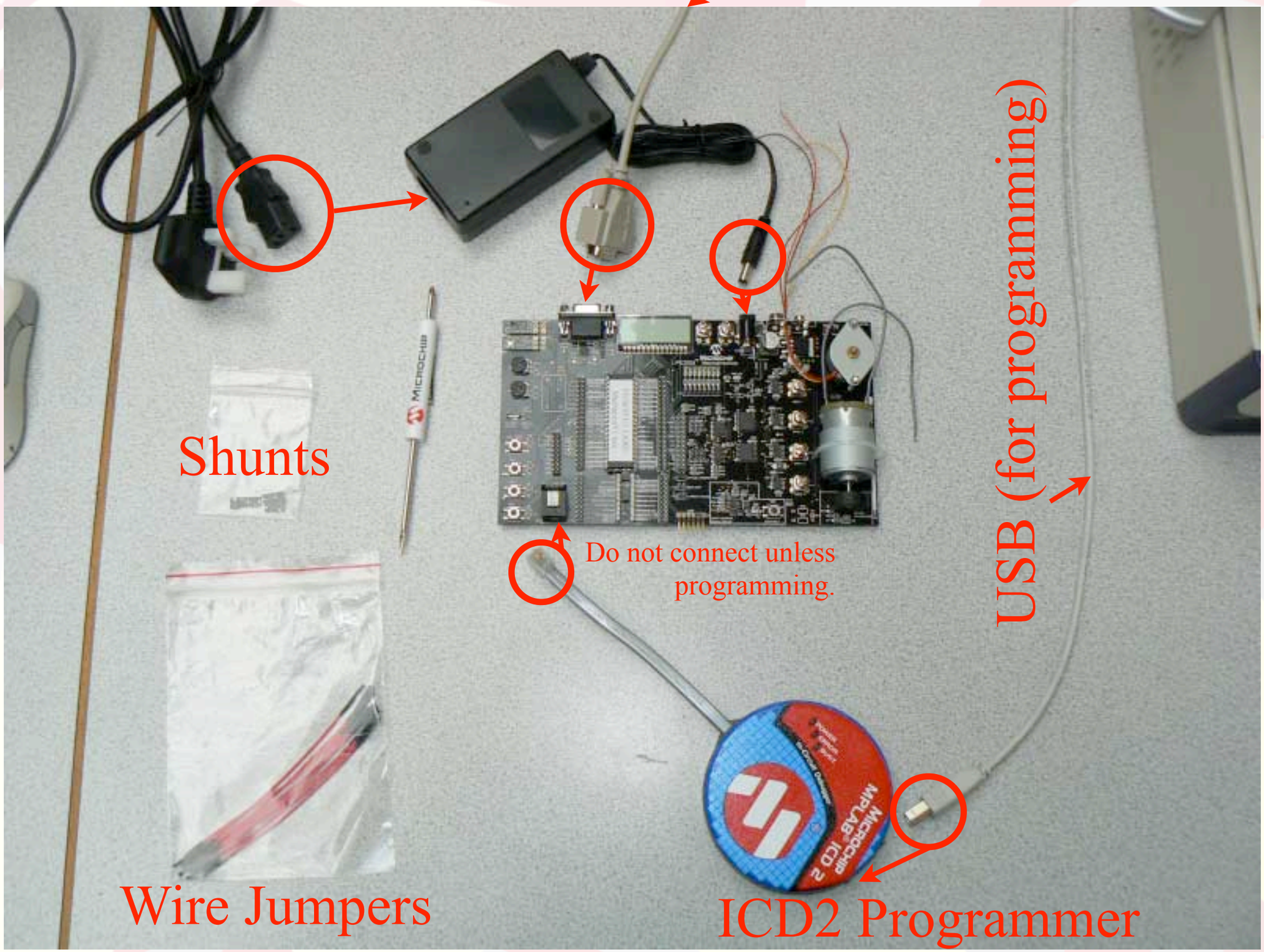
Stage 2 Mechatronics - Lab Notes

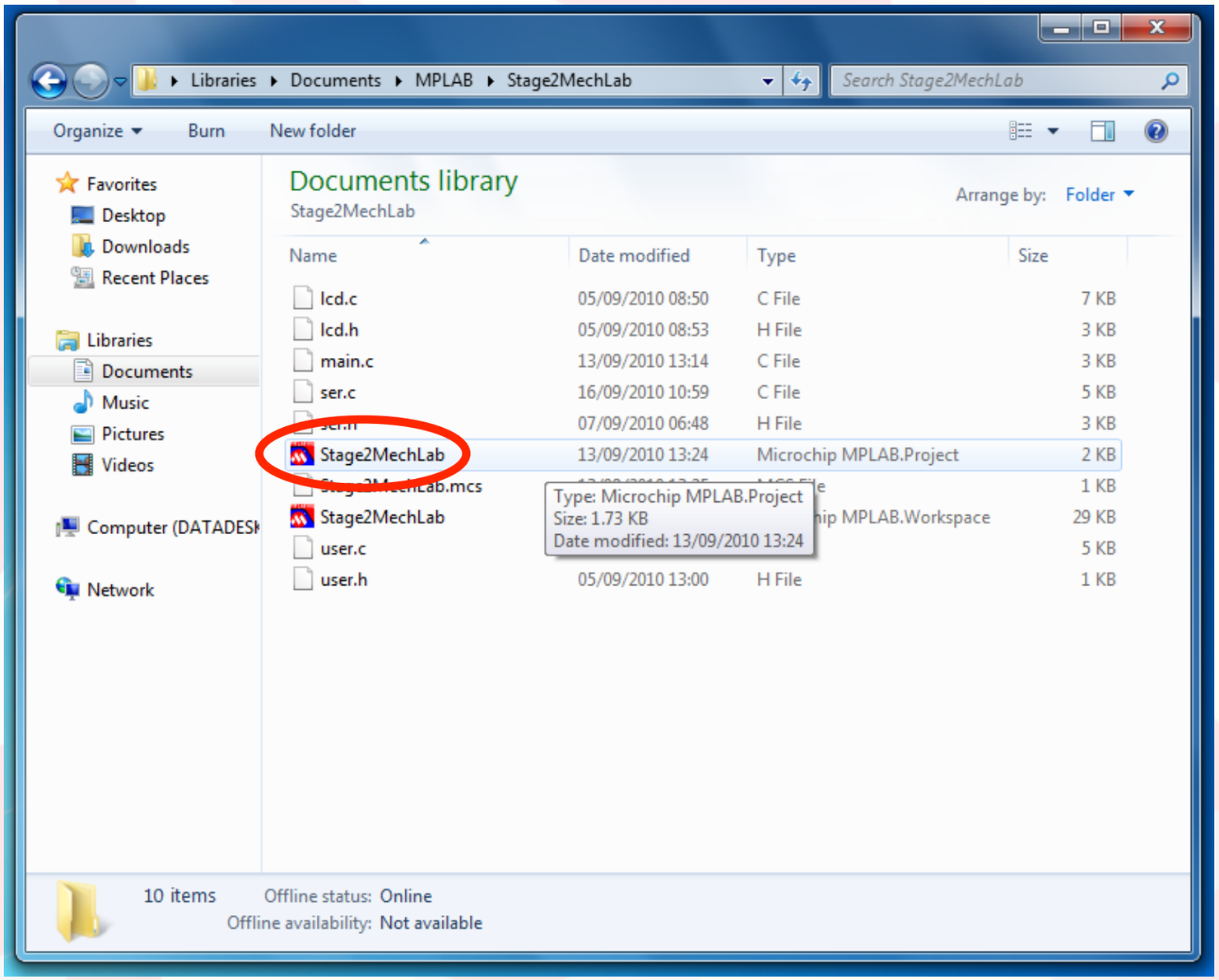
Overview


Serial [RS232] (for communication)
Shunts
Do not connect unless programming.
USB (for programming)
Wire Jumpers
ICD2 Programmer

