Getting Started

See: http://www.cs.ou.edu/~fagg/classes/general/atmel/

Summary:

- Install compiler
- Download your subversion tree
  - Today: work in “testproject”
- Plug the programmer into your computer
- Plug the programmer into the Arduino board
- Create a program

Subversion

Similar to “Dropbox”: allows you to easily share a folder across multiple computers

Subversion

Key commands:

- **Checkout**: get initial copy of the shared folder
- **Add**: mark a file or a folder as shared
  - Only share necessary files: .c, .h, makefile, .ppt, .pptx, .avrsln, .avrsuo
  - Don’t share: .o, .hex
- **Update**: copy changes to the folder down to your computer
- **Commit**: copy your changes to the folder up to the server

Subversion

When you sit down to work:

- It is best if you are the only one editing a particular file (so coordinate with your group members)
- Perform an update
- Make your changes (until you are happy)
- Add any new files
- Commit your changes:
  - Always remember to do this when you are done

Subversion

Conflicts occur when two people edit the same file & then try to check in their changes

- The second person to commit will end up with several versions of the file in their folder:
  - A file with the two sets of changes (with changes clearly marked)
  - A file each that corresponds to the changes made by one individual
- The second person must select one, copy it over to the original file name, make any necessary changes, and commit again

Downloads from Atmel HOWTO

Already in your subversion tree:

- lib/libou_atmega2560.a
- include/oulib.h
- include/oulib_serial_buffered.h
- testproject/makefile
- project1/makefile

For Unix users (also in your tree):

- makefile

Compiling and Downloading (the Unix way)

- Makefile:
  - Modify the “TARGET” and “OULIB_DIR” lines for your program
- Type “make”
  - You should see no errors
- Type “make program”
  - This will download your code to the processor
  - Again, you should see no errors

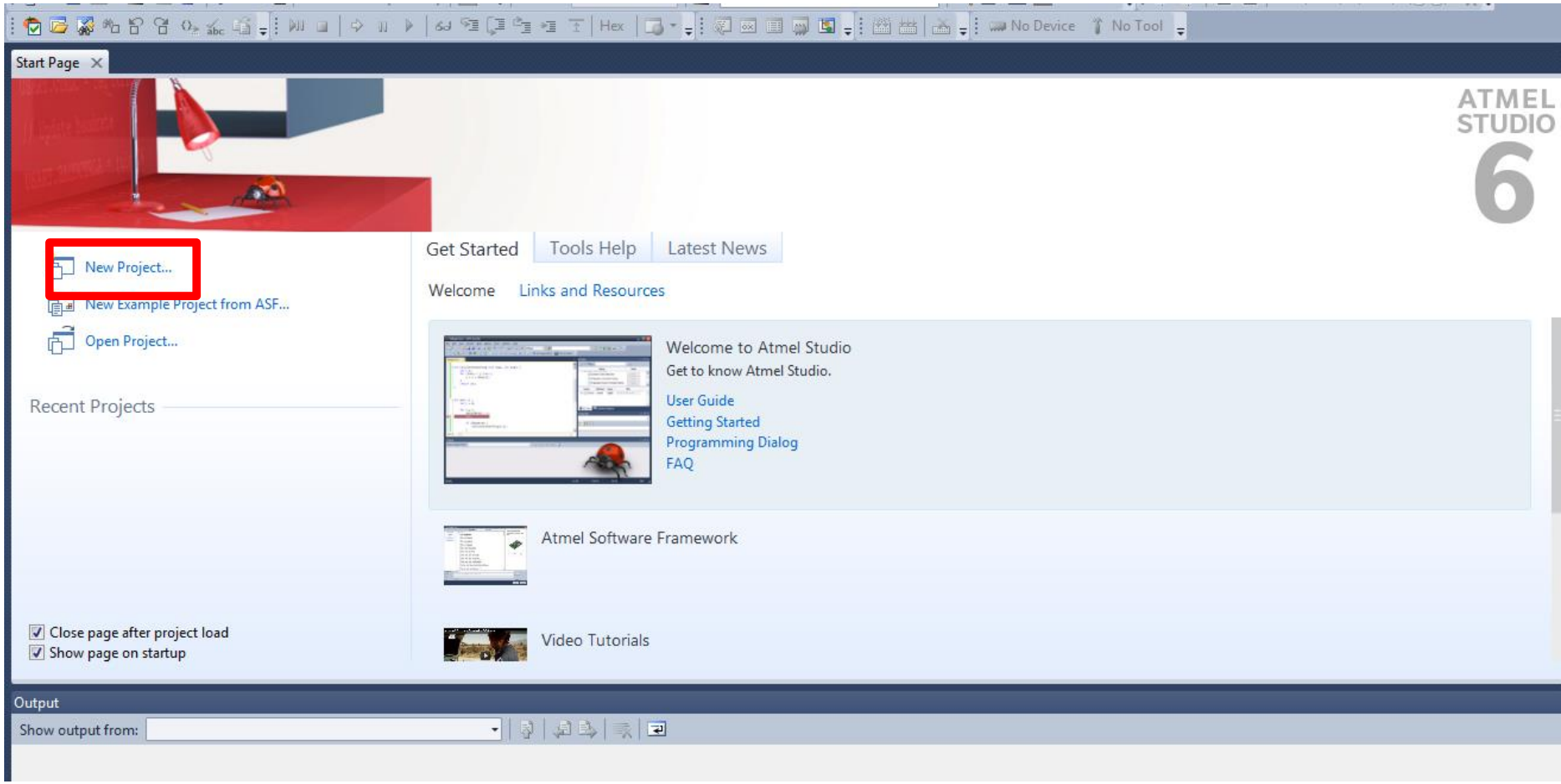
Plan for Today

- Start working through exercise 1
  - All group members must show some form of LED control
  - Groups need to show some wiring of additional LEDs
- Project 1

