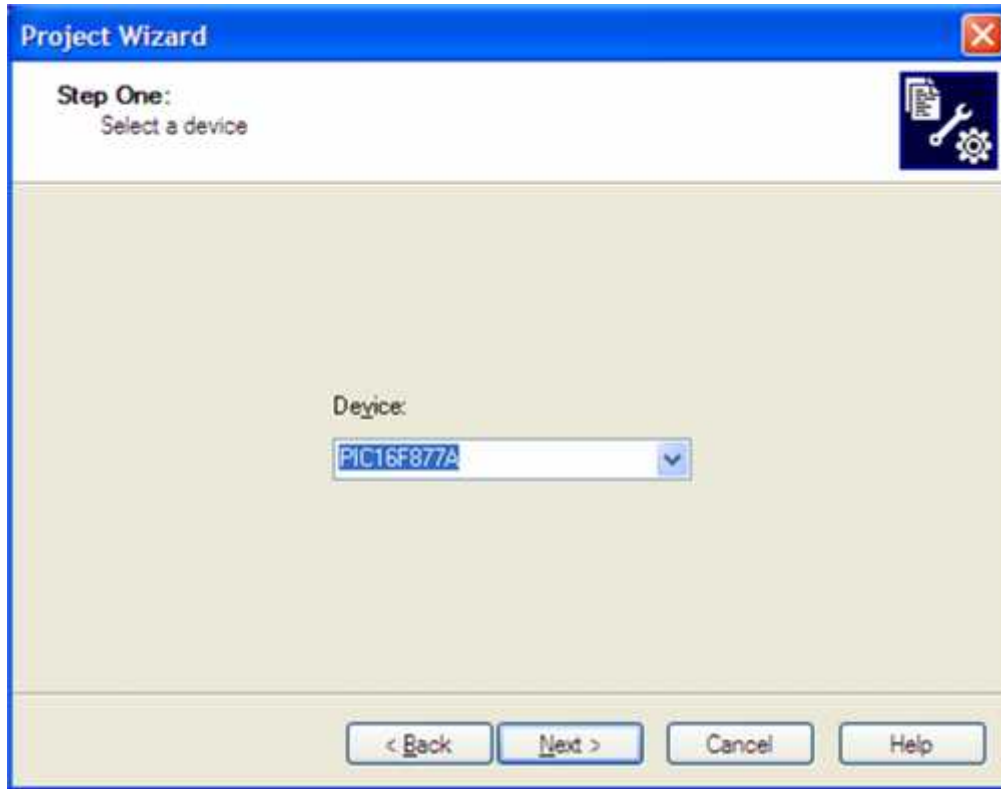
The Blank Check function will read the entire device to determine if Program Memory, EEPROM Data memory, User IDs and Configuration bits are erased.

USING MPLAB

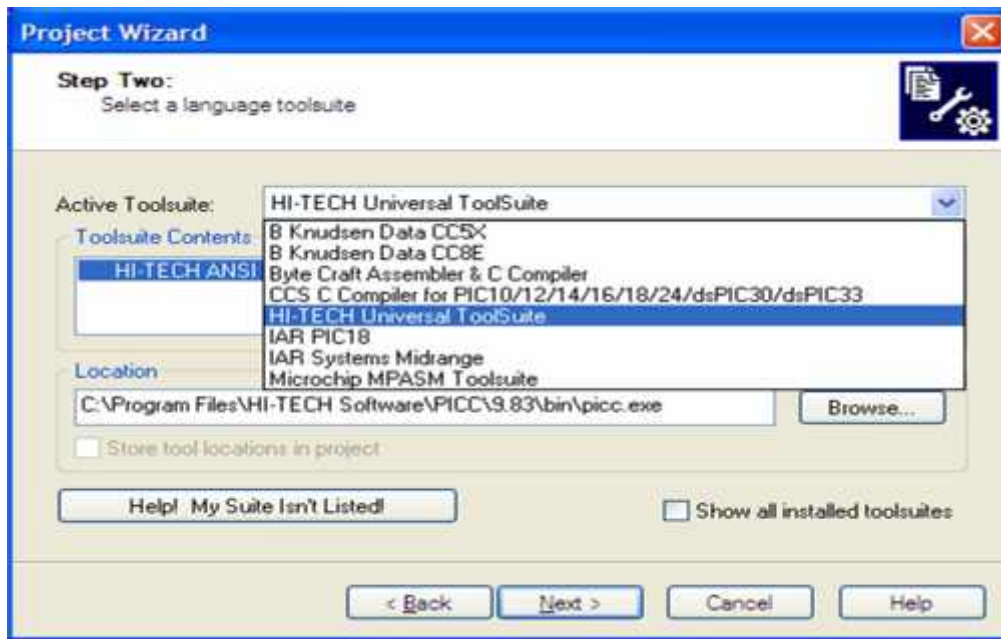
- 1) Open MPLAB
- 2) Create a folder in any drive.