MPLAB IDE - Stage2MechLab

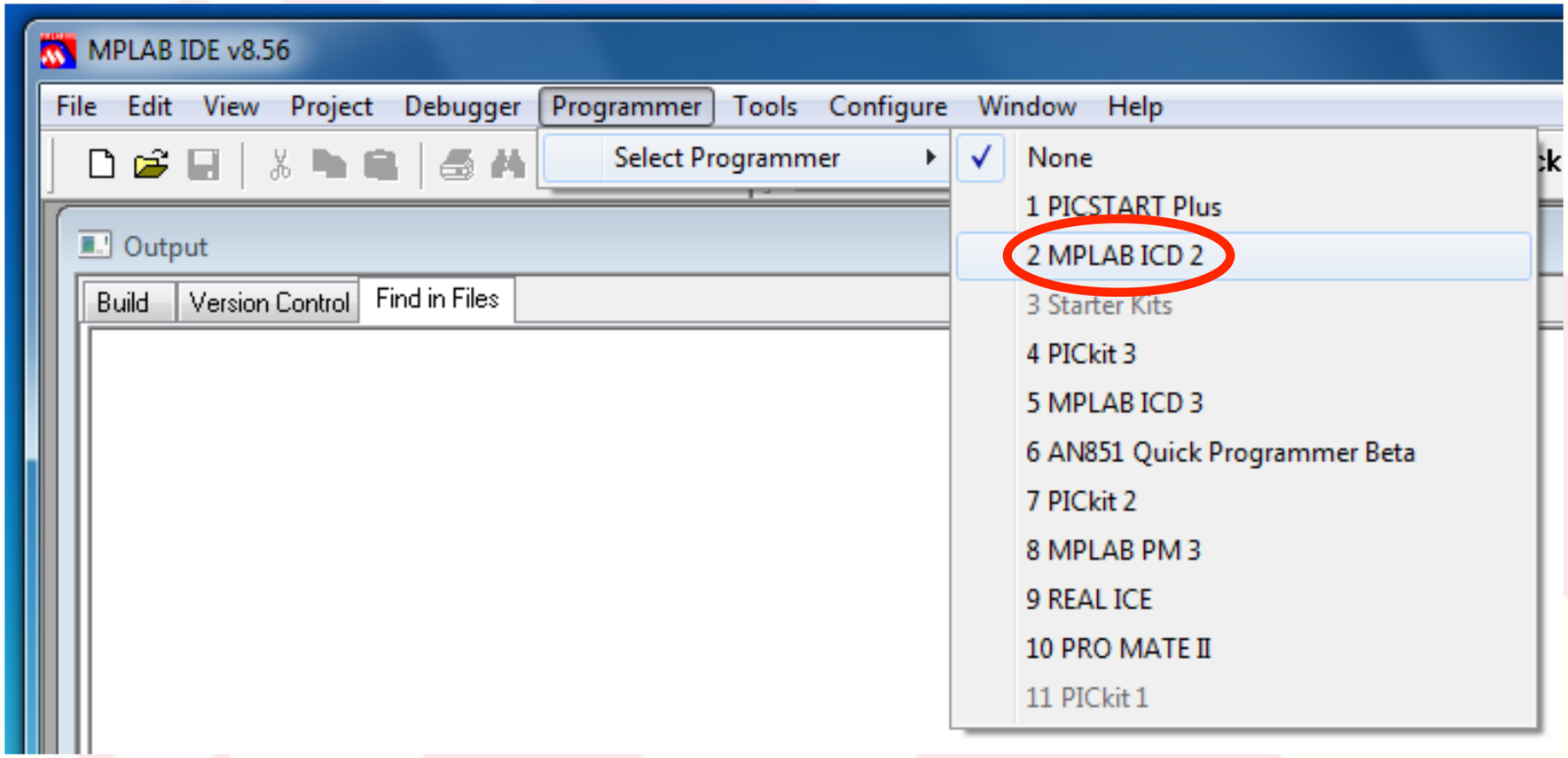
Starting with an existing project

Open the *Stage2MechLab* project file (on the **D:** or **E:** drive).
If MPLAB complains about write permission at this point, just click cancel.
Use 'Save Project As...' to save the project to a folder on your **H:** drive.



MPLAB IDE - Choosing the Programmer

Once the compiler has created the binary program, this needs to be transferred to the PIC. One tool for doing this is the MPLAB ICD 2 which can connect to the computer via USB.



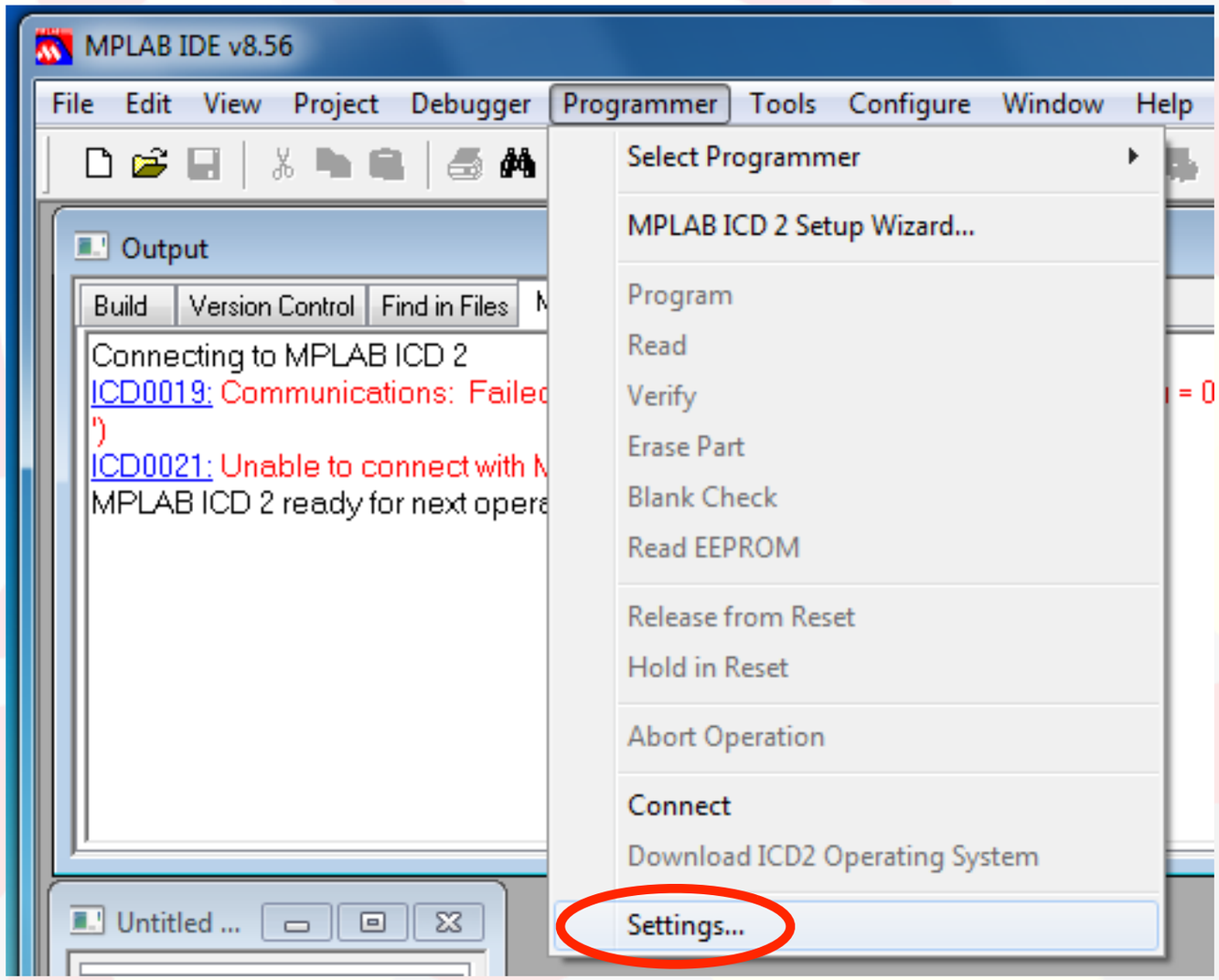
MPLAB IDE - Configuring the ICD2

Before continuing, check the settings.

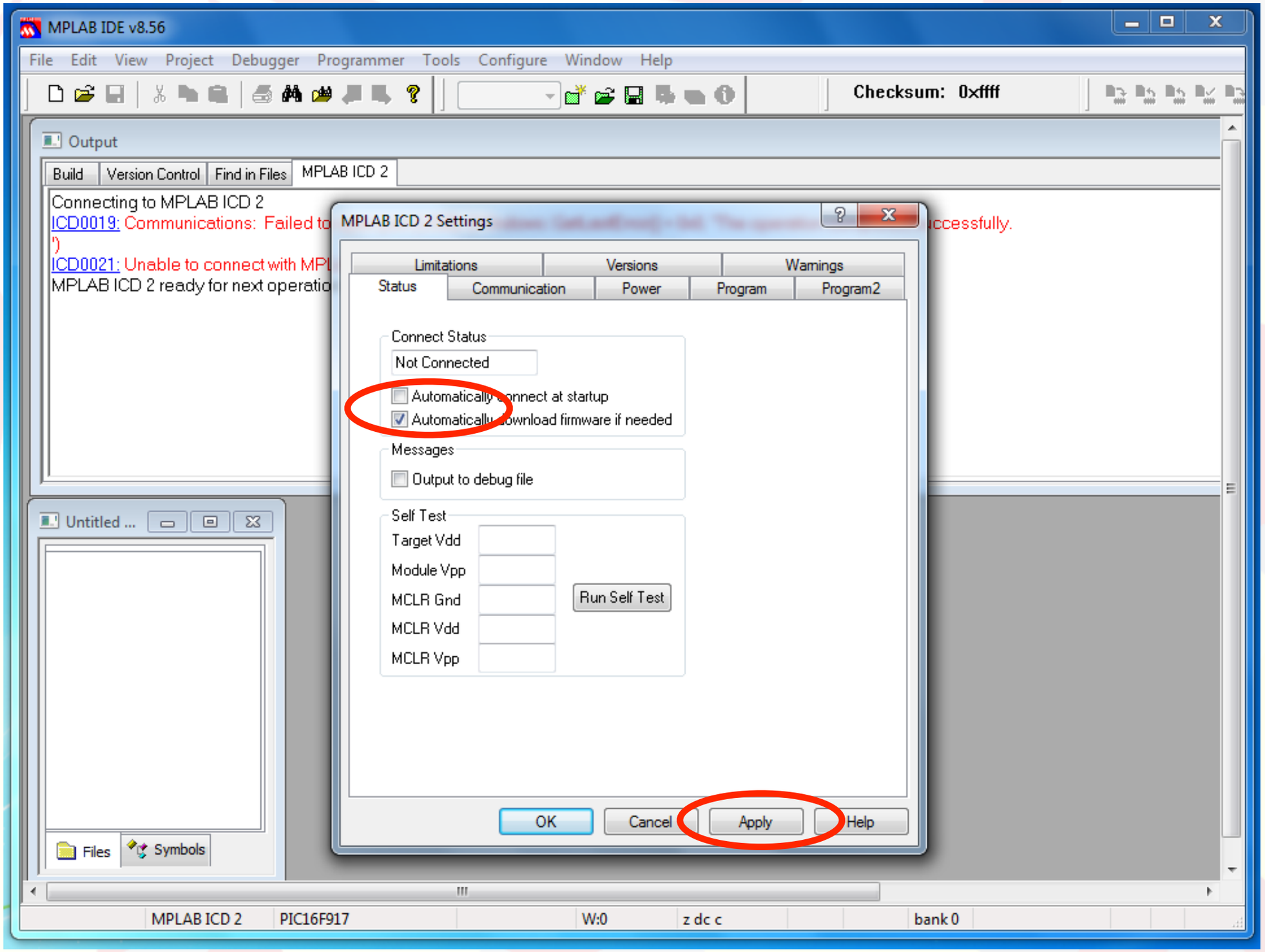
MPLAB may start the Wizard automatically. If so:

- **choose USB as the connection method**
- **power is supplied to the device, not the ICD2, and**
- **leave everything else as the default.**

It is best if MPLAB *does not* connect automatically to the ICD 2 programmer.