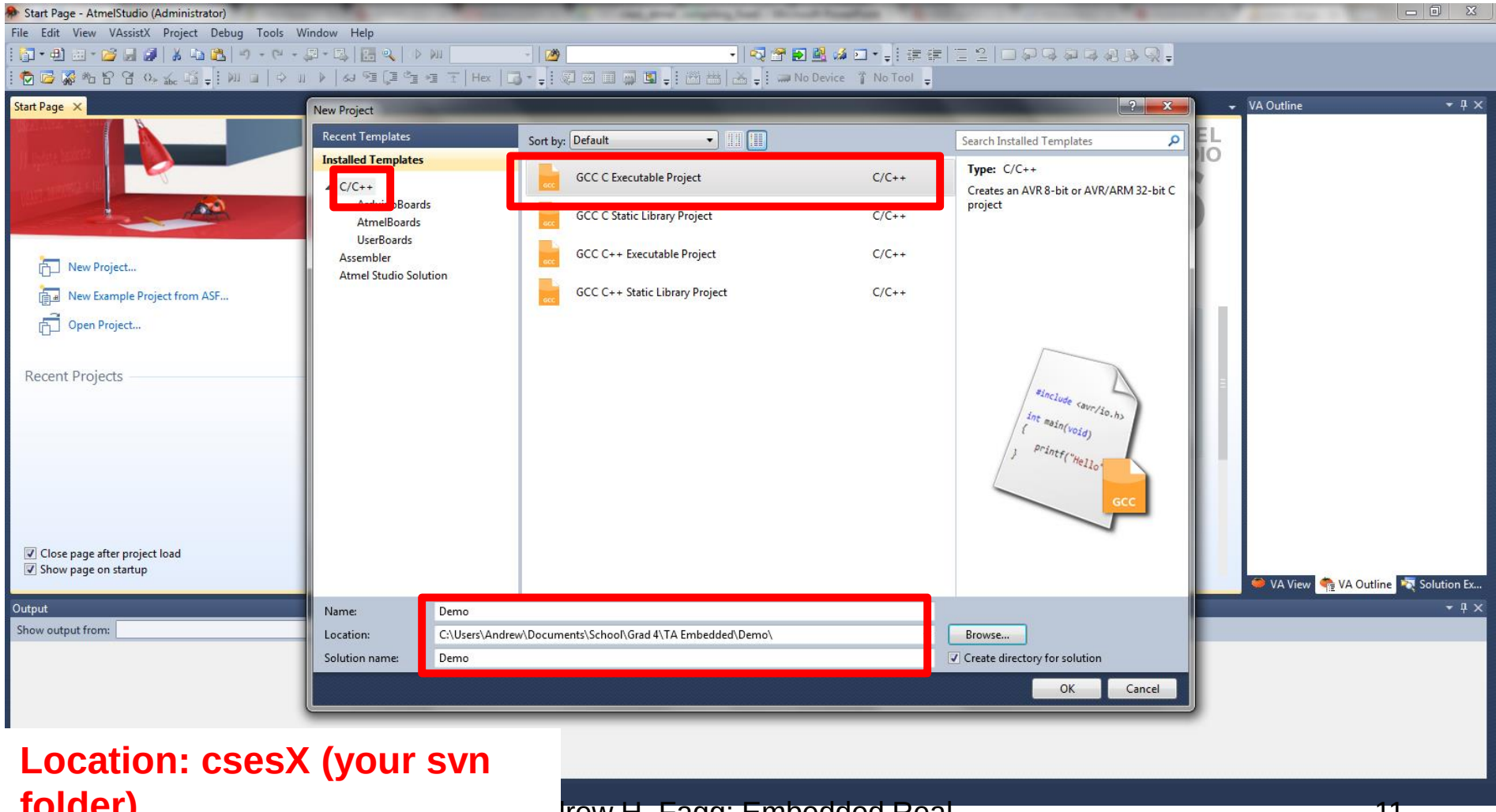
Everyone must demonstrate:

