

Getting Started

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

Summary:

- (perhaps) Install AVRstudio
- Install WinAVR
- Plug the programmer into your computer
- Plug the programmer into the Arduino board
- Plug the Arduino into your computer
- Create a program

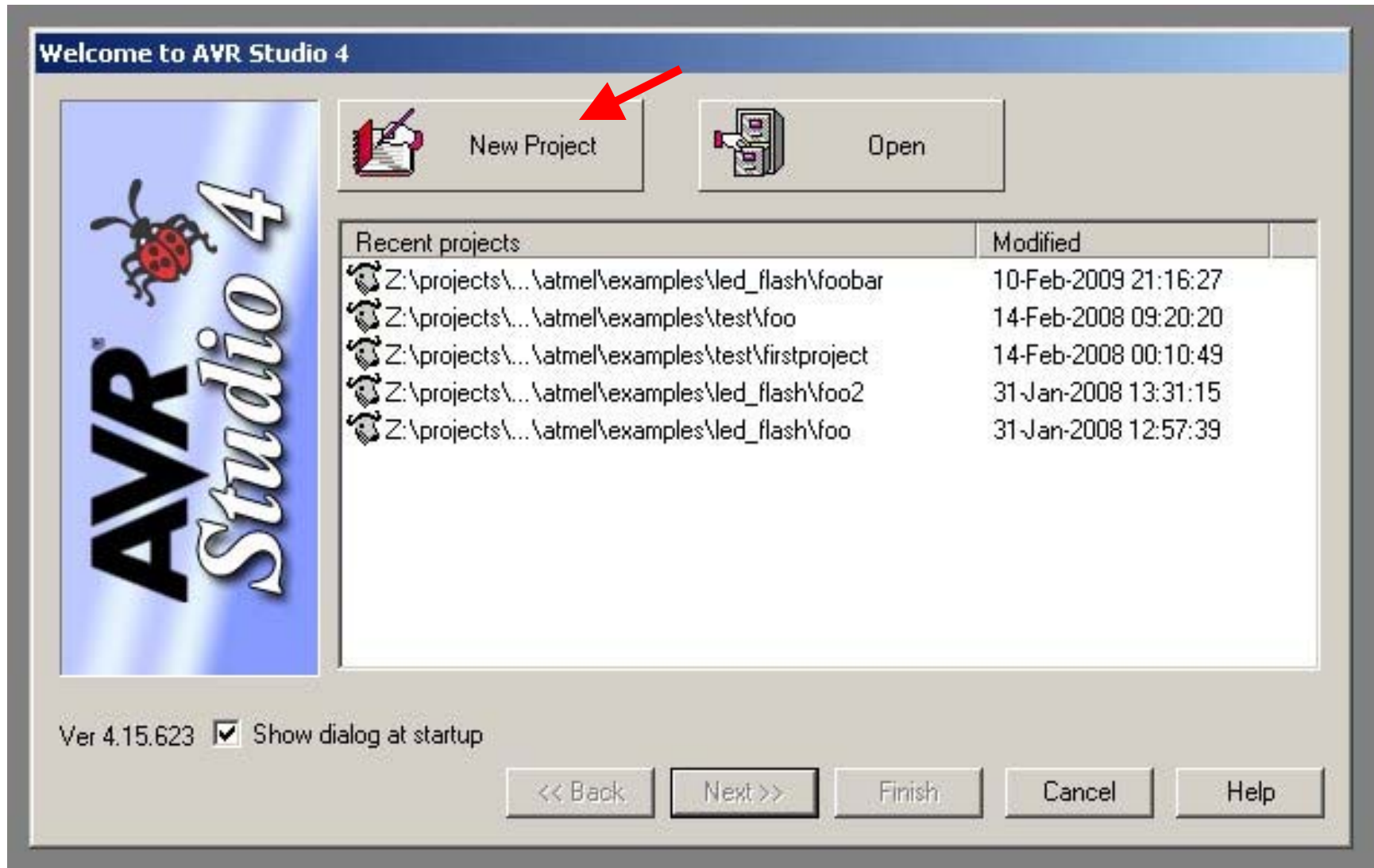
Downloads from Atmel HOWTO

- `libou_atmega2560.a`
- `oulib.h`
- `oulib_serial_buffered.h`
- `makefile` (OSX and linux)