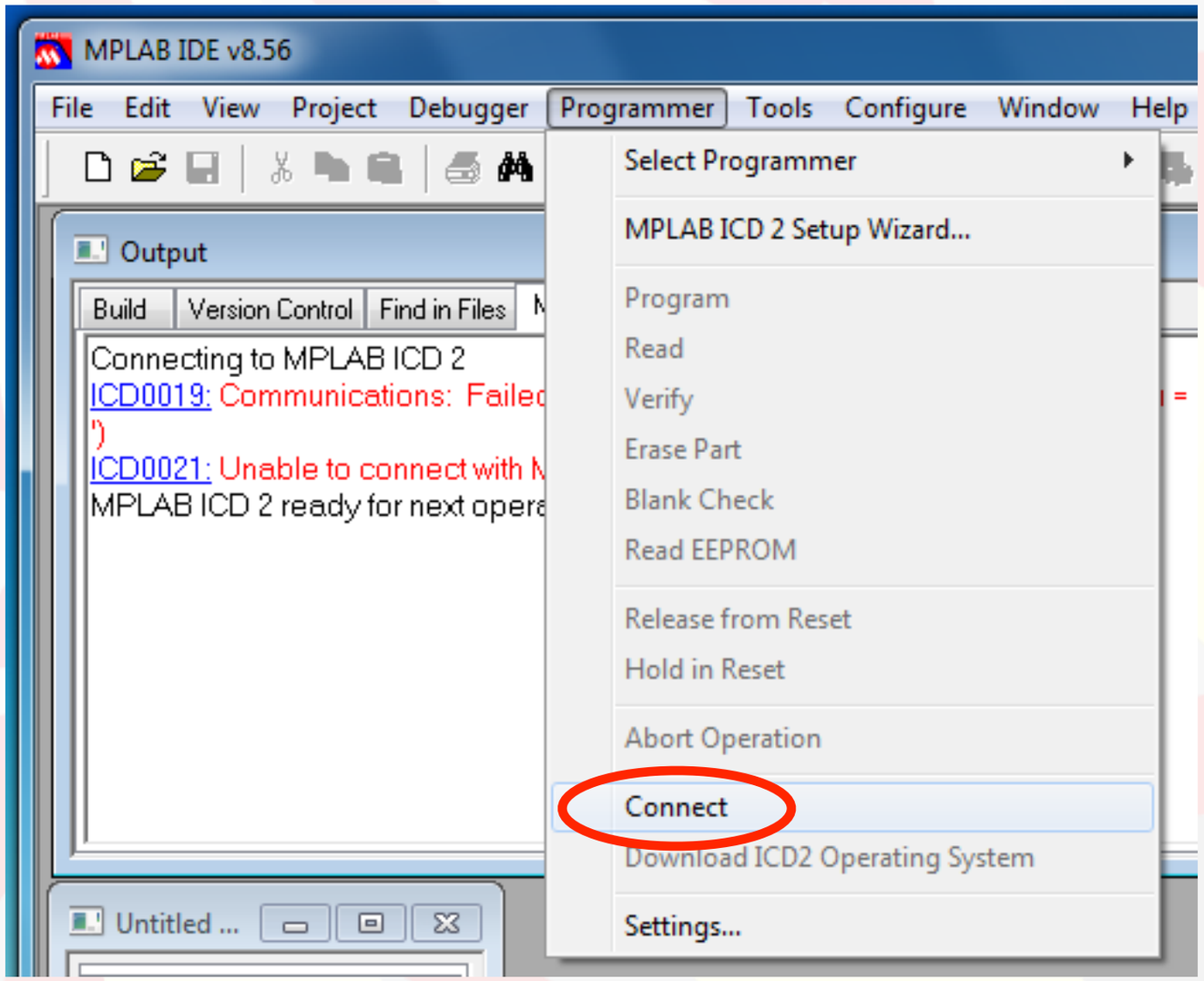
MPLAB IDE - Configuring the ICD2



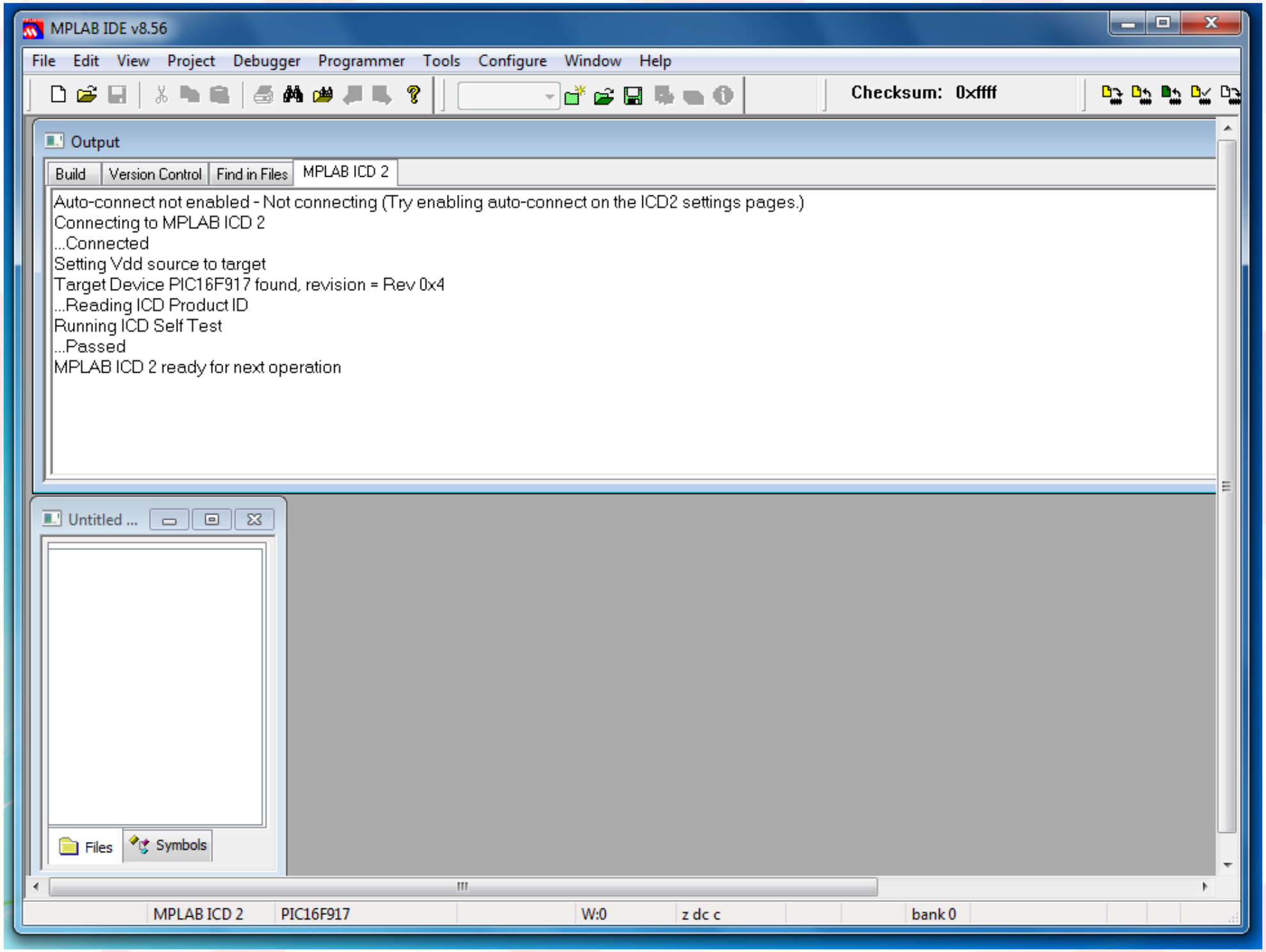
MPLAB IDE - Connecting to the ICD2

Since the MPLAB does not connect automatically to the ICD 2 programmer, we need to connect via the menu. Do this ***before*** programming the PIC, but only ***after*** connecting the ICD2 to the mechatronics board.