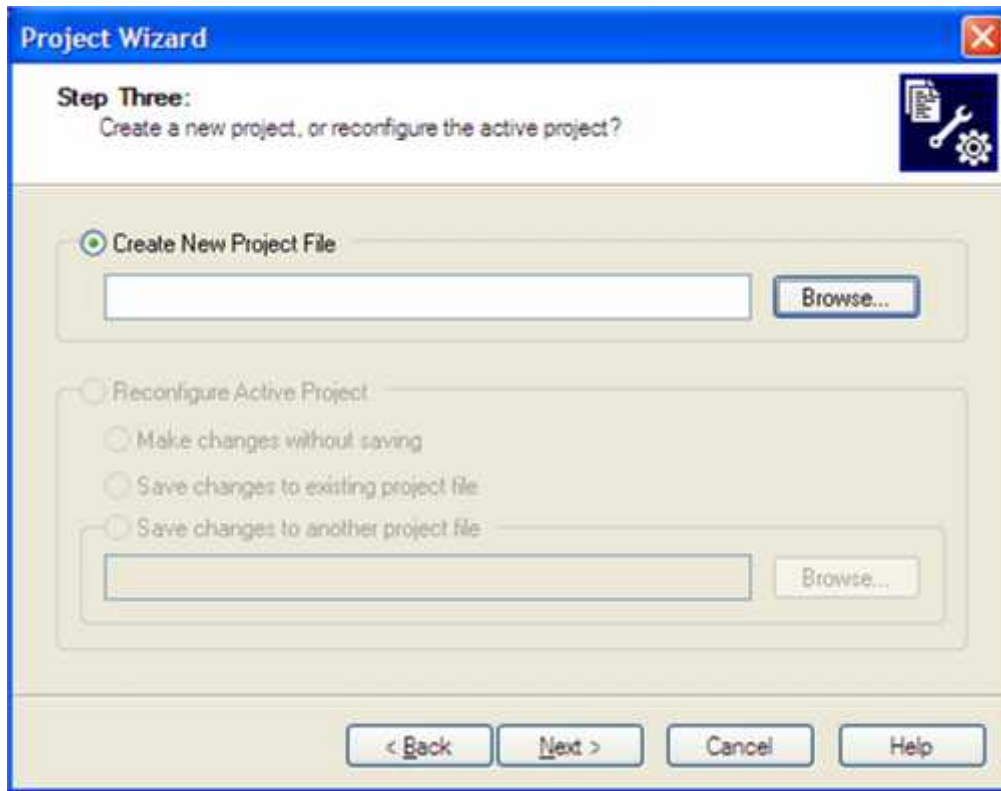
SELECT DEVICE



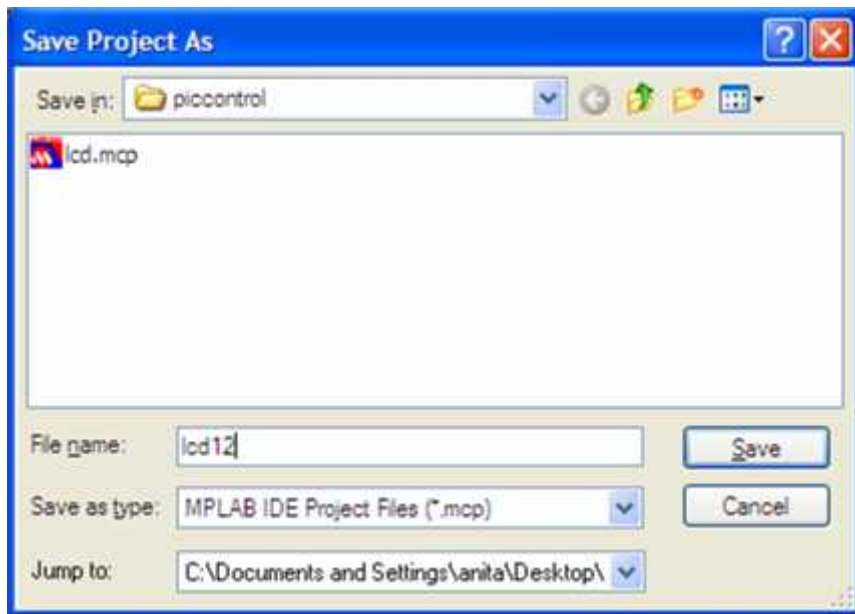
SELECT LANGUAGE SUITE

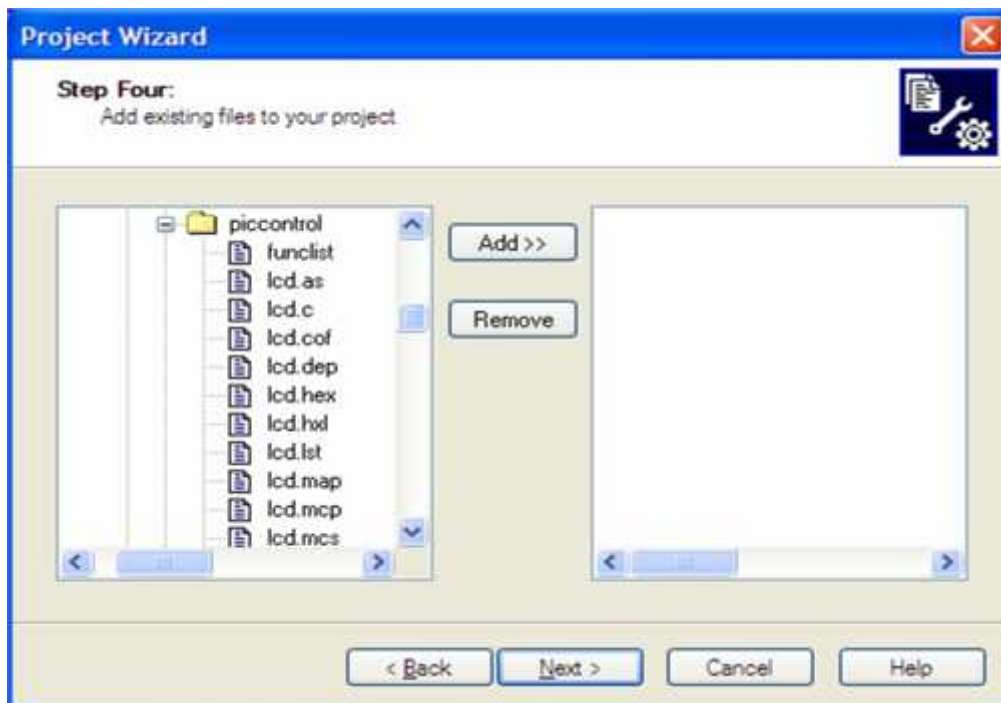
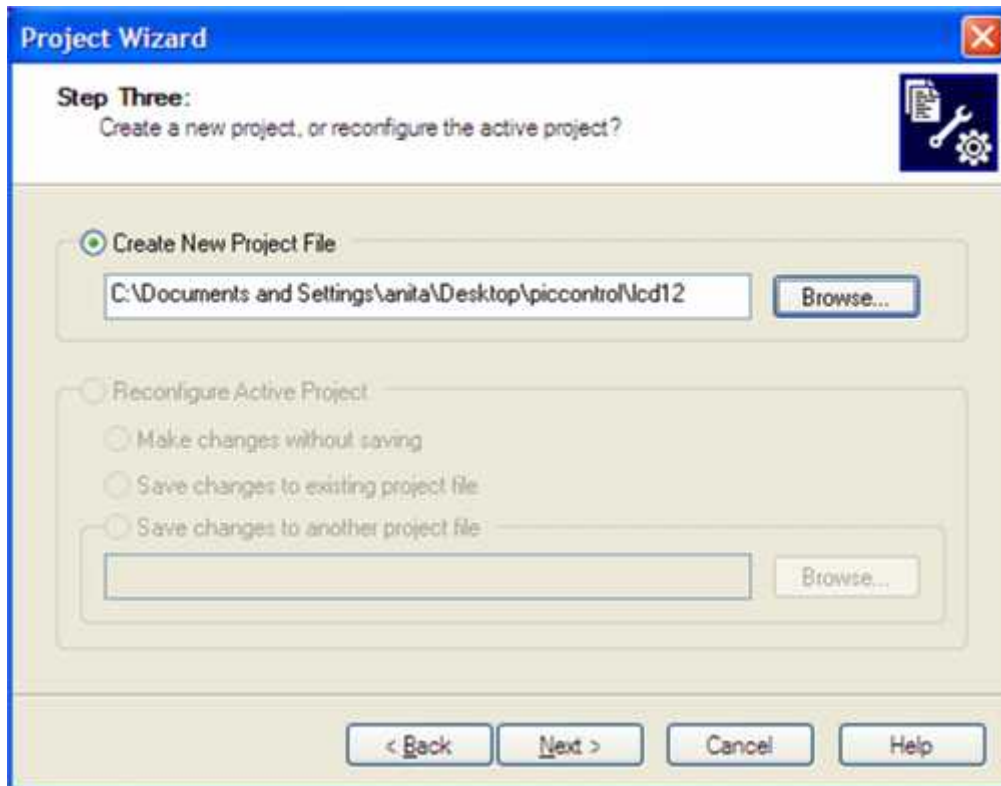