- Svn works
- Compiling/downloading to Atmel works

Windows: Getting Started

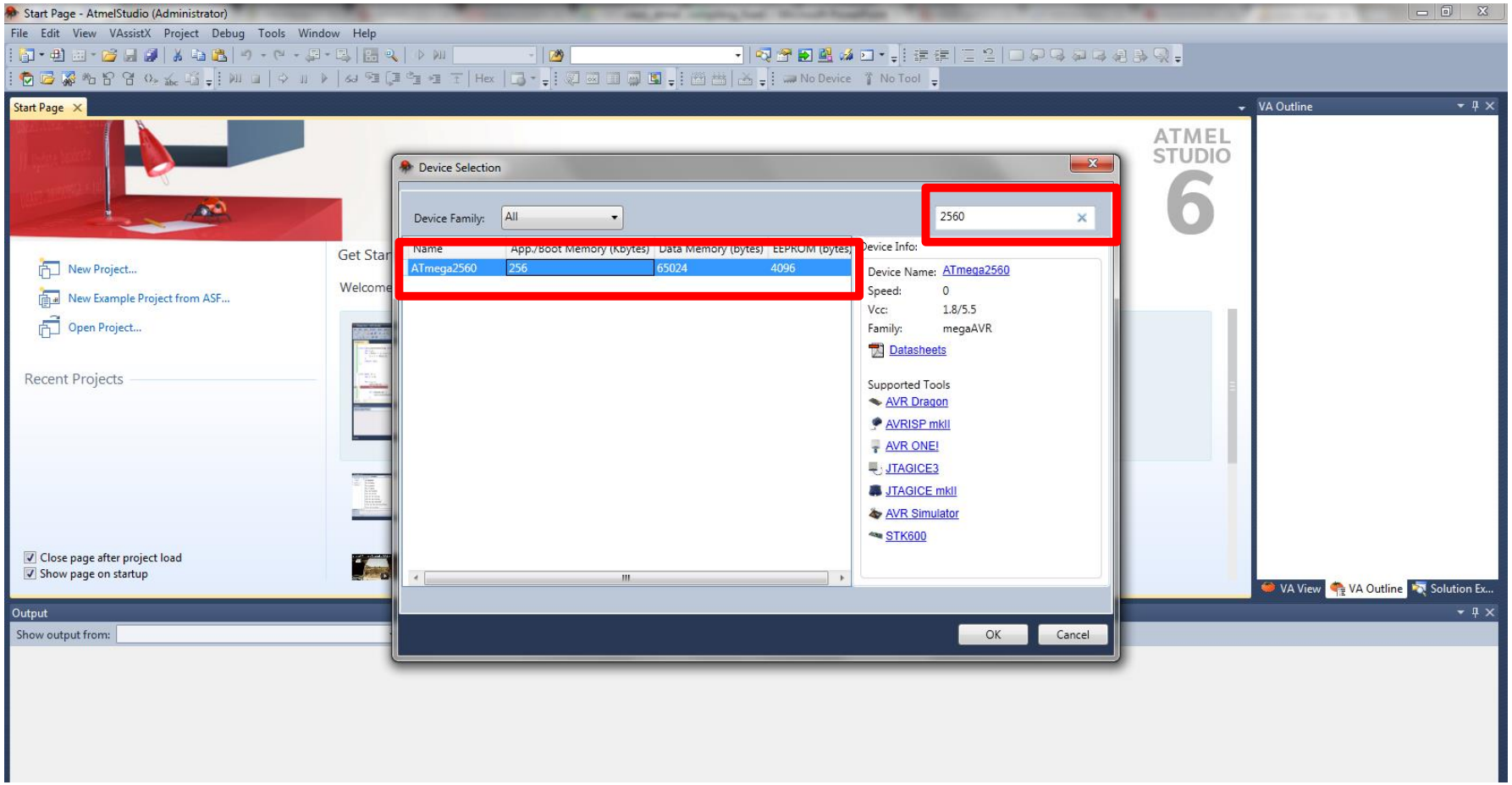


New Project

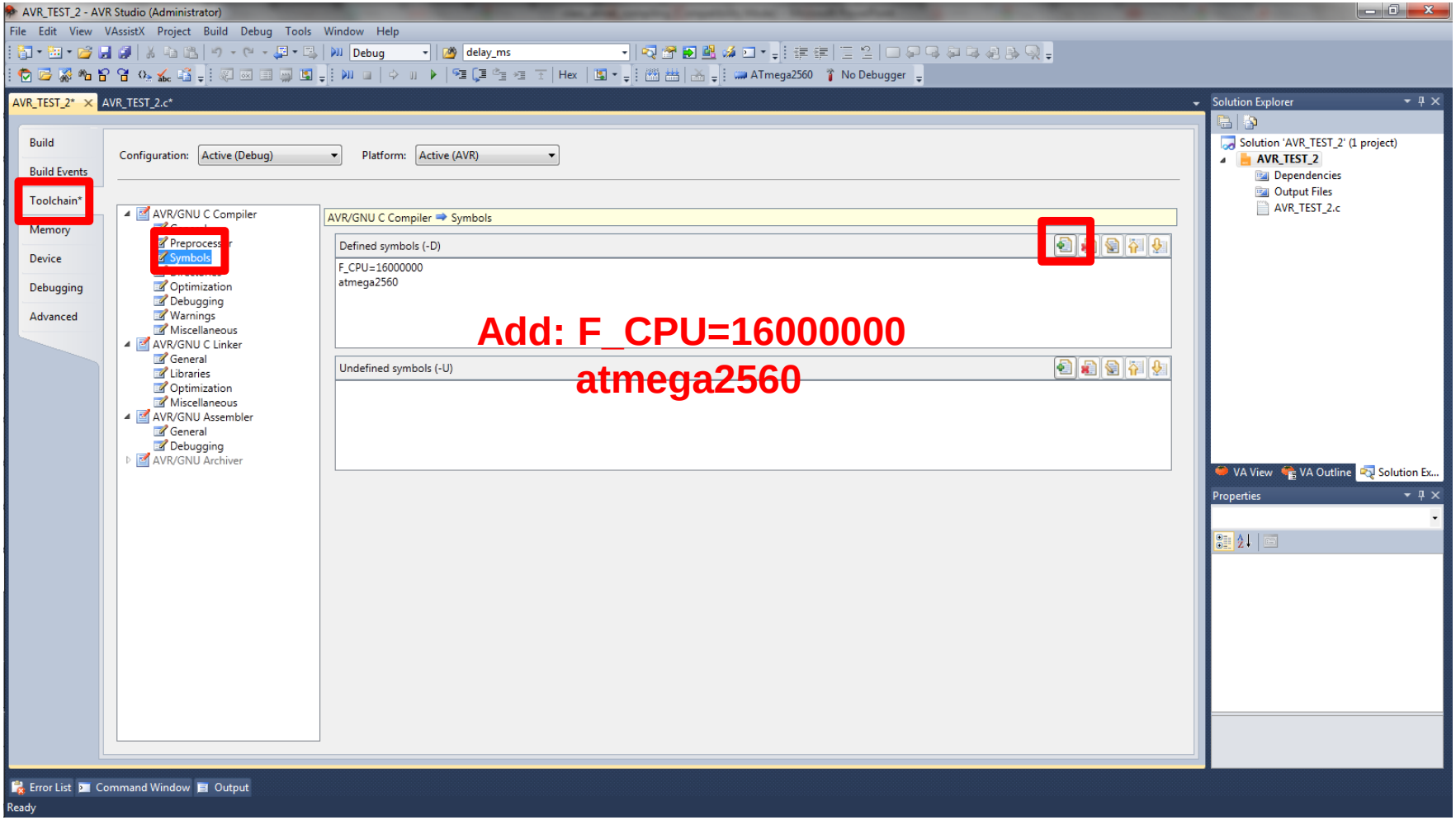


Location: csesX (your svn folder)
Name: testproject (for today)