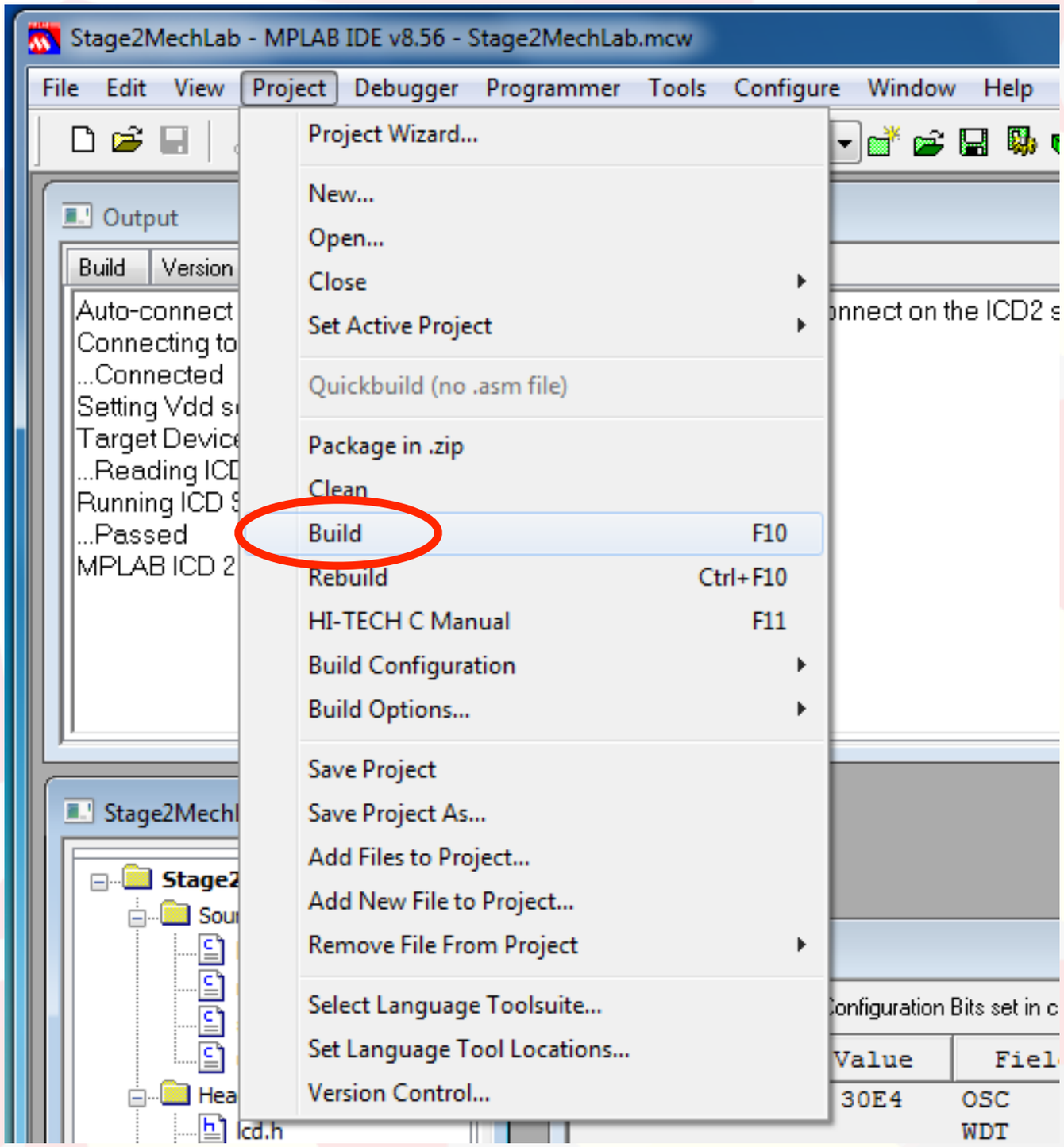
If MPLAB starts to download an operating system, that's okay. (Check that 'PIC16F917' is shown at the bottom of the MPLAB window; if not, follow the instructions at the end of this document.)



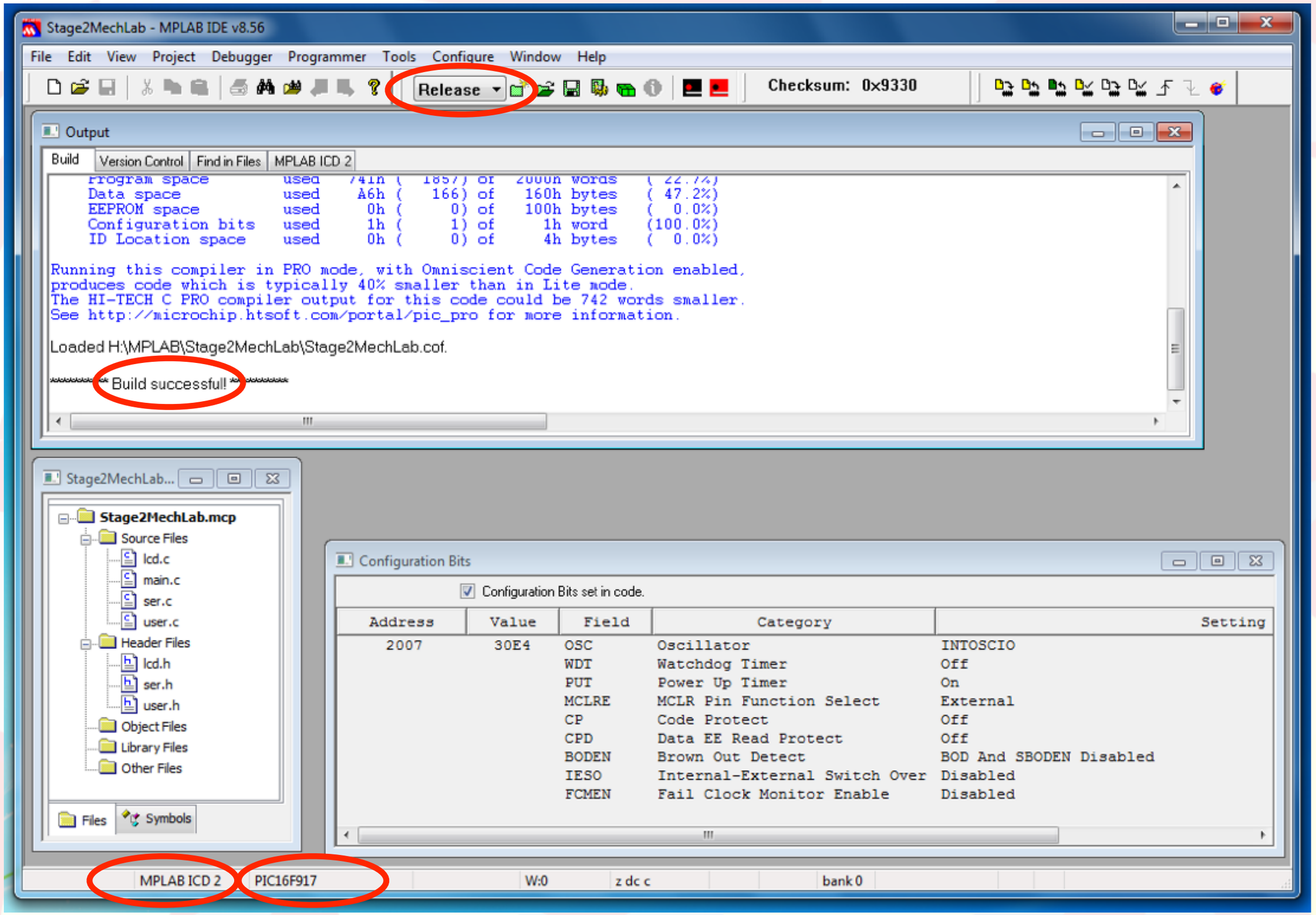
MPLAB IDE - Successful Connection to ICD2