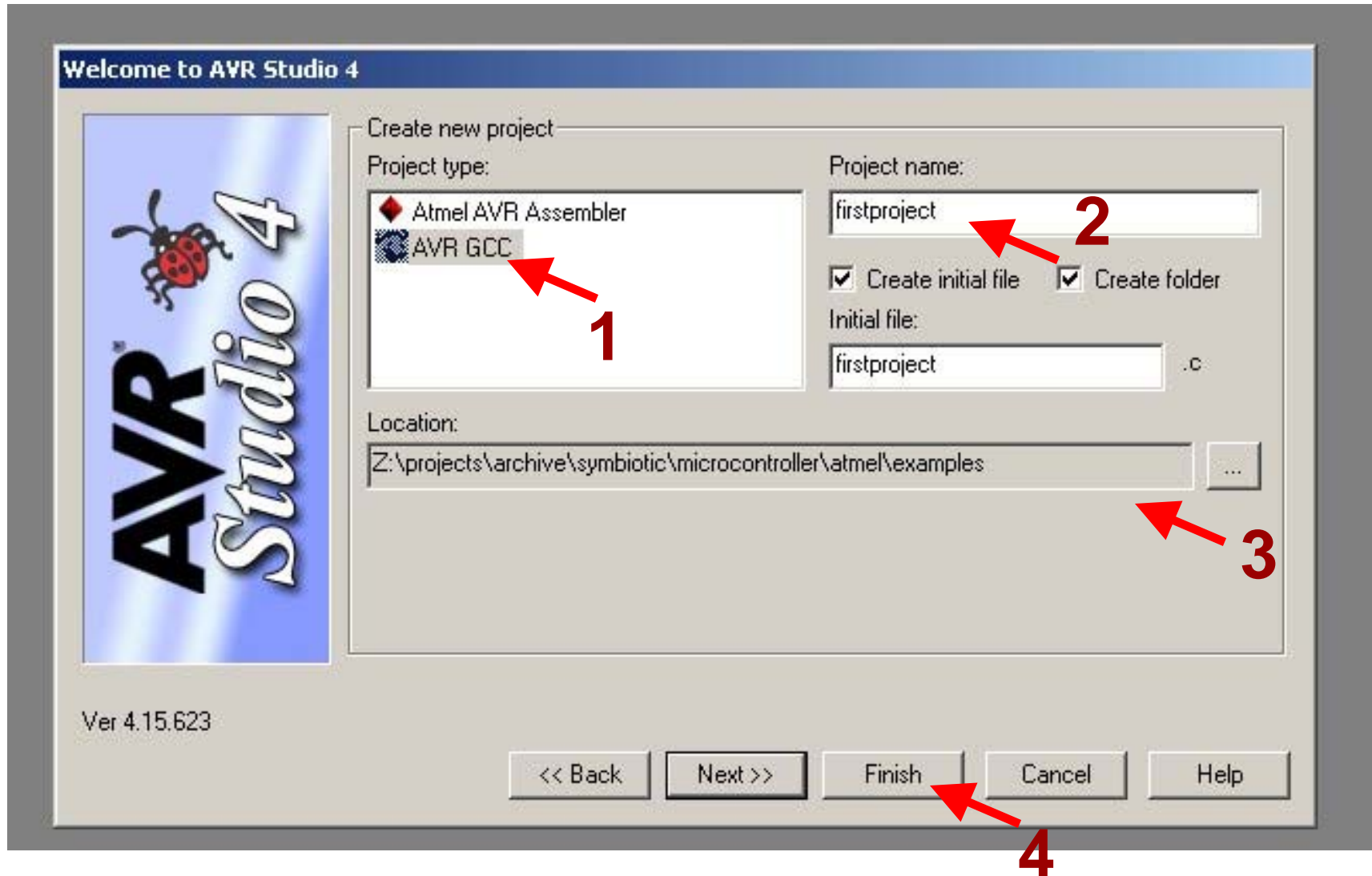
Compiling and Downloading (the easy way)

- Obtain a copy of the “makefile”
 - Modify the “TARGET” line 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