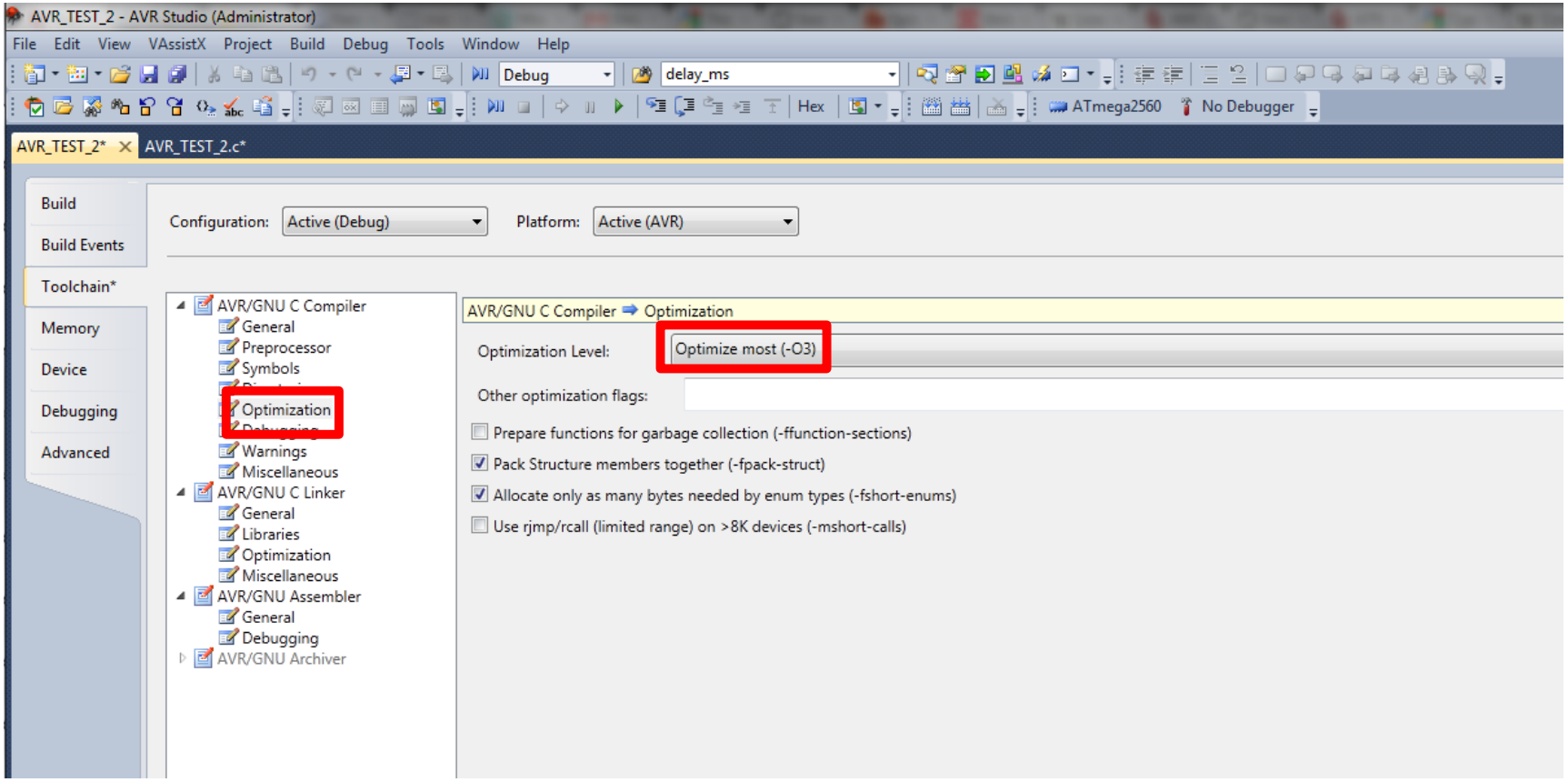
Select the ATmega2560



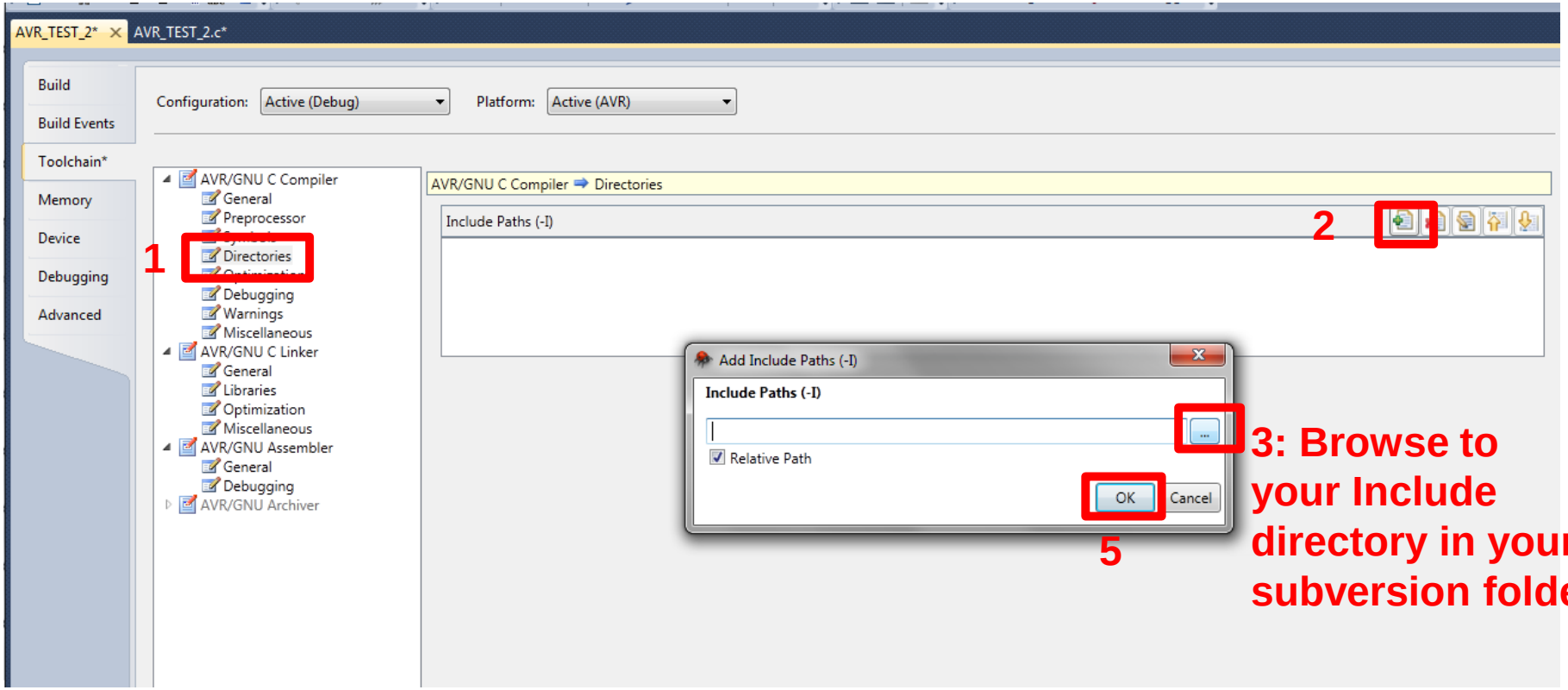
Project➔
<Project Name> Properties (Alt+F7)