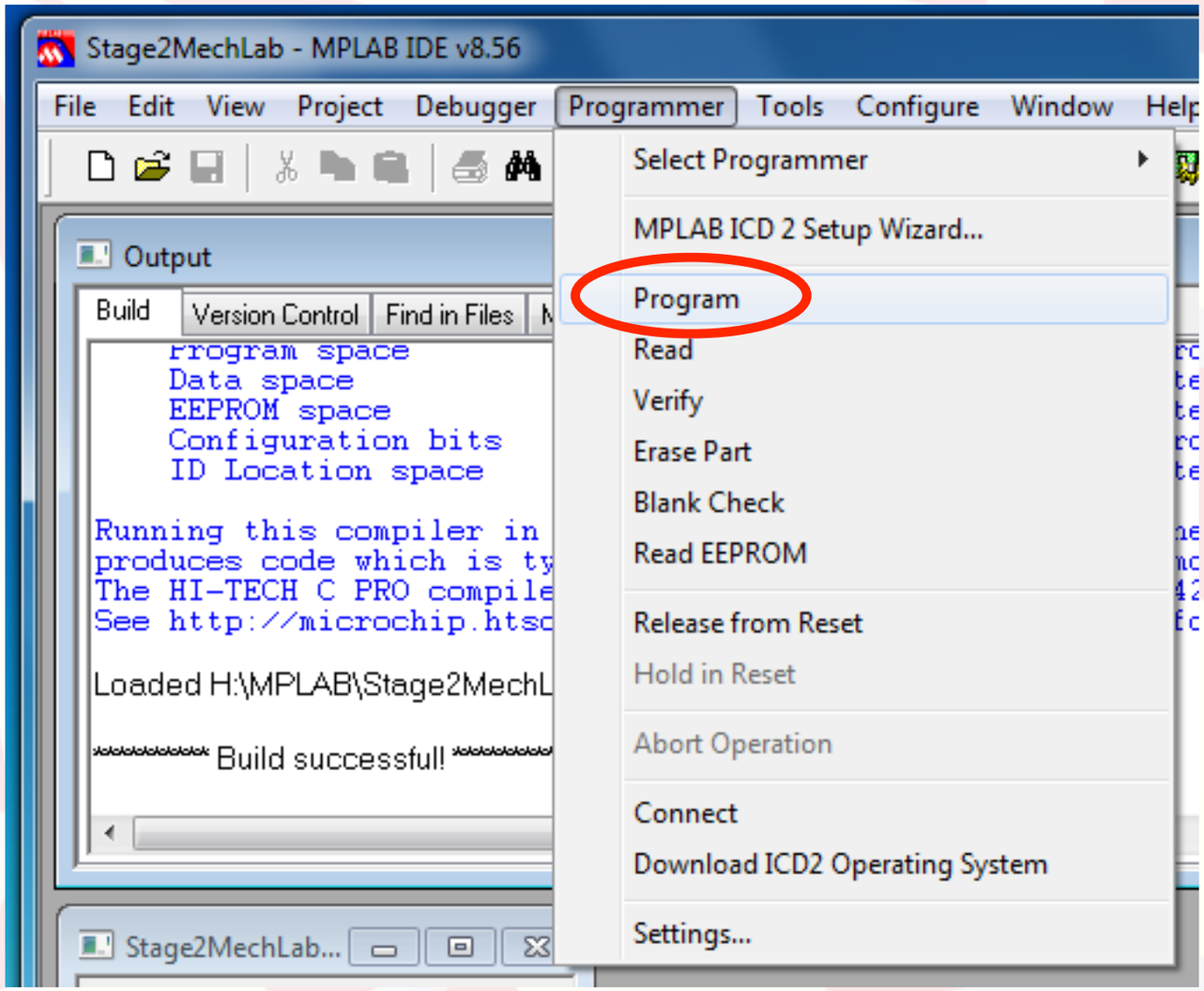
MPLAB IDE - Stage2MechLab - Compiling



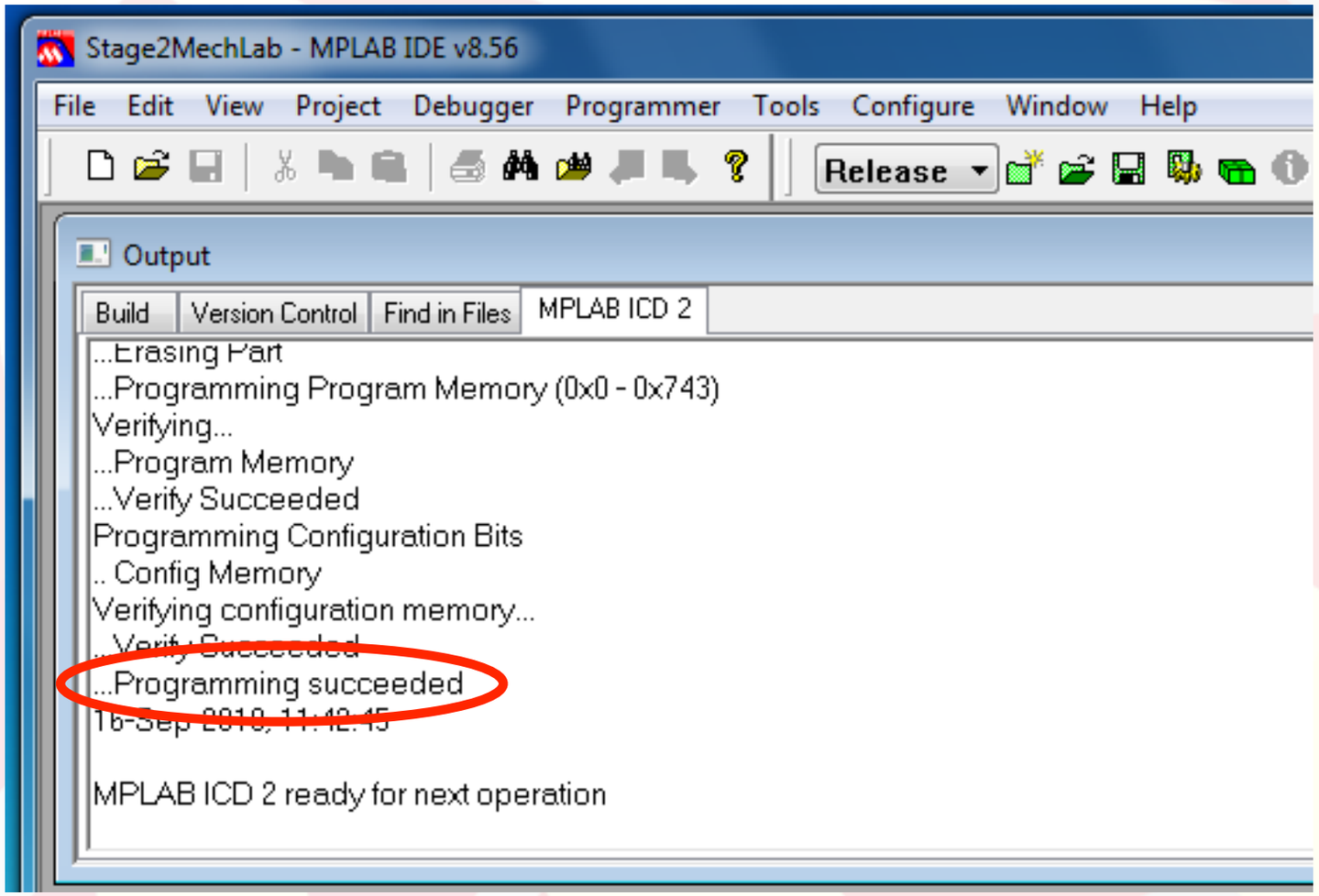
MPLAB IDE - Stage2MechLab - Compiling



MPLAB IDE - Programming the PIC



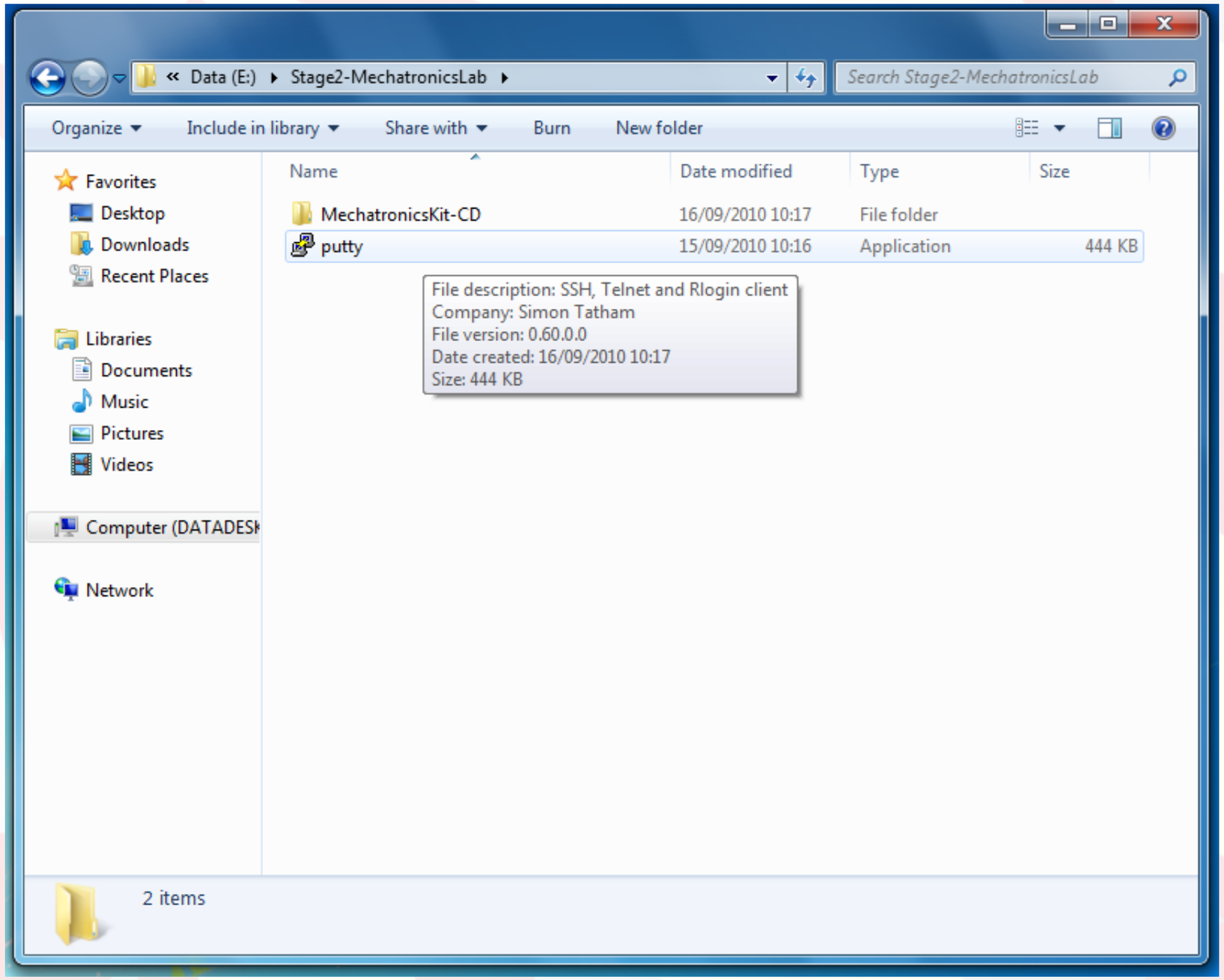
MPLAB IDE - Programming the PIC



Carefully disconnect the ICD2 programmer from the Mechatronics board, and the program will start.