Windoze: Getting Started



Project Menu: New Project

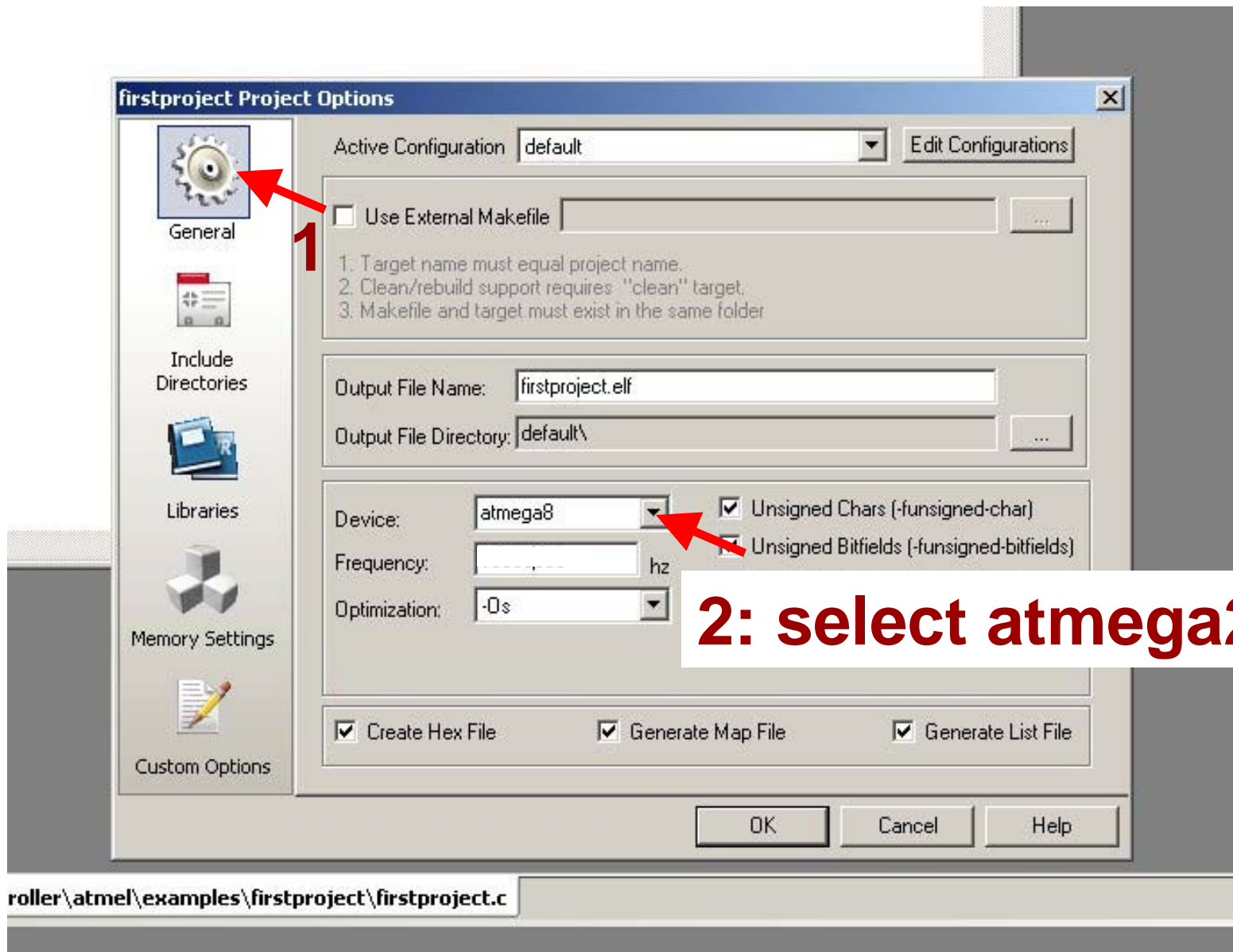


Back to the OS...