Compiler Optimization

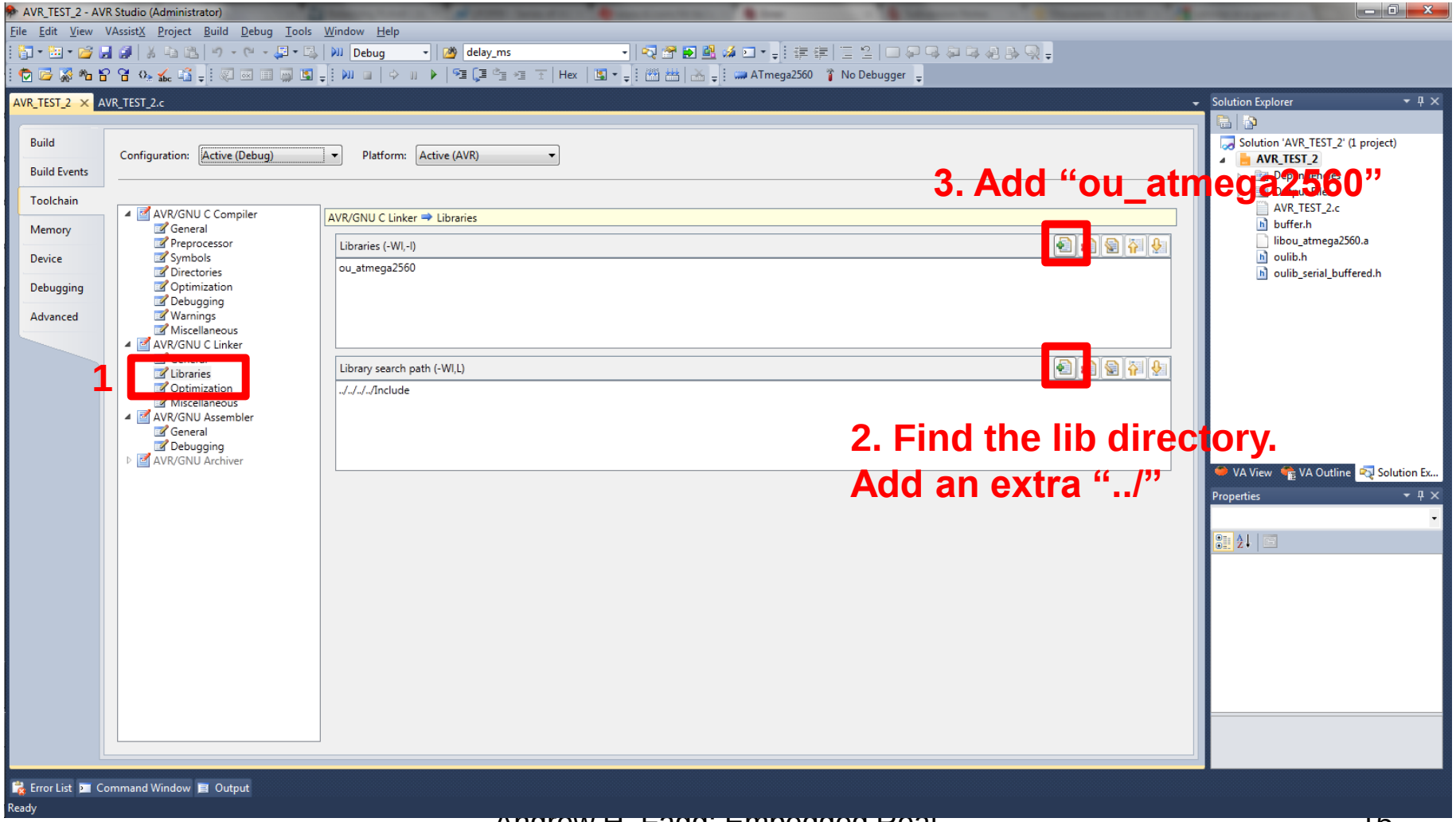


Add Directories

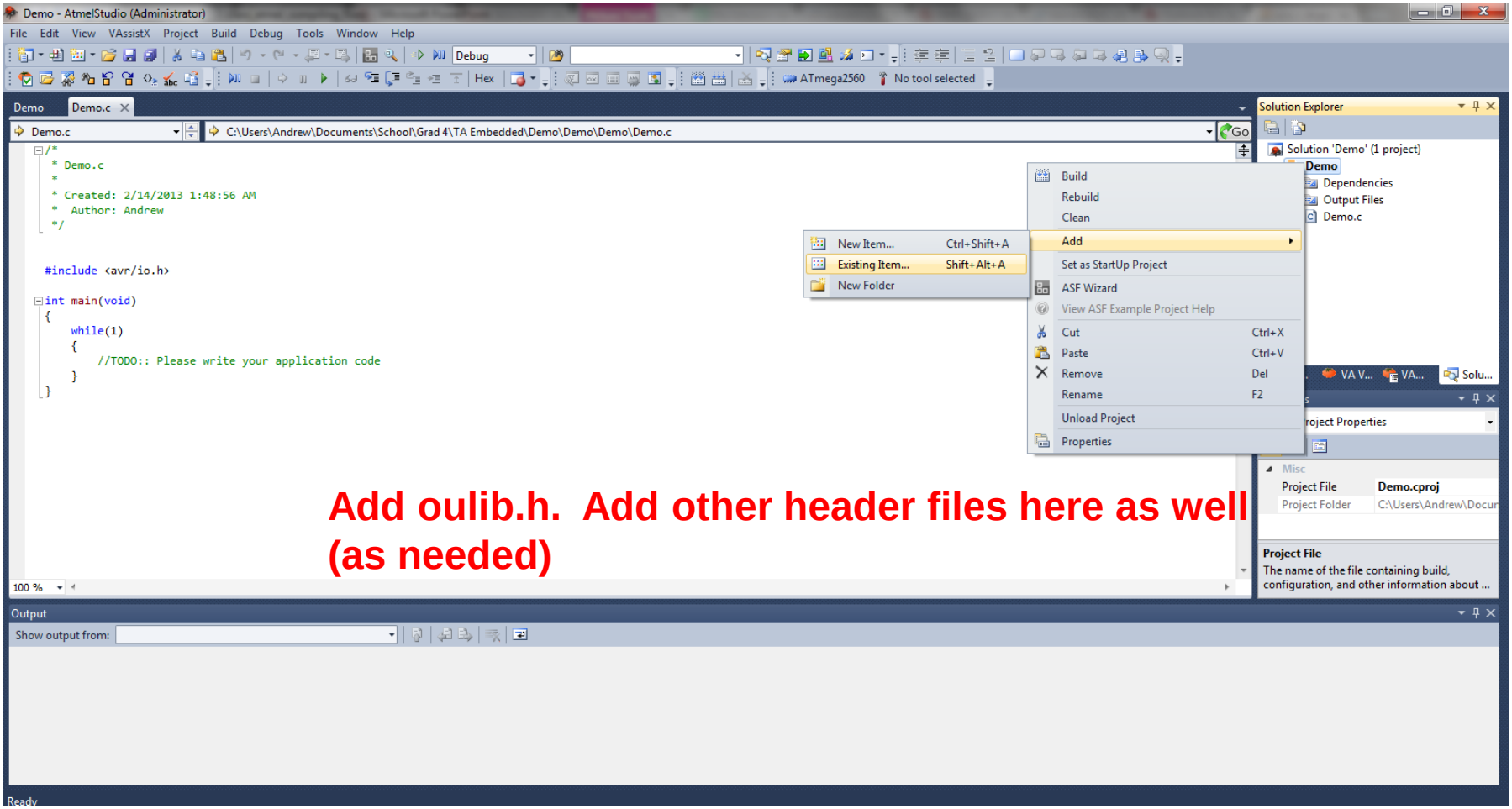


4 Add "../" to the text it generates

Add Libraries



Add Header Files

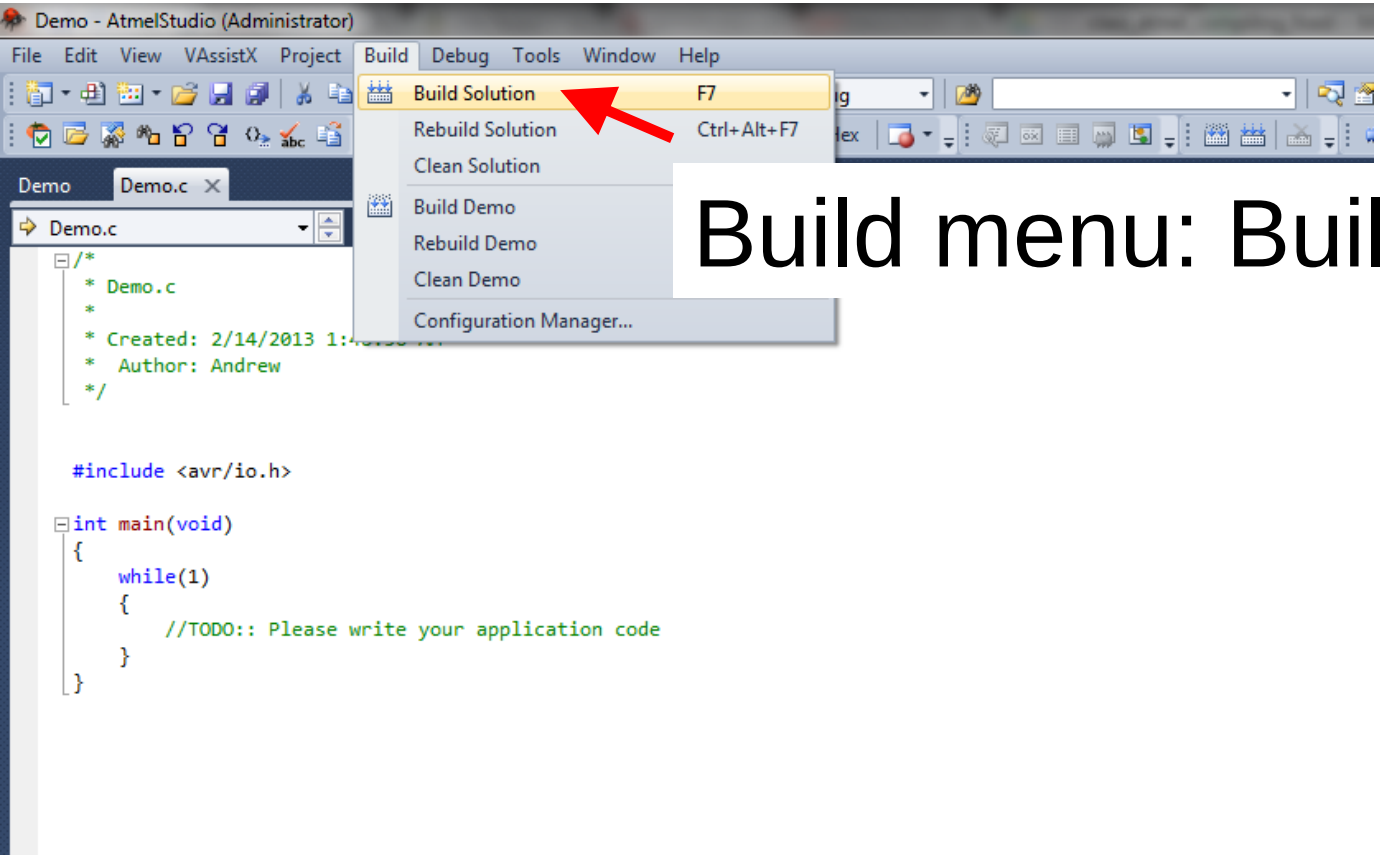