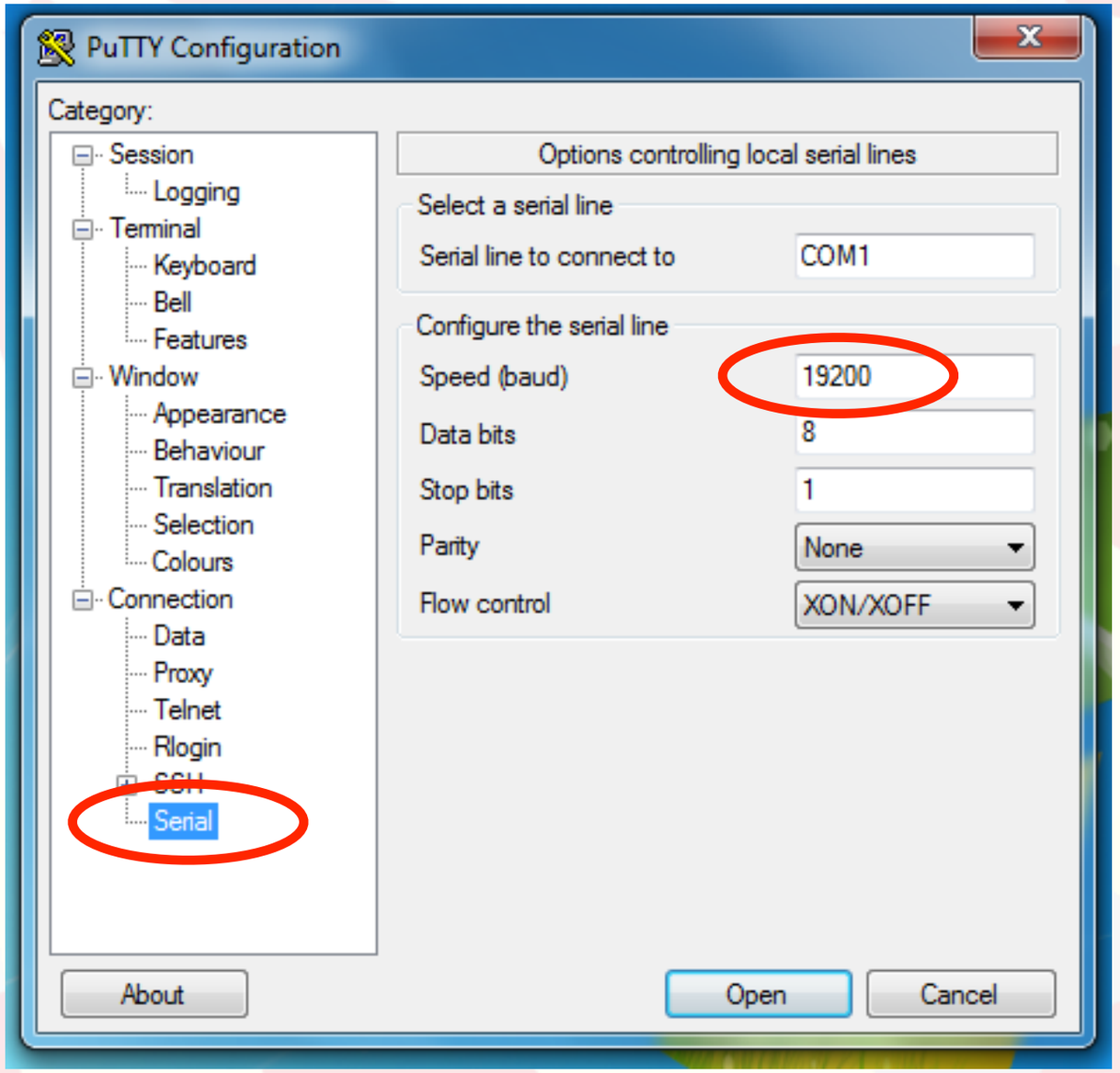
PuTTY - Connecting via the serial port

putty - Starting the Application



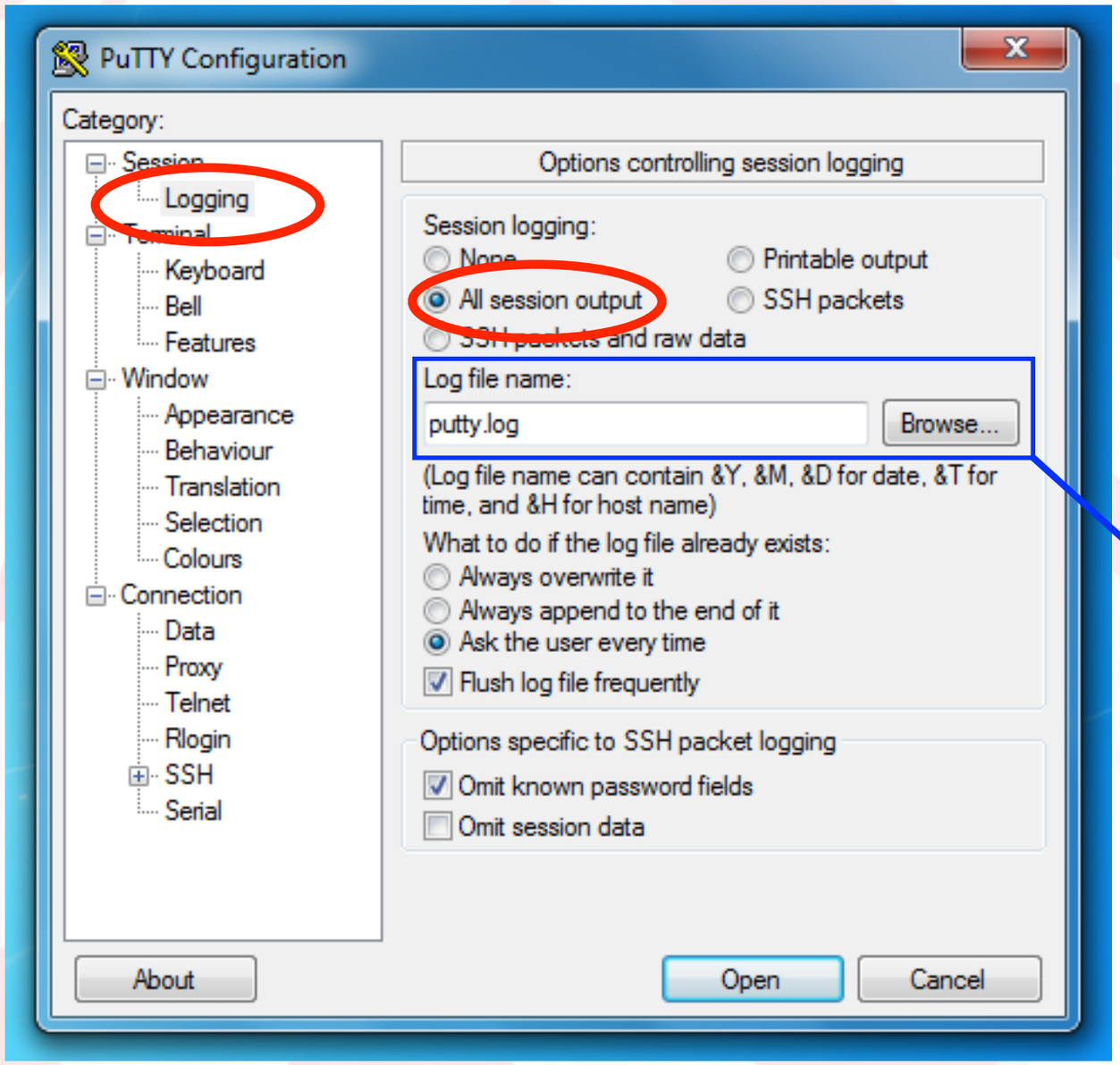
PuTTY - Connecting via the serial port

Step 1: Configuration - Connection - Serial



PuTTY - Connecting via the serial port

Step 2: Configuration - Session - Logging



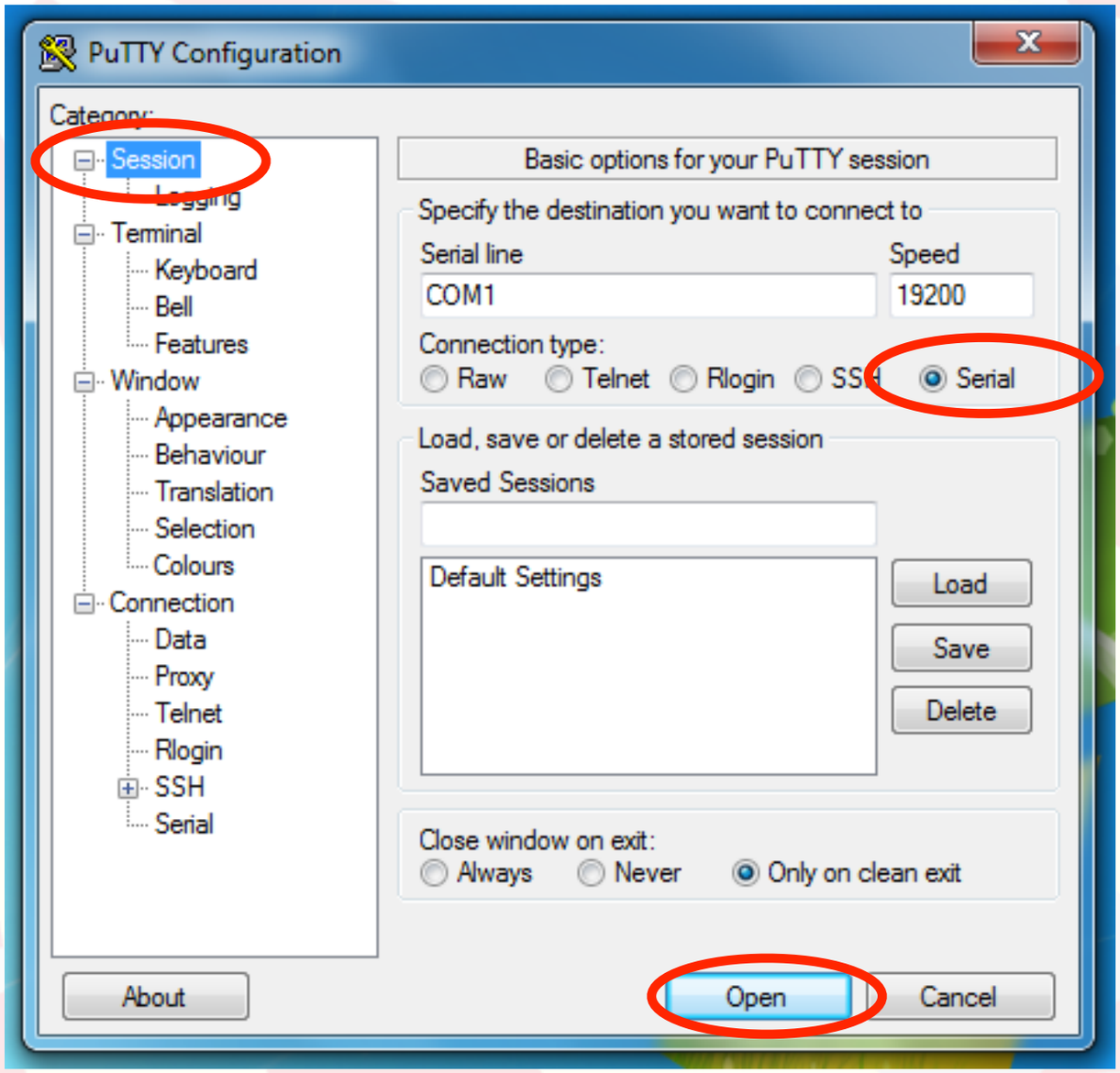
PuTTY is a very useful program for communicating between computers, which may be connected over the internet or directly by a cable (as in this case).