CREATE NEW PROJECT

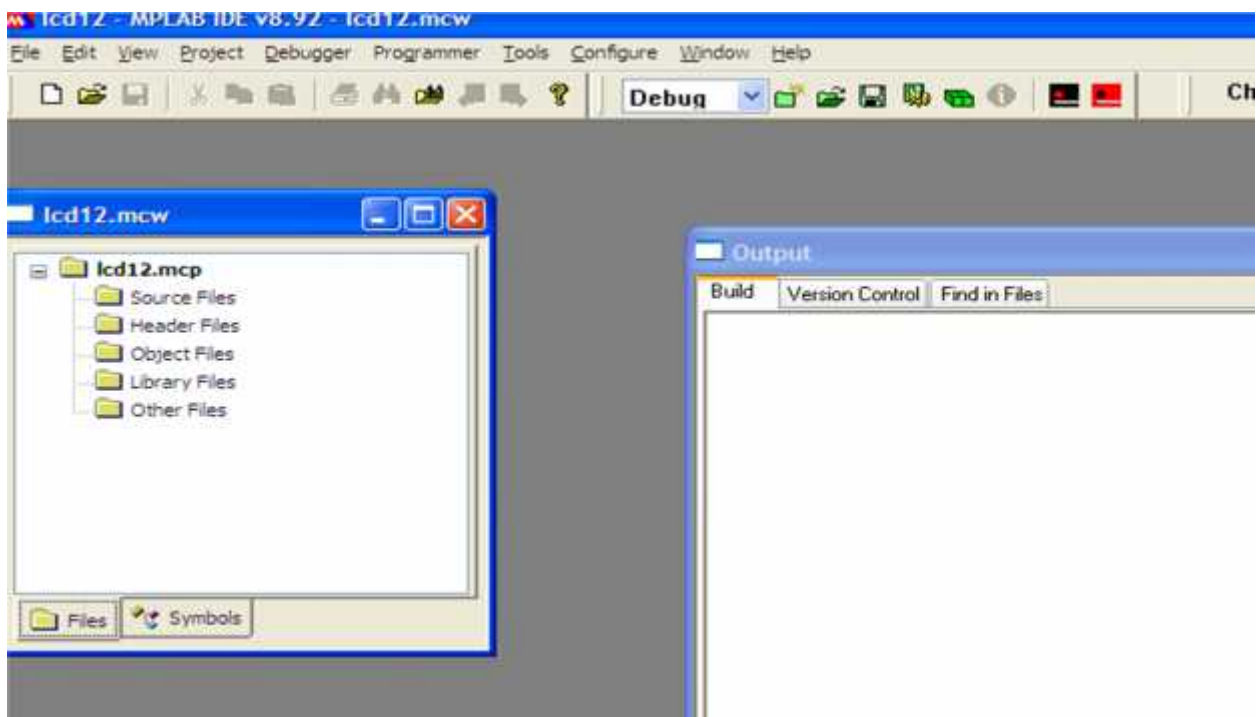
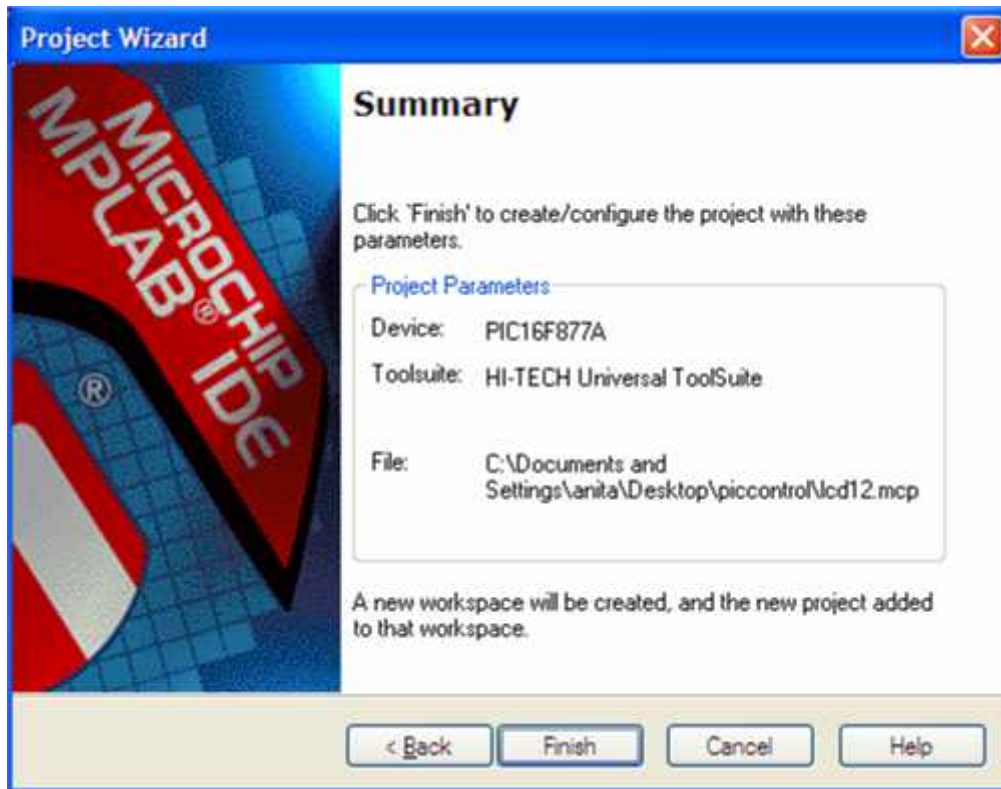