Now for the code…

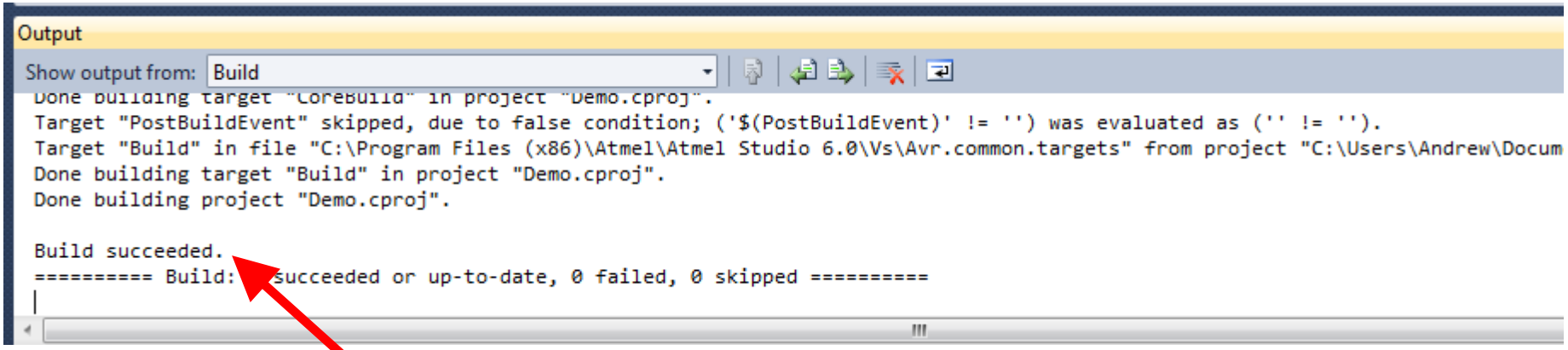
```
#include "oulib.h"

int main(void)
{
   DDRB = 0x80;         // port B, pin 7

   while(1) {
       PORTB ^= 0x80;
       delay_ms(500);
   }
}
```