The communication can be ‘logged’ (saved to a file); this is done automatically, so there is no need to press a save button.

You can choose where to save the session; the default is ‘putty.log’ in the same folder as the PuTTY program.

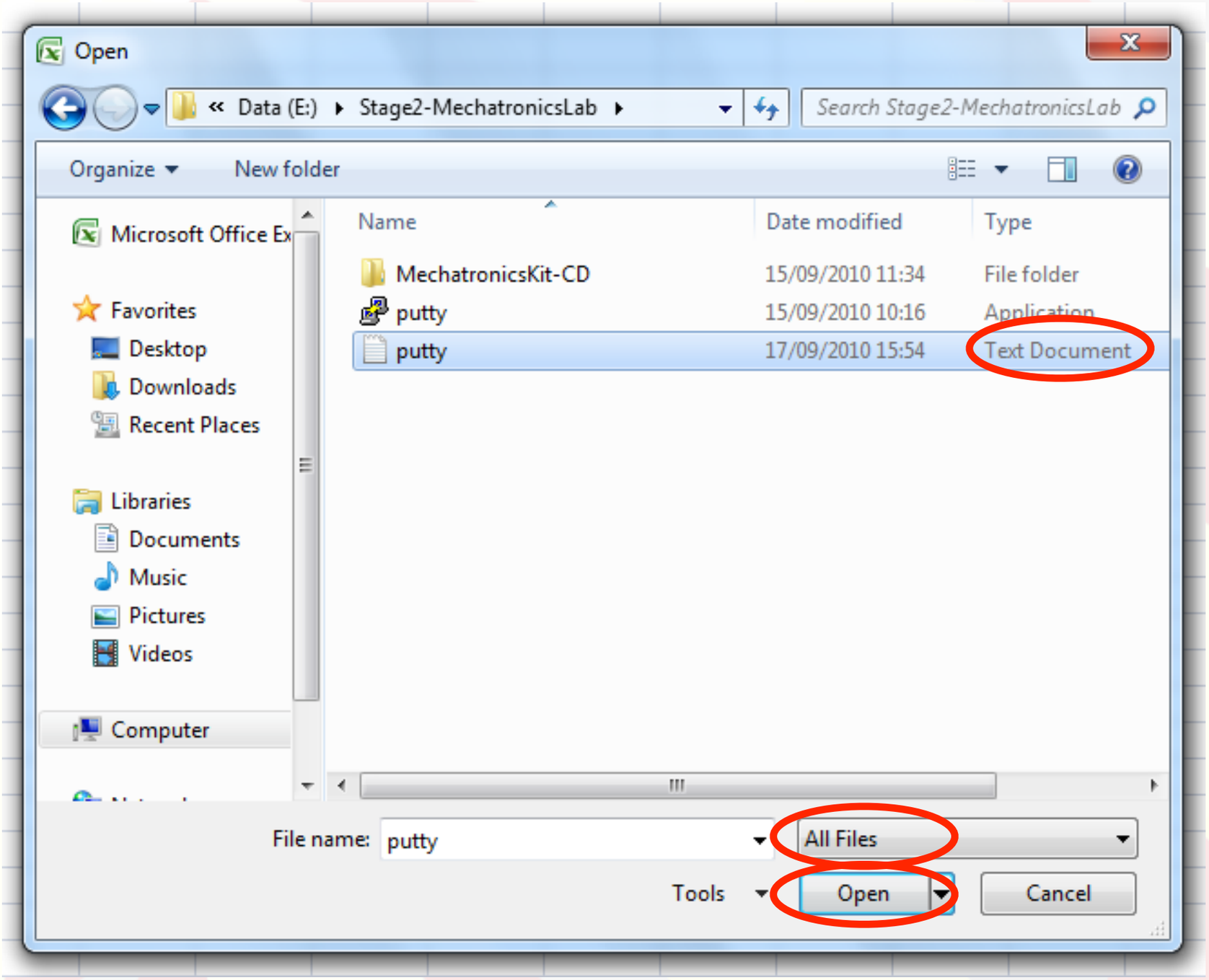
PuTTY - Connecting via the serial port

Step 3: Configuration - Session



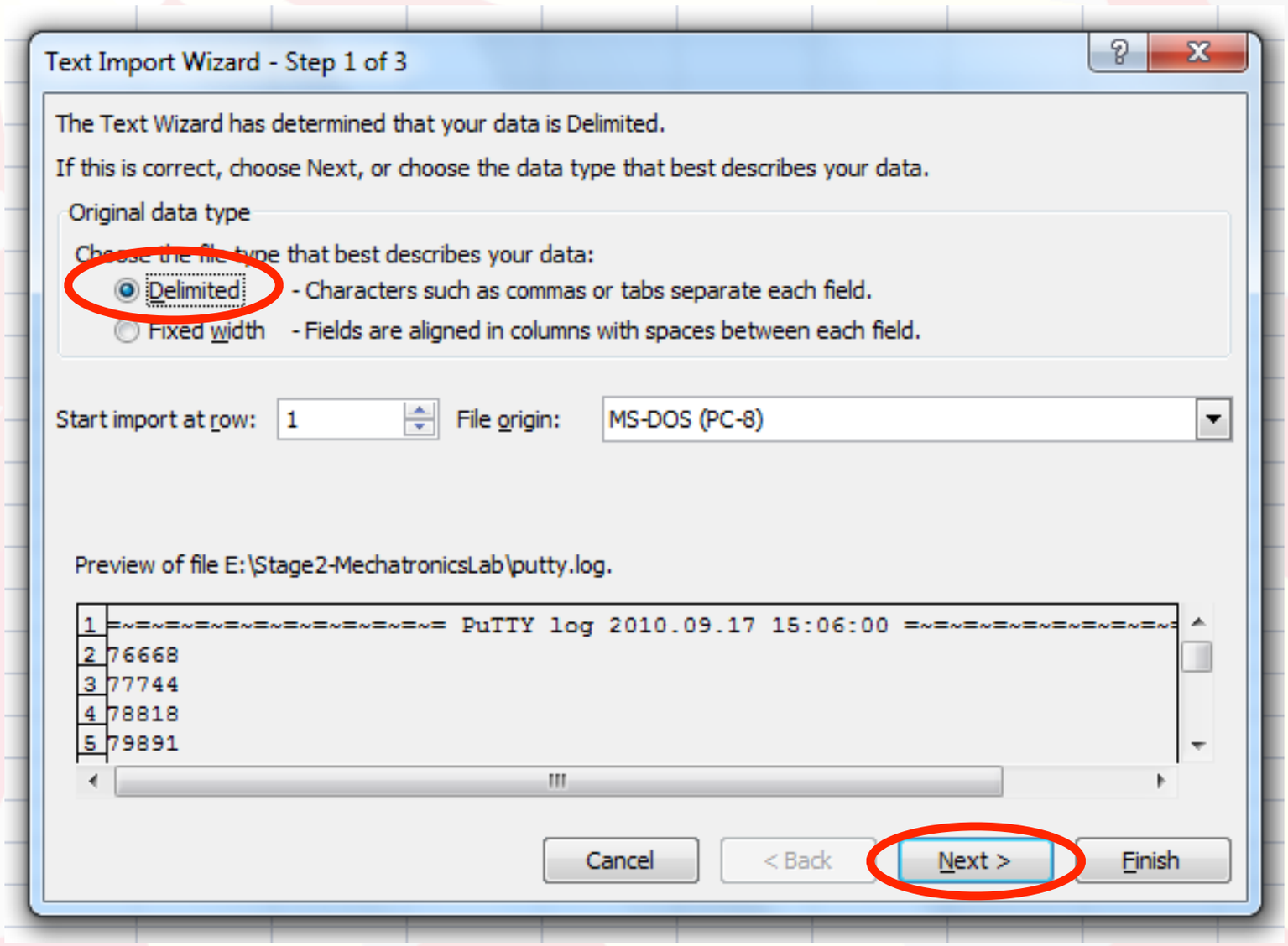
Excel: Importing the session log

Step 1: File - Open...