ADD FILES

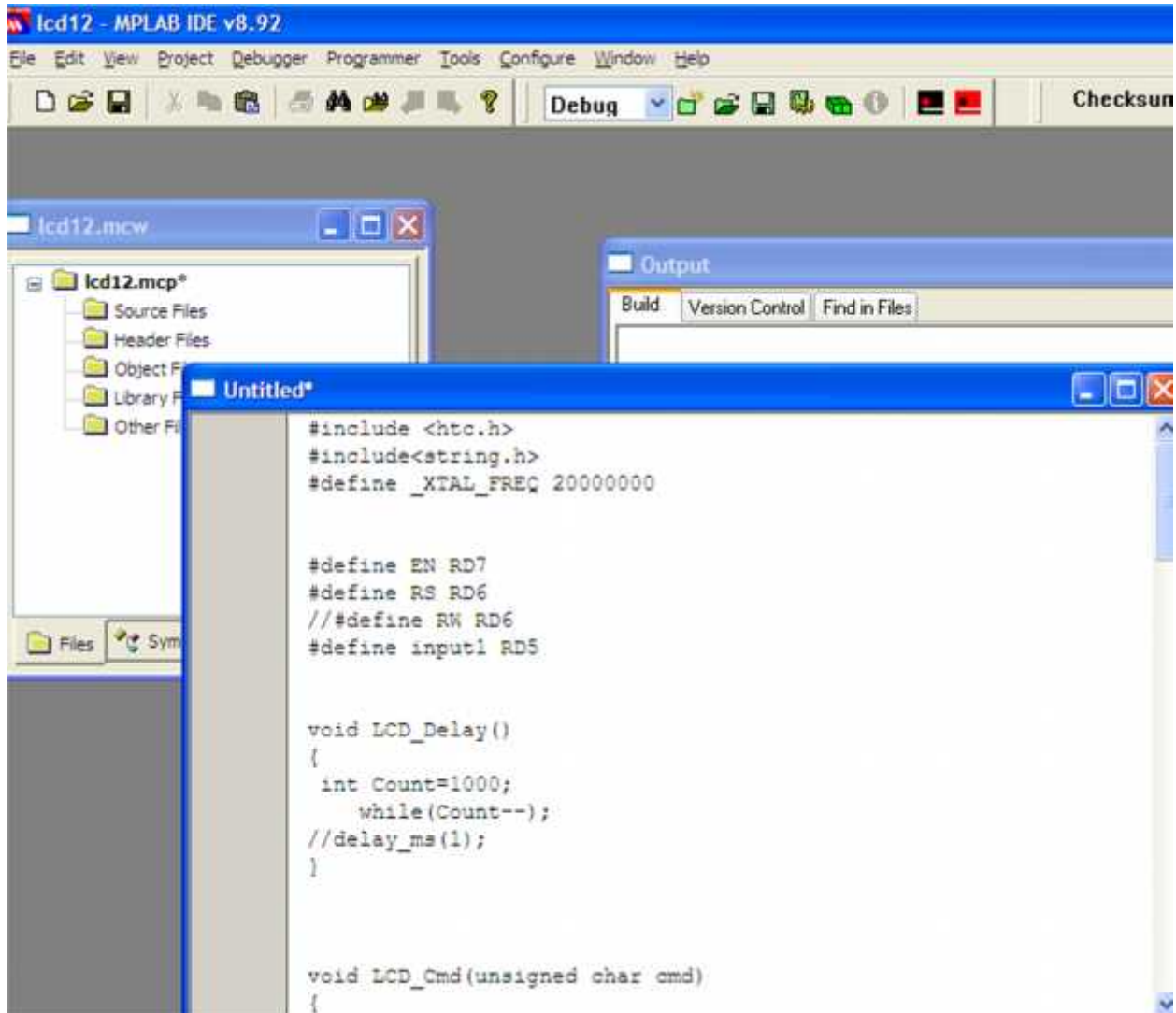




PROJECT WIZARD SUMMARY



Write the Program



```
lcd12 - MPLAB IDE v8.92
File Edit View Project Debugger Programmer Tools Configure Window Help
Debug
Checksum

lcd12.mcpw
Output
Build: Version Control Find in Files

lcd12.mcp*
Source Files
Header Files
Object Files
Library Files
Other Files
Files Sym

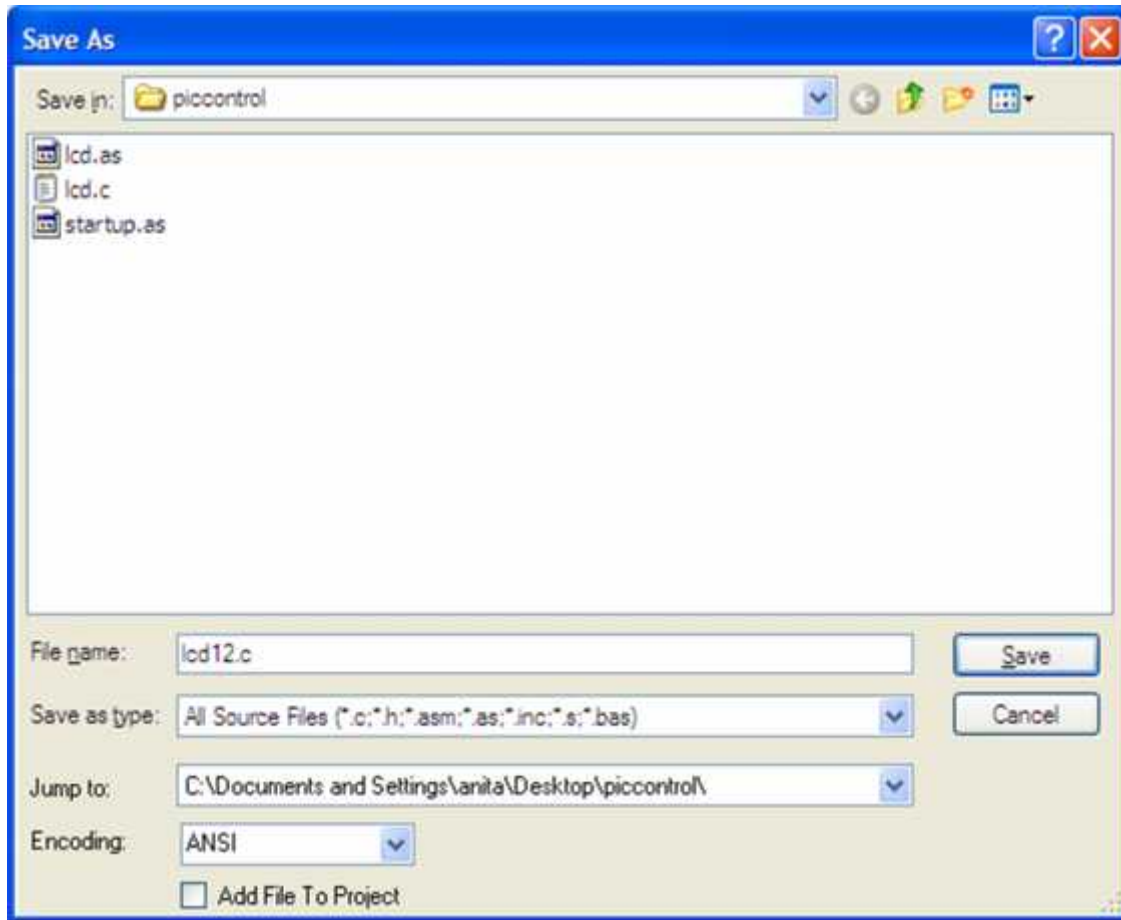
Untitled*
#include <htc.h>
#include<string.h>
#define _XTAL_FREQ 20000000

#define EN RD7
#define RS RD6
//#define RW RD6
#define input1 RD5

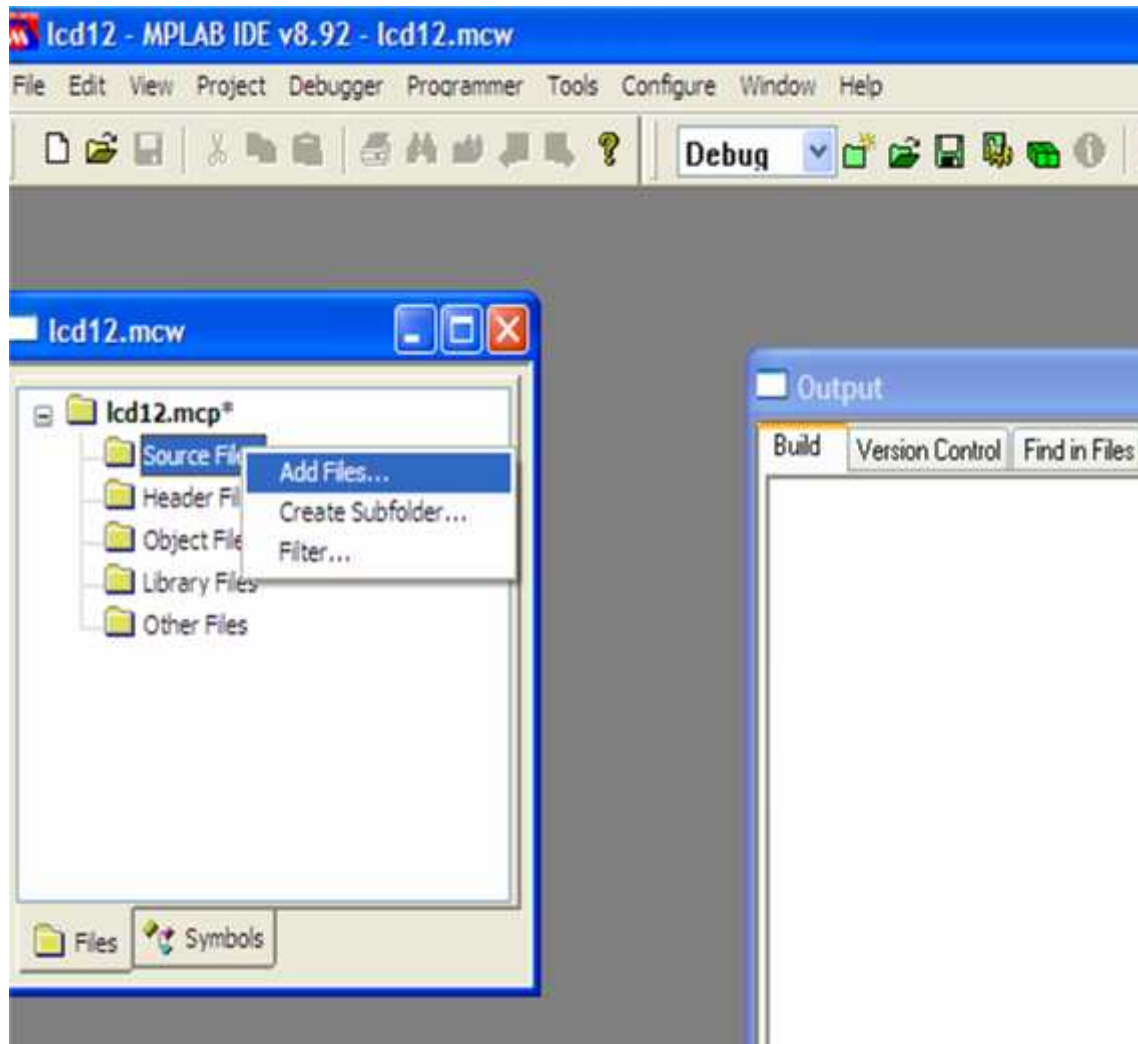
void LCD_Delay()
{
    int Count=1000;
    while(Count--);
    //delay_ms(1);
}

void LCD_Cmd(unsigned char cmd)
{
```