Build menu: Build

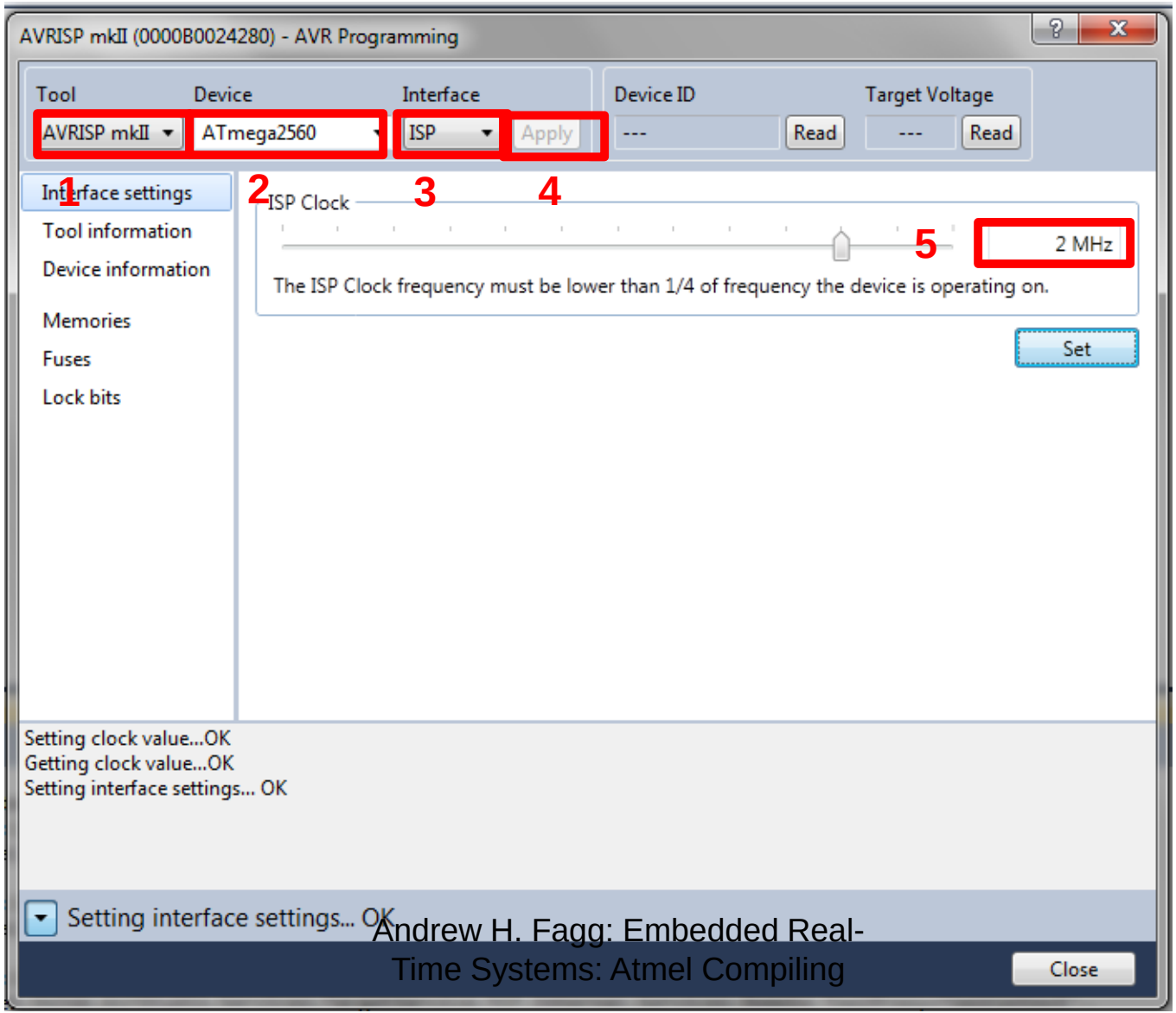


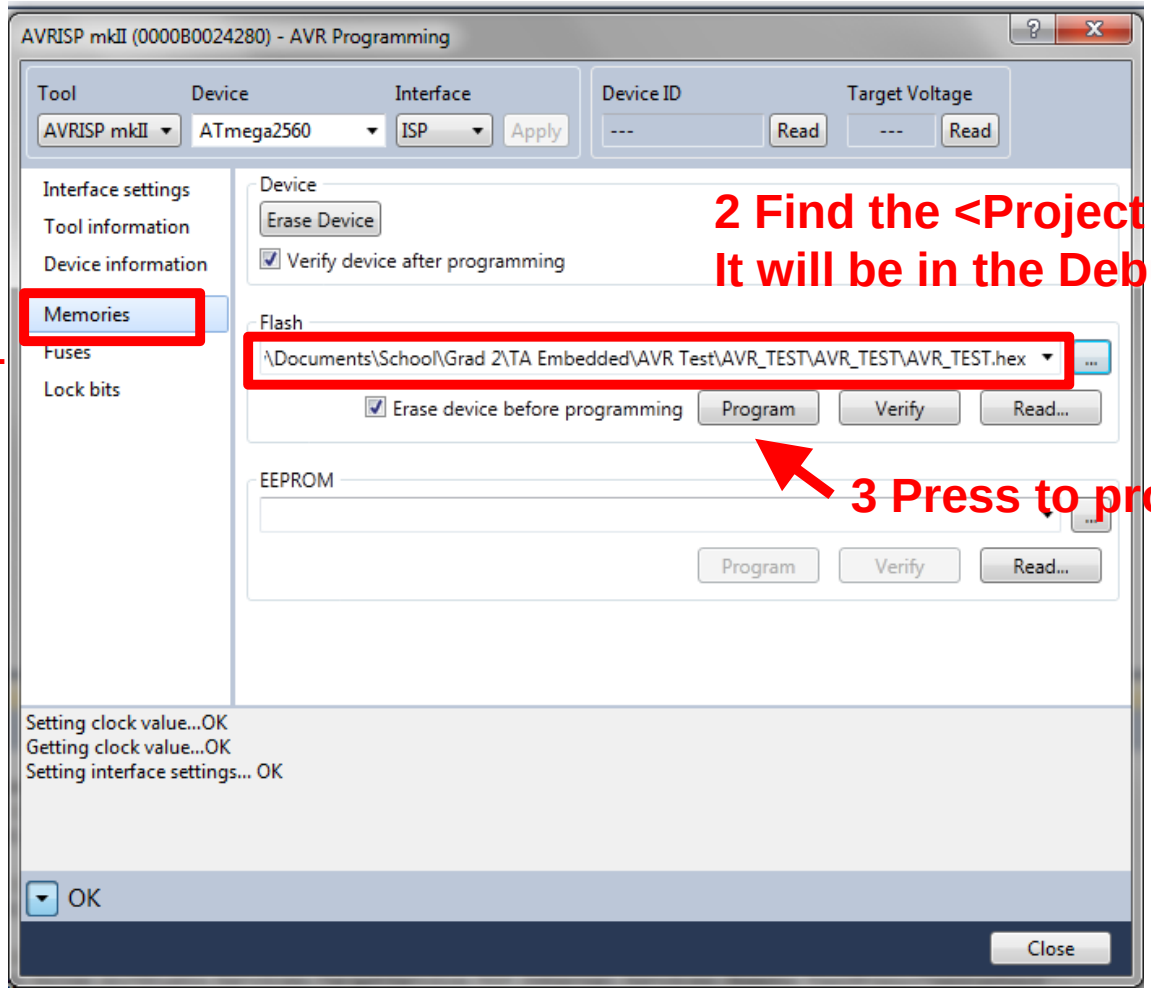
You should get this

Now We Are Ready…

- Plug the programmer into your computer **and** into the Arduino board (If it is not already)
- Make sure your Arduino board has power
  - Either from USB or batteries
- And download the program…
  - Tools Menu: Device Programming

Select the AVR Mk II




AVRISP mkII (0000B0024280) - AVR Programming
Tool
AVRISP mkII
Device
ATmega2560
Interface
ISP
Apply
Device ID

Read
Target Voltage

Read
Interface settings
Tool information
Device information
Memories
Fuses
Lock bits
Device
Erase Device
Verify device after programming
Flash
\Documents\School\Grad 2\TA Embedded\AVR Test\AVR_TEST\AVR_TEST\AVR_TEST.hex
Erase device before programming
Program
Verify
Read...
EEPROM
Program
Verify
Read...
Setting clock value...OK
Getting clock value...OK
Setting interface settings... OK
OK
Close
1
2 Find the <Project Name>.hex file
It will be in the Debug folder
3 Press to program

Flashing?

Your program will start executing as soon as the download is complete …

Your on-board Light Emitting Diode should be blinking at 1 Hertz (once per second)

Next Task

- Add several more LEDs in a line
- Write a program that turns the LEDs on in sequence