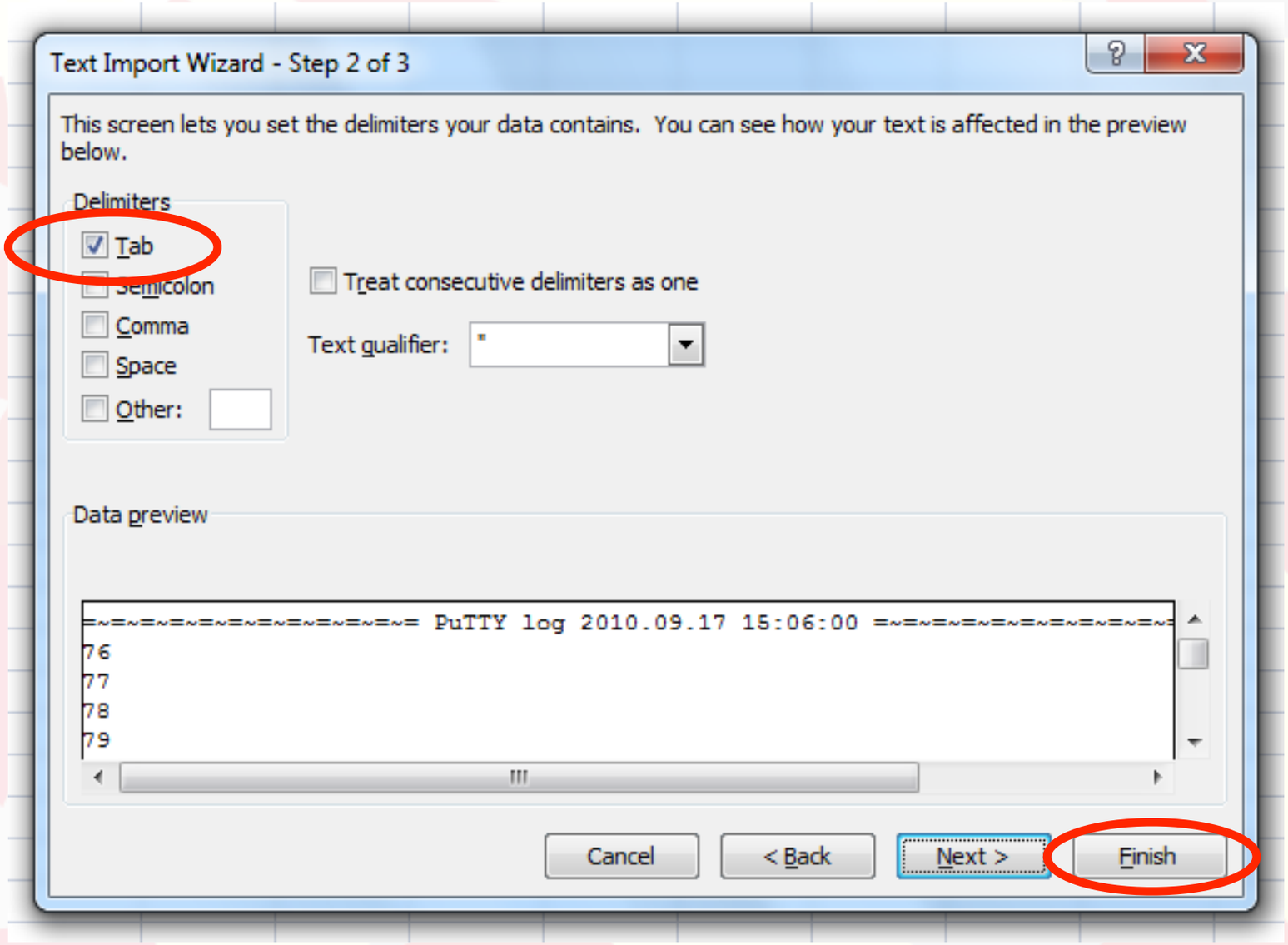
Excel: Importing the session log

Step 2: Text Import



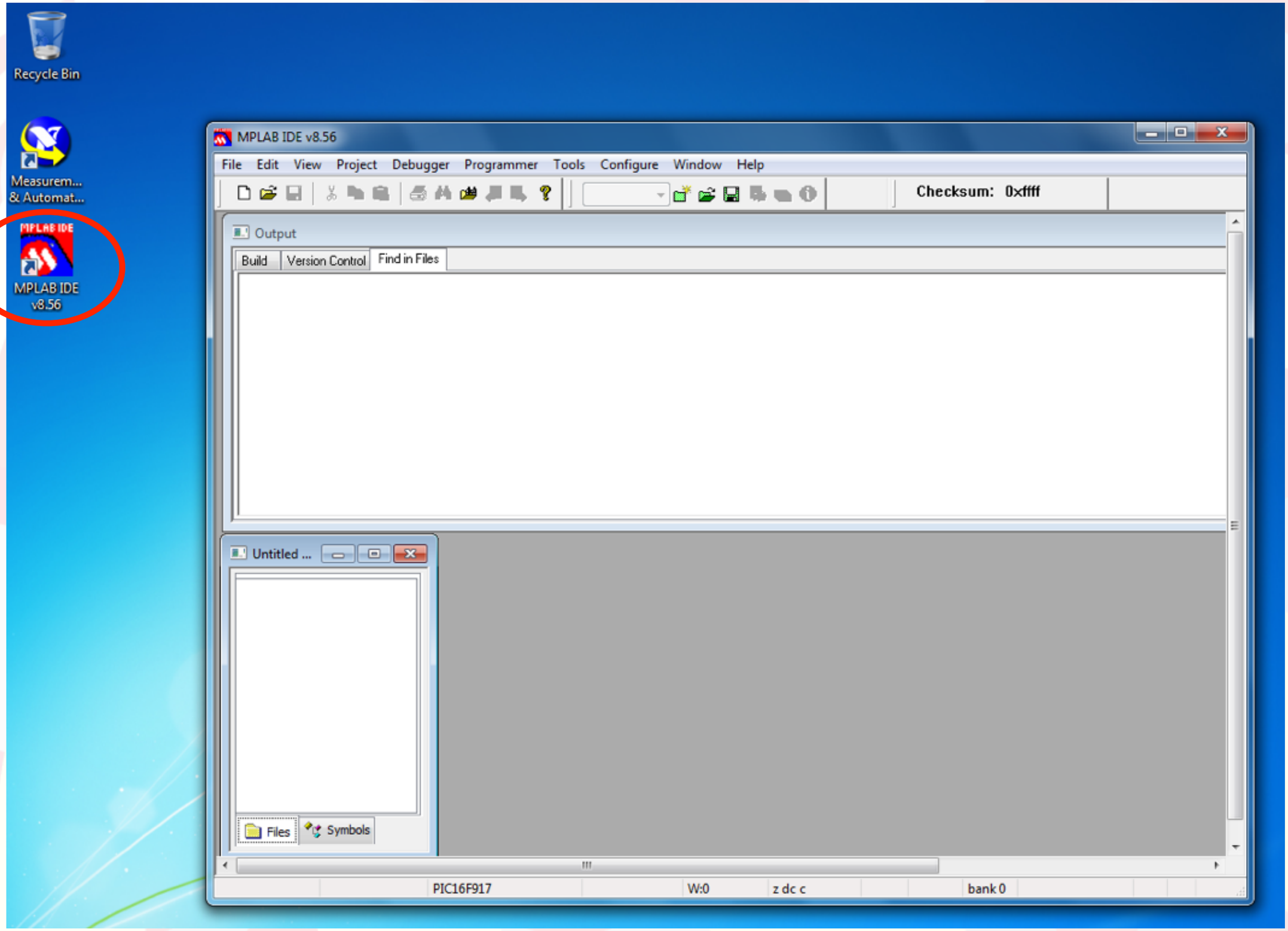
Excel: Importing the session log

Step 3: Text Import



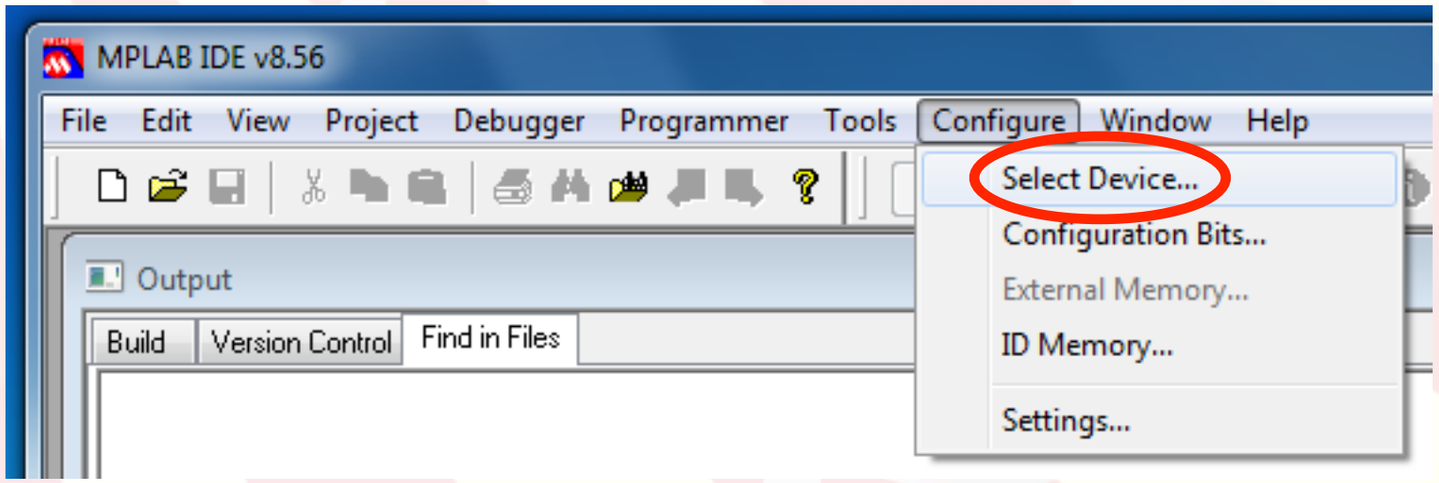
General Notes

MPLAB IDE - Creating a new project



MPLAB IDE - Selecting the Chip (PIC)

The C code needs to be compiled into a binary form that the PIC microchip can understand. Since the C code does not define anything about the hardware, the compiler needs to know what PIC ('device') the final binary program will execute on.



MPLAB IDE - Selecting the Chip (PIC)