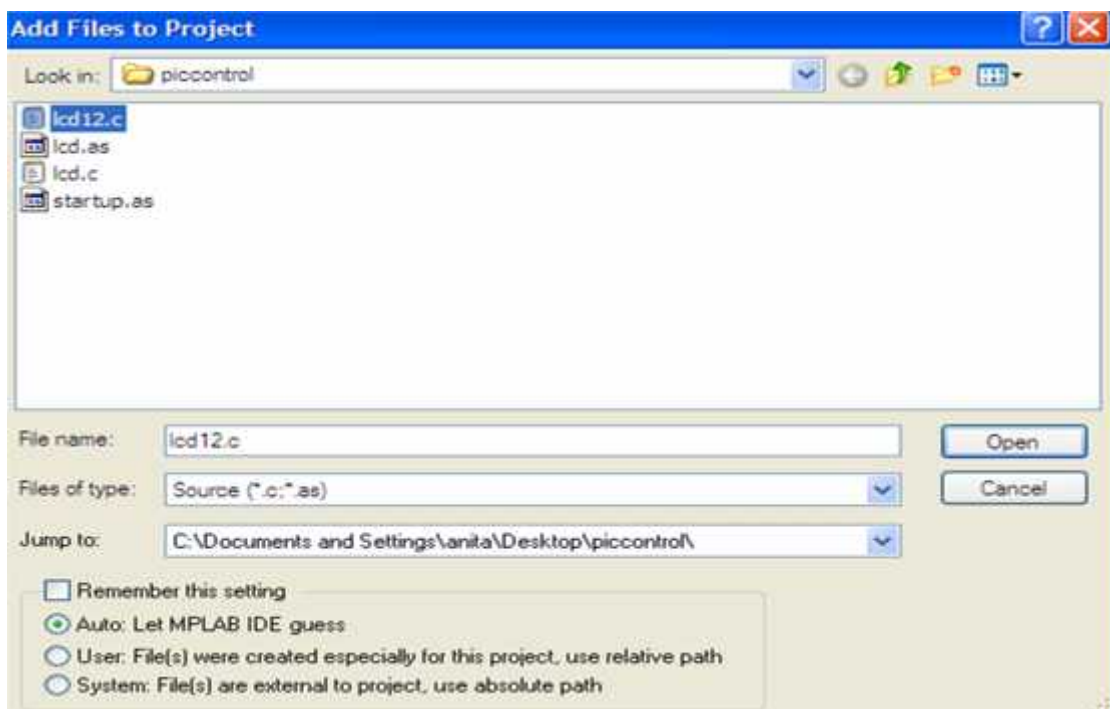
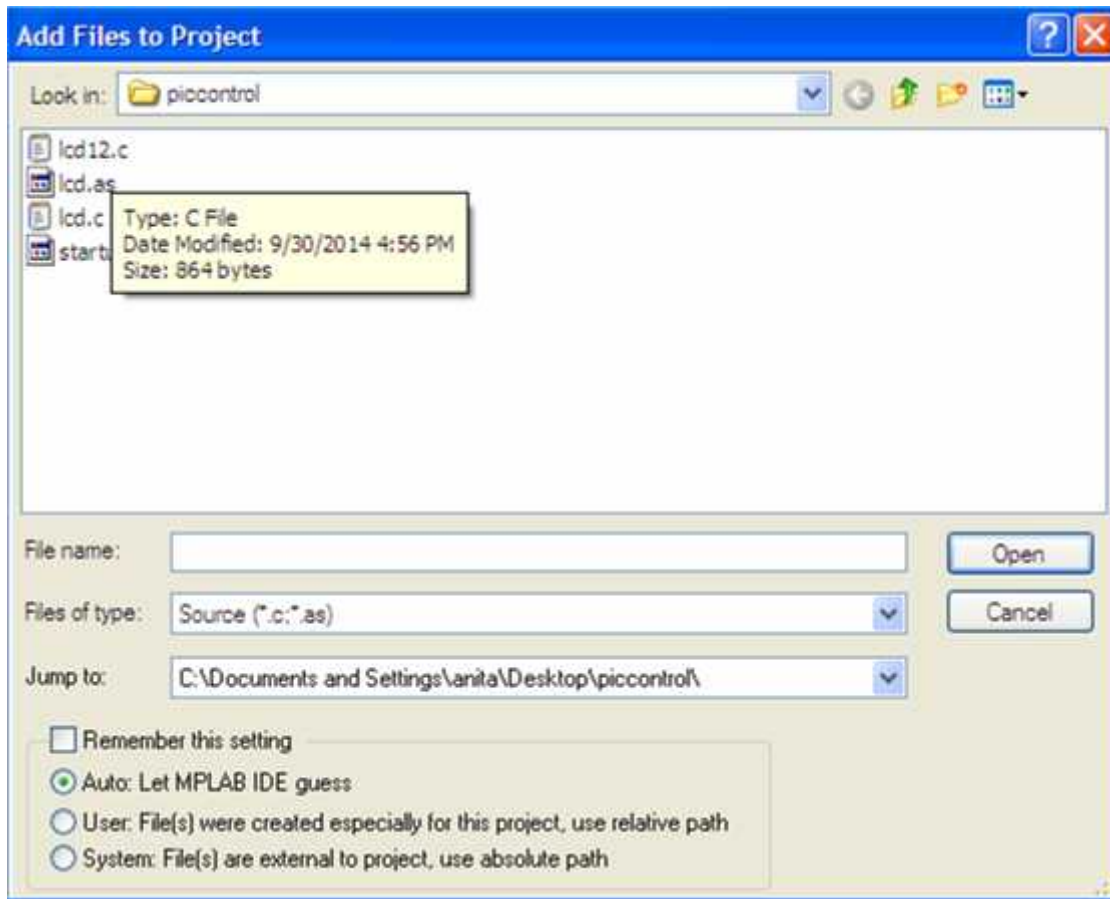