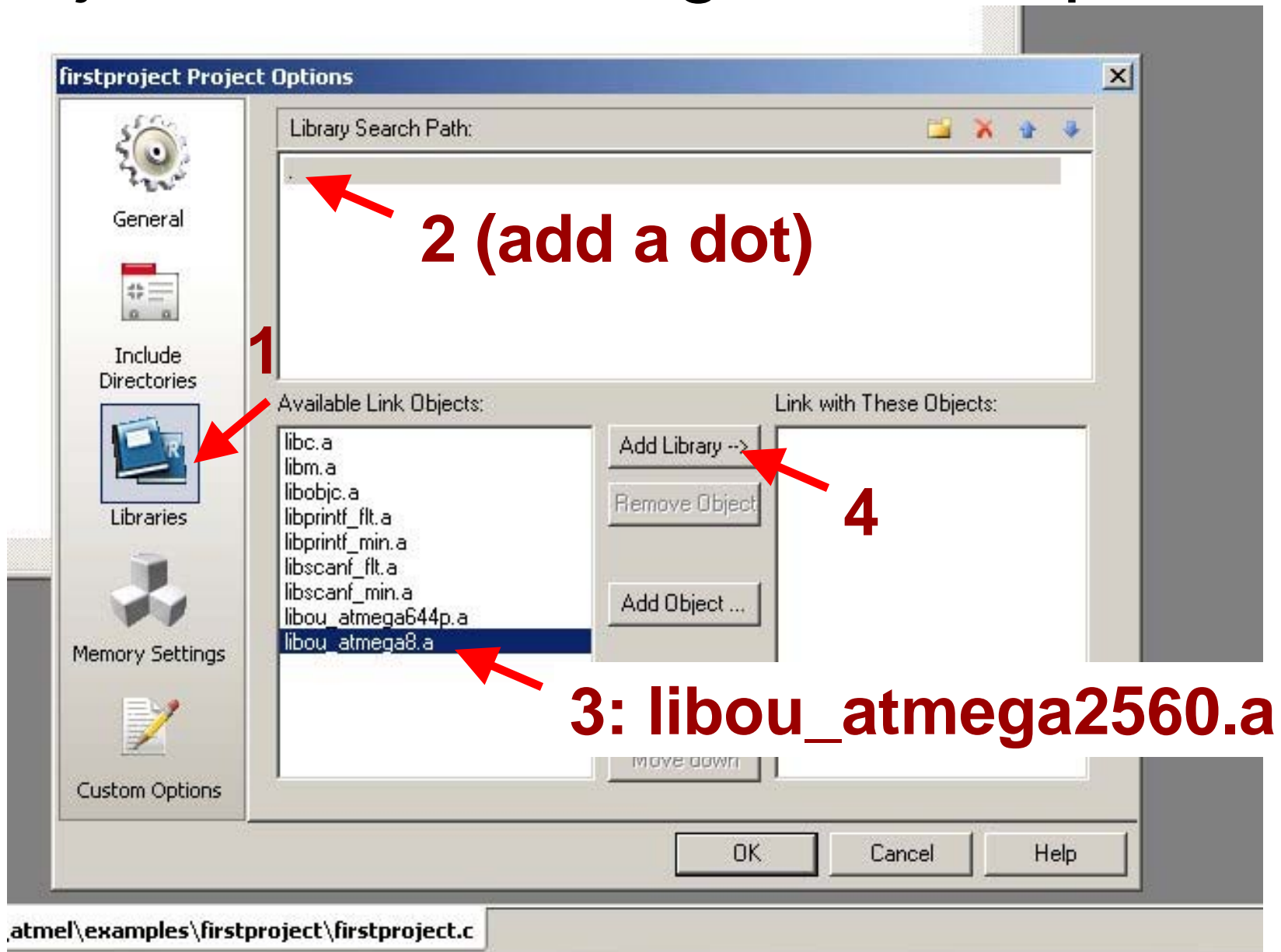
Copy the following to your “firstproject” folder:

- `oulib.h`
- `libou_atmega2560.a`
- (useful later): `oulib_serial_buffered.h`

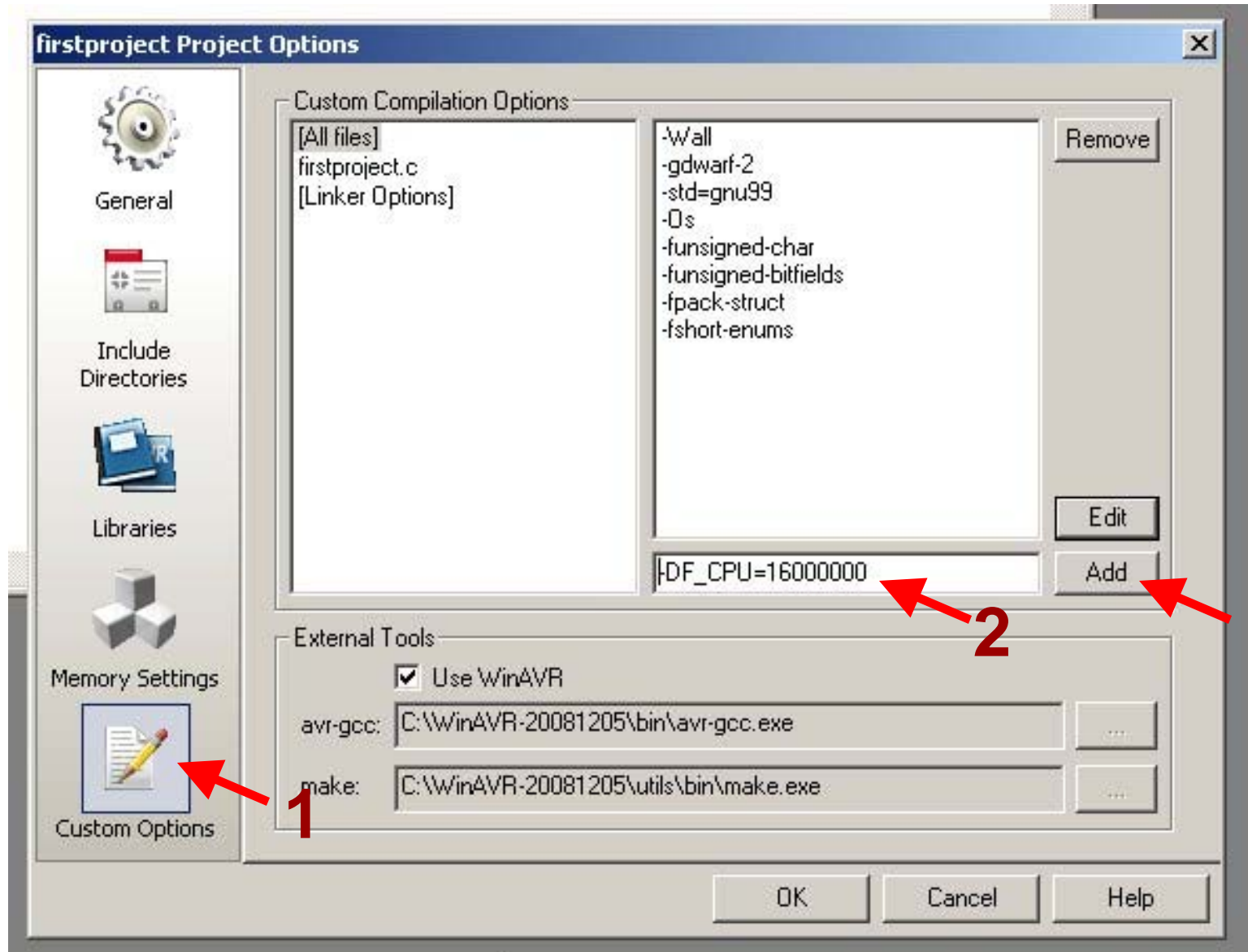
Project Menu: Configuration Options



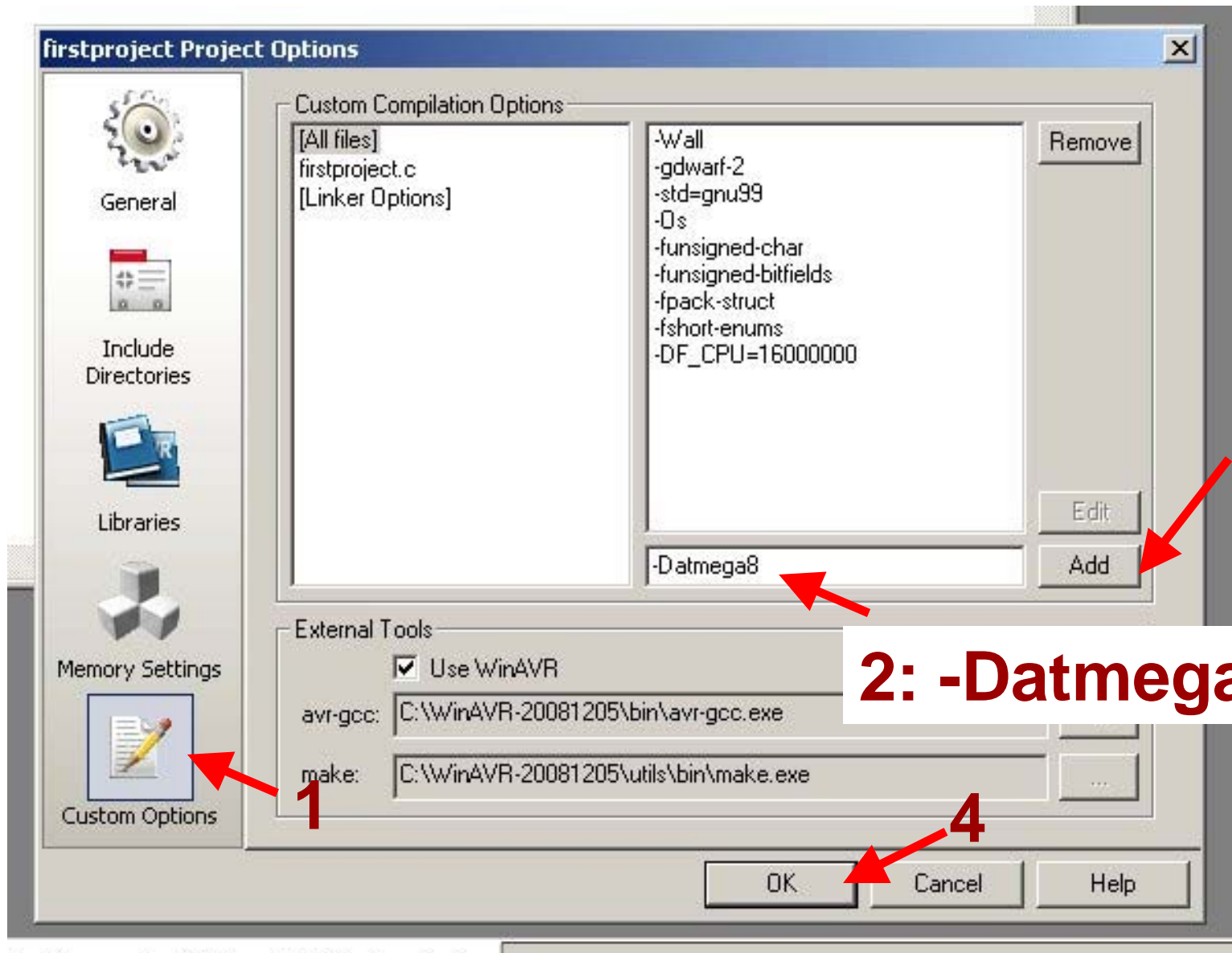
Project Menu: Configuration Options



Project Menu: Configuration Options



Project Menu: Configuration Options

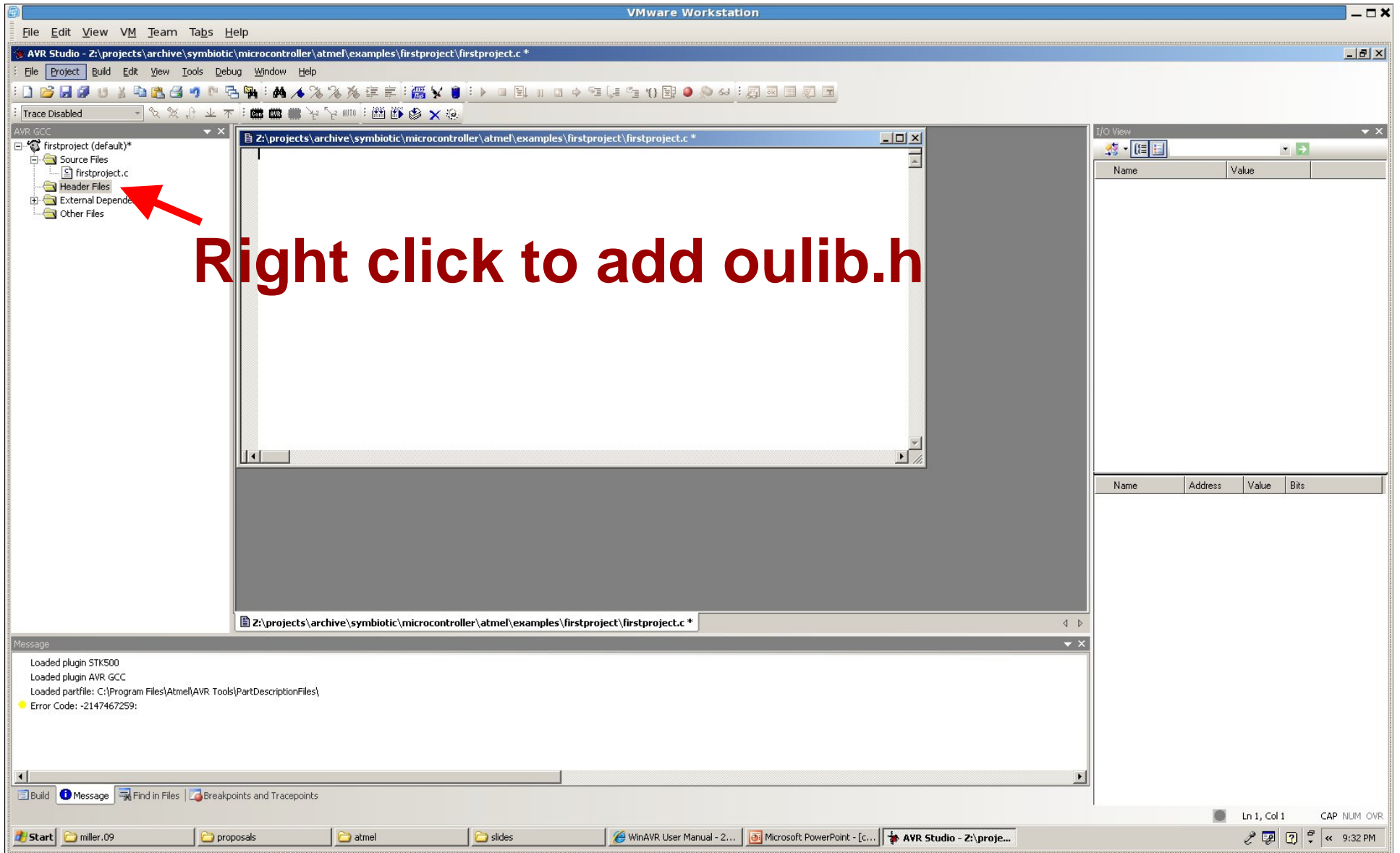


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2: -Datmega2560

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VMware Workstation

File Edit View VM Team Tabs Help

AVR Studio - firstproject

File Project Build Edit View Tools Debug Window Help

Trace Disabled

AVR GCC

- firstproject (default)*
 - Source Files
 - firstproject.c
 - Header Files
 - oulib.h
 - External Dependencies
 - Other Files

```
#include "oulib.h"

int main(void)
{
    DDRB = 1;

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

Code goes here

I/O View

Name	Value
------	-------

Name	Address	Value	Bits
------	---------	-------	------

Message

- Loaded plugin STK500
- Loaded plugin AVR GCC
- Loaded partfile: C:\Program Files\Atmel\AVR Tools\PartDescriptionFiles\
- Error Code: -2147467259:

Build Message Find in Files Breakpoints and Tracepoints

Ln 14, Col 1 CAP NUM OVR

9:33 PM

Start miller.09 proposals atmel slides WinAVR User Manual - 2... Microsoft PowerPoint - [c... AVR Studio - firstproj...

Now for the code...

```
#include "oulib.h"

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

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

- firstproject (default)*
 - Source Files
 - firstproject.c
 - Header Files
 - oulib.h
 - External Dependencies
 - Other Files