Save the program in respective folder

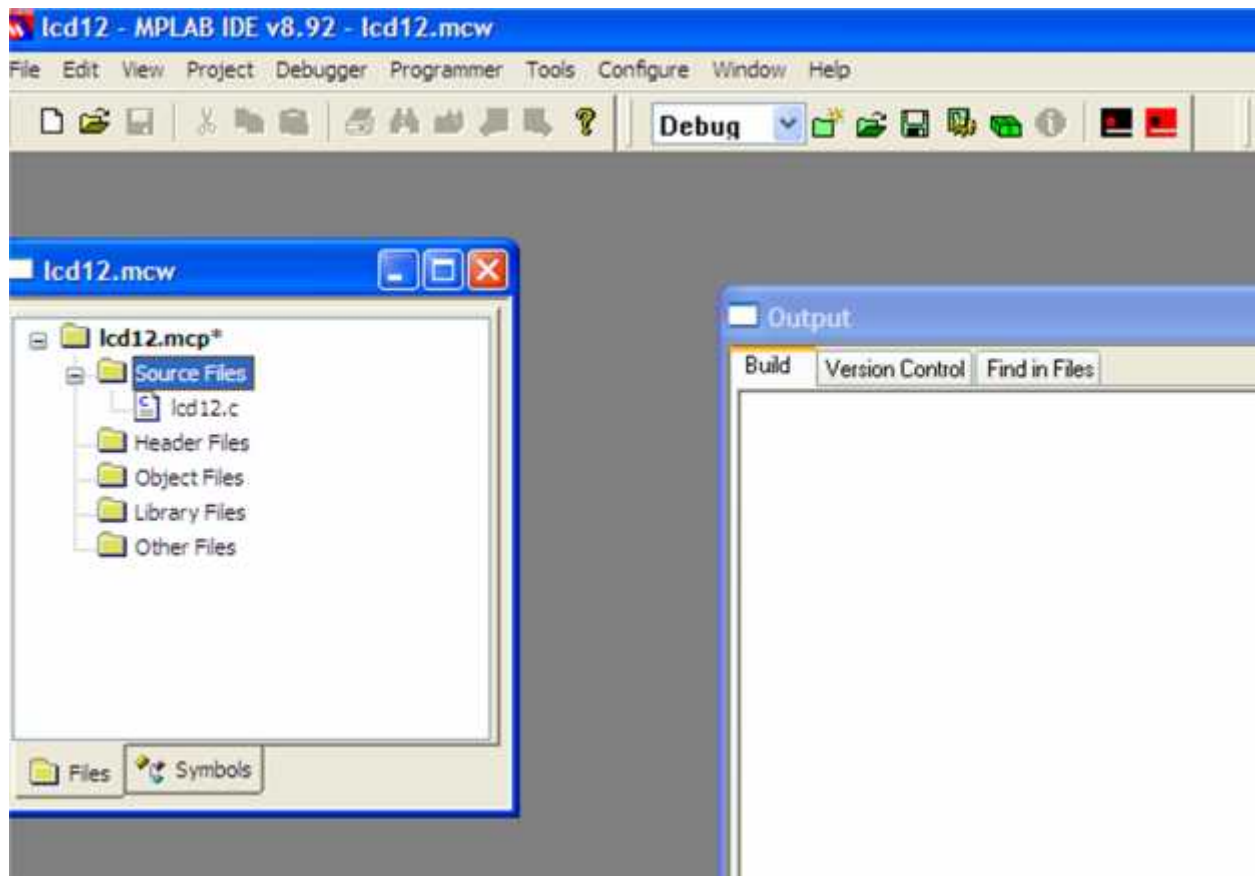


Add file

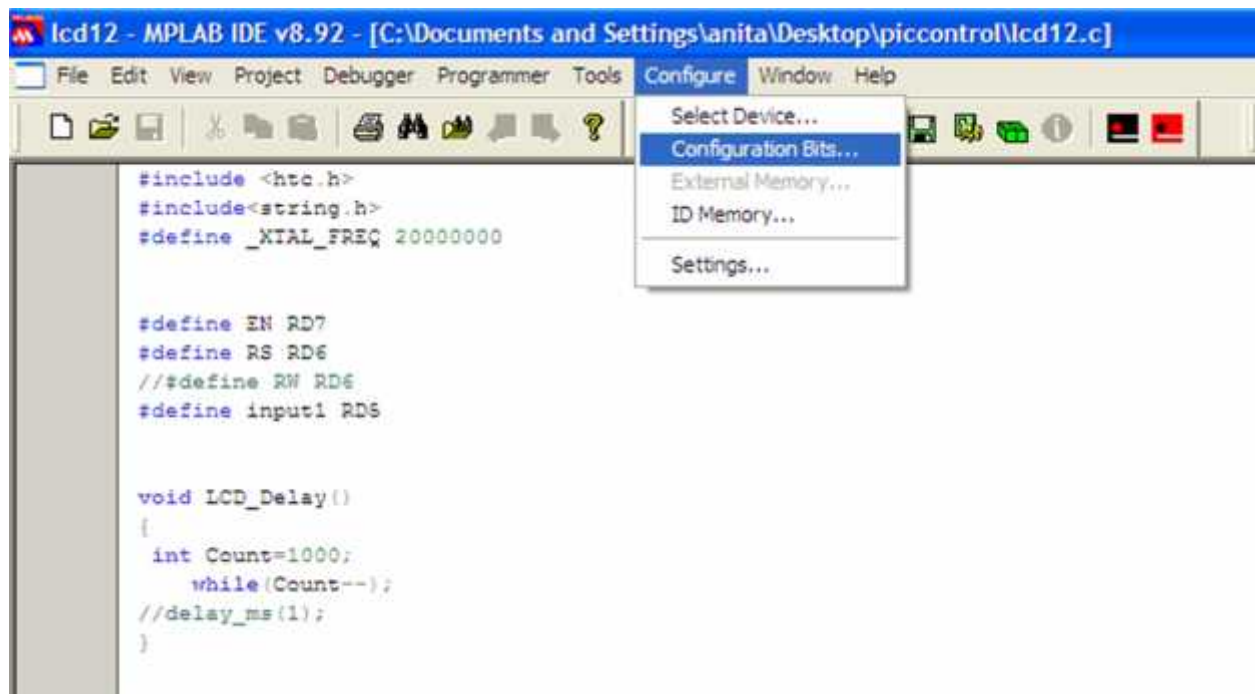


Select the .c file





CONFIGURATION BIT SETTINGS



Icd12 - MPLAB IDE v8.92 - [Configuration Bits]

File Edit View Project Debugger Programmer Tools Configure Window Help

Debug Checksum: 0x01cf

Configuration Bits set in code.

Address	Value	Field	Category	Setting
2007	3FFF	FOSC	Oscillator Sele	RC oscillator
		WDTE	Watchdog Timer	WDT enabled
		FWRT	Power-up Timer	FWRT disabled
		BOREN	Brown-out Reset	BOR enabled
		LVP	Low-Voltage (S1: RB3/PGM pin has PGM function; low-voltage programming enabled	
		CPD	Data EEPROM Mem	Data EEPROM code protection off
		WRT	Flash Program M	Write protection off; all program memory may be written to by EECON control
		CP	Flash Program M	Code protection off

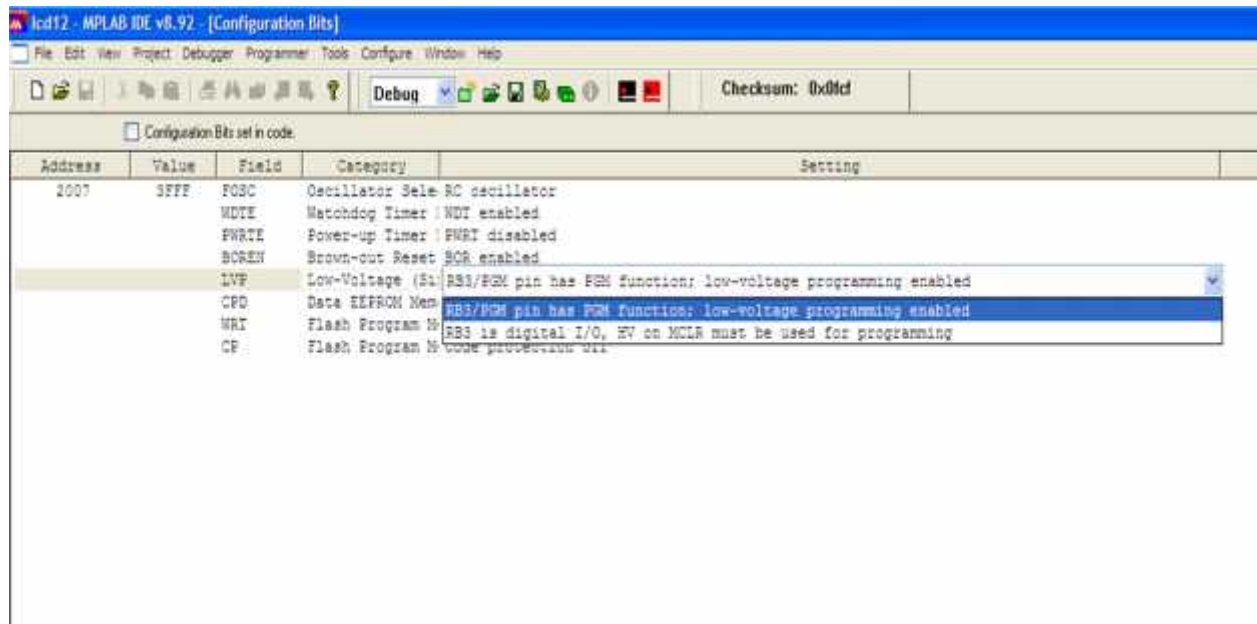
Icd12 - MPLAB IDE v8.92 - [Configuration Bits]

File Edit View Project Debugger Programmer Tools Configure Window Help

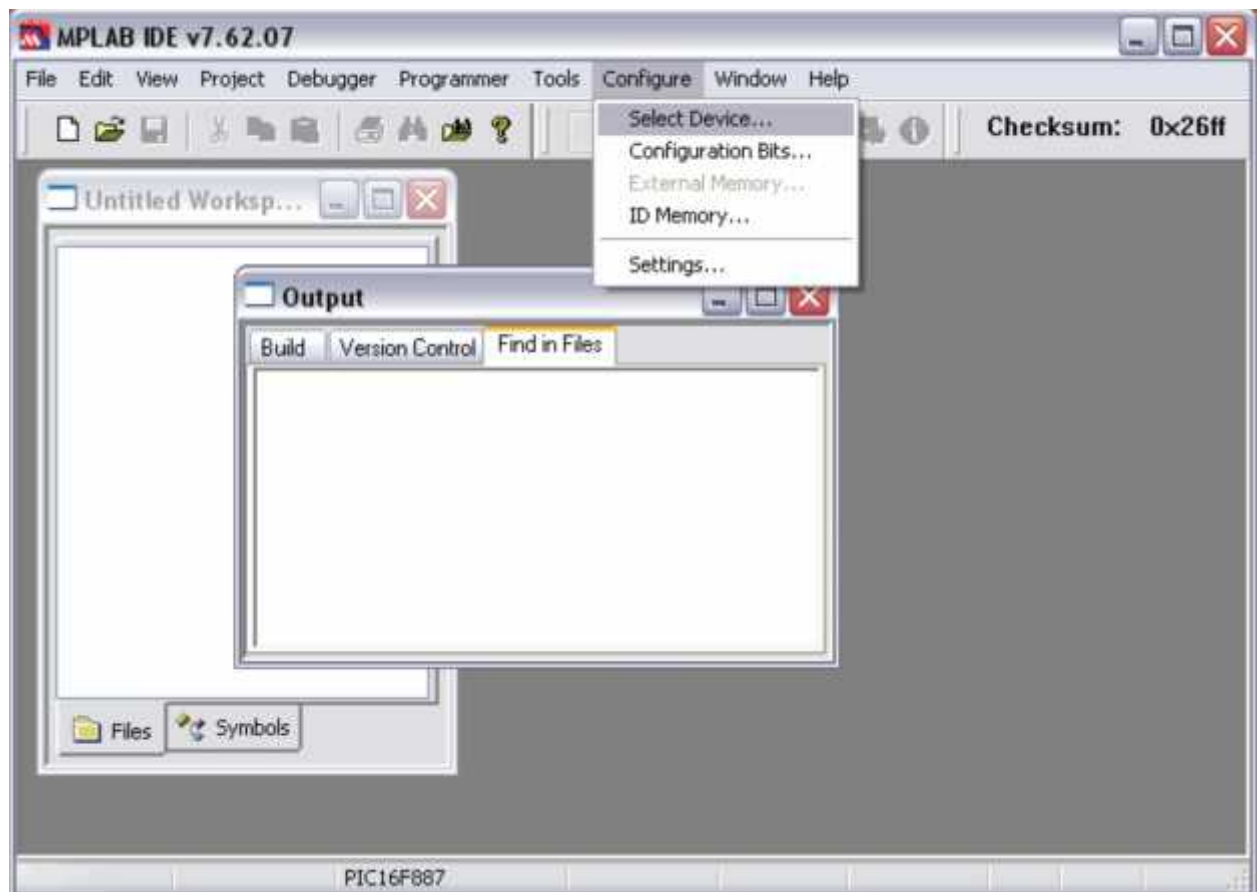
Debug Checksum: 0x01cf

Configuration Bits set in code.

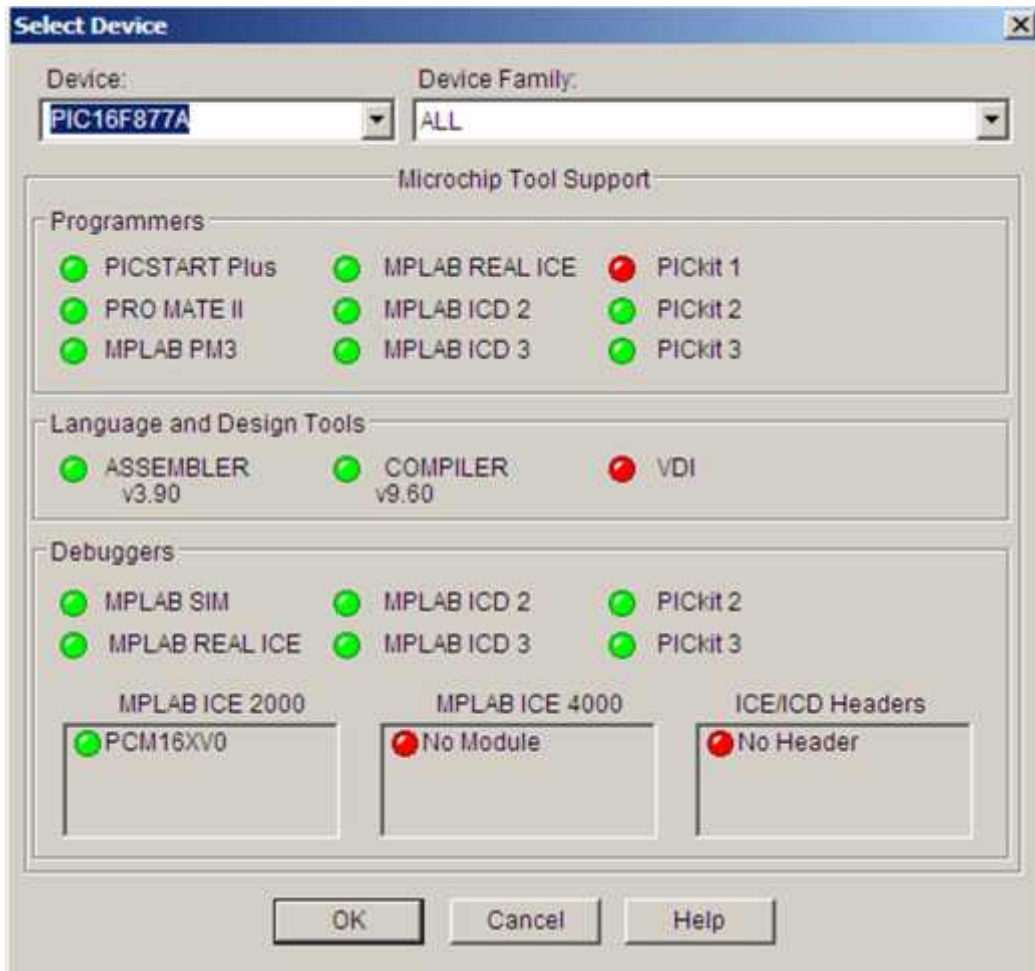
Address	Value	Field	Category	Setting
2007	3FFF	FOSC	Oscillator Sele	RC oscillator
		WDTE	Watchdog Timer	WDT enabled
		FWRT	Power-up Timer	FWRT disabled
		BOREN	Brown-out Reset	BOR enabled
		LVP	Low-Voltage (S1: RB3/PGM pin has PGM function; low-voltage programming enabled	
		CPD	Data EEPROM Mem	Data EEPROM code protection off
		WRT	Flash Program M	Write protection off; all program memory may be written to by EECON control
		CP	Flash Program M	Code protection off



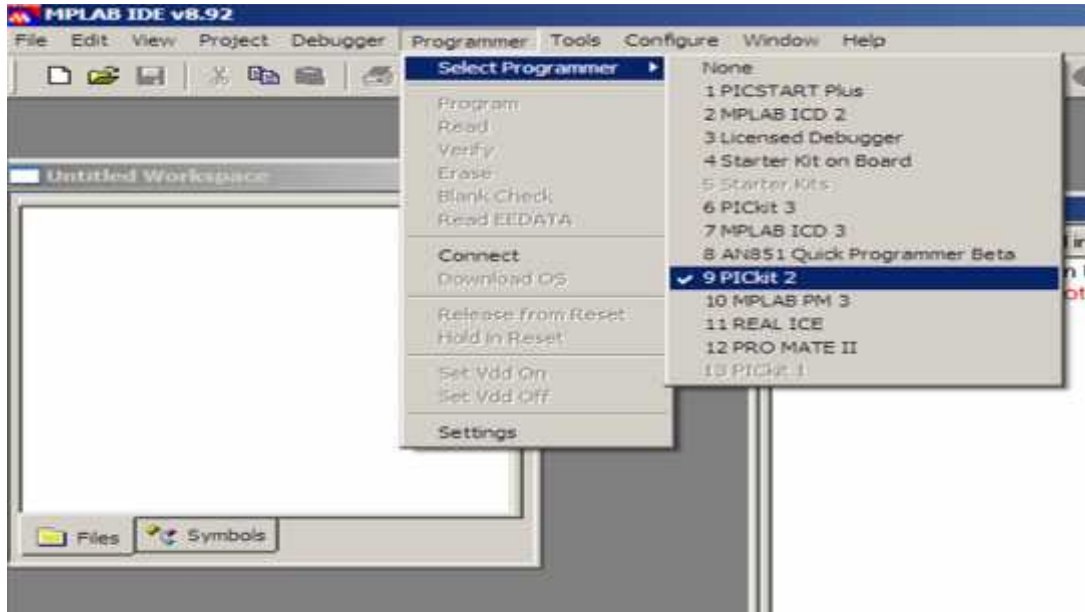
SELECT DEVICE DIALOG



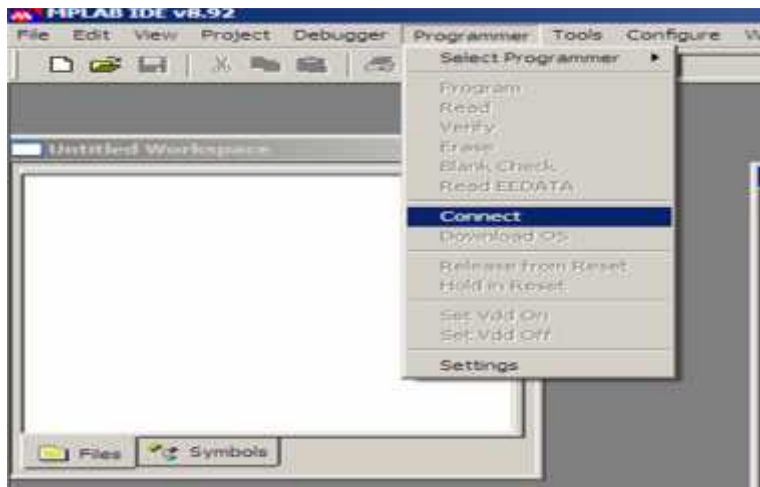
Choosing the pick kit 2 IC (16F877A)



Selecting PICKit 2 as the Debug Tool



Load the program on to pickit2



ICSP(In Circuit Serial Programming)

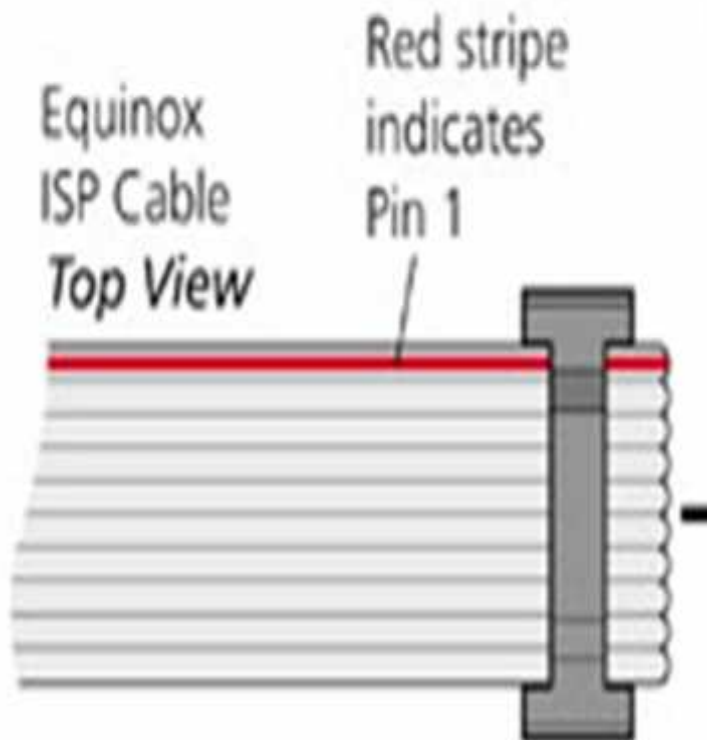
Pin 1: Ground

Pin 2: VCC

Pin 3: MCLR

Pin 4:PGC

Pin 5:PGD



NOTE: Connect Red strip to PGD



ICSP is a technique where programmable device is programmed after device is placed in the circuit board

ICSP CONNECTION WITH DEVELOPMENT BOARD