Build menu: Build

```
int main(void)
{
    DDRB = 1;

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

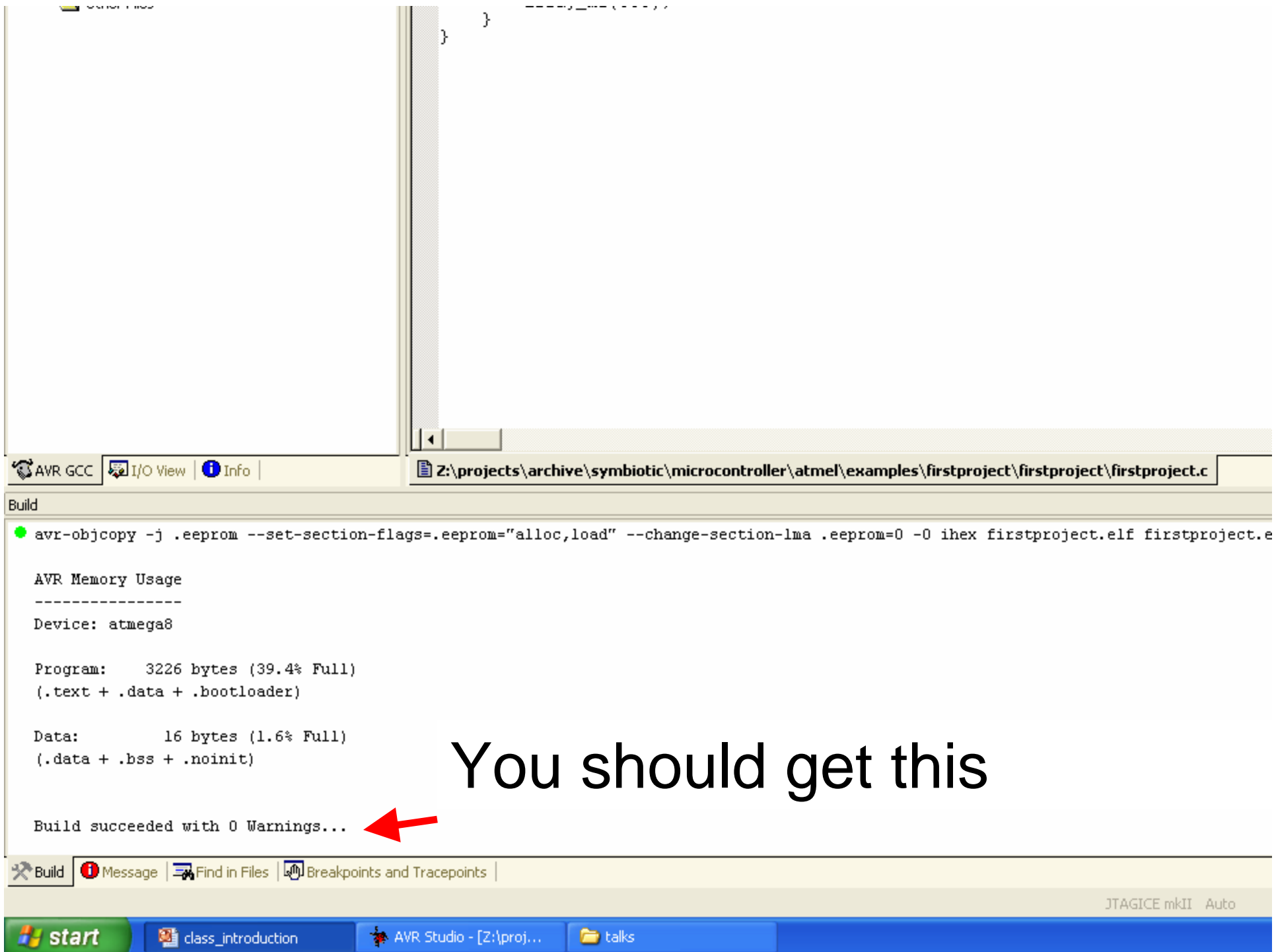
I/O View

Name	Value
------	-------

Name	Address
------	---------

Message

- Loaded plugin STK500
- Loaded plugin AVR GCC
- Loaded partfile: C:\Program Files\Atmel\AVR Tools\PartDescriptionFiles\
- Error Code: -2147467259:



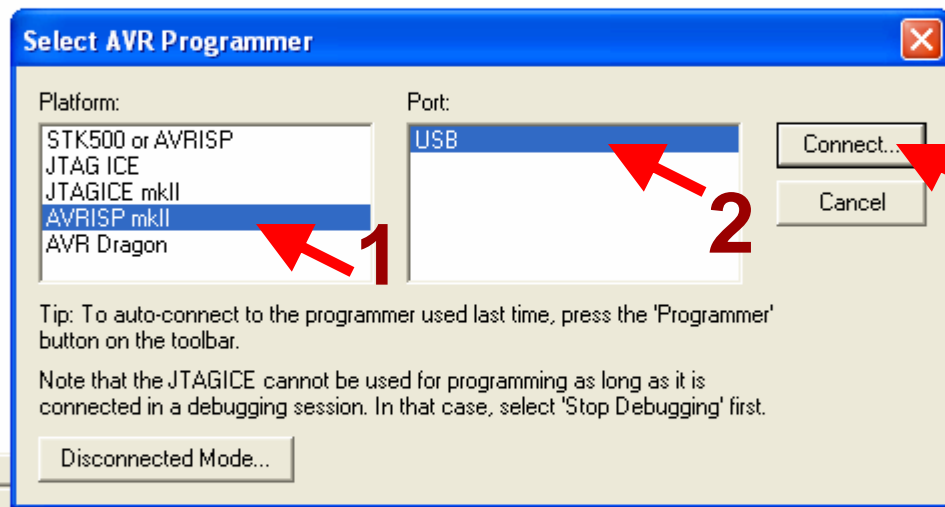
You should get this

Now We Are Ready...

- Plug the Arduino into your computer
- Plug the programmer into your computer **and** into the Arduino board (If it is not already)
- And download the program...
 - Tools Menu: AVR: Connect


```
int main(void)
{
    DDRB = 7;

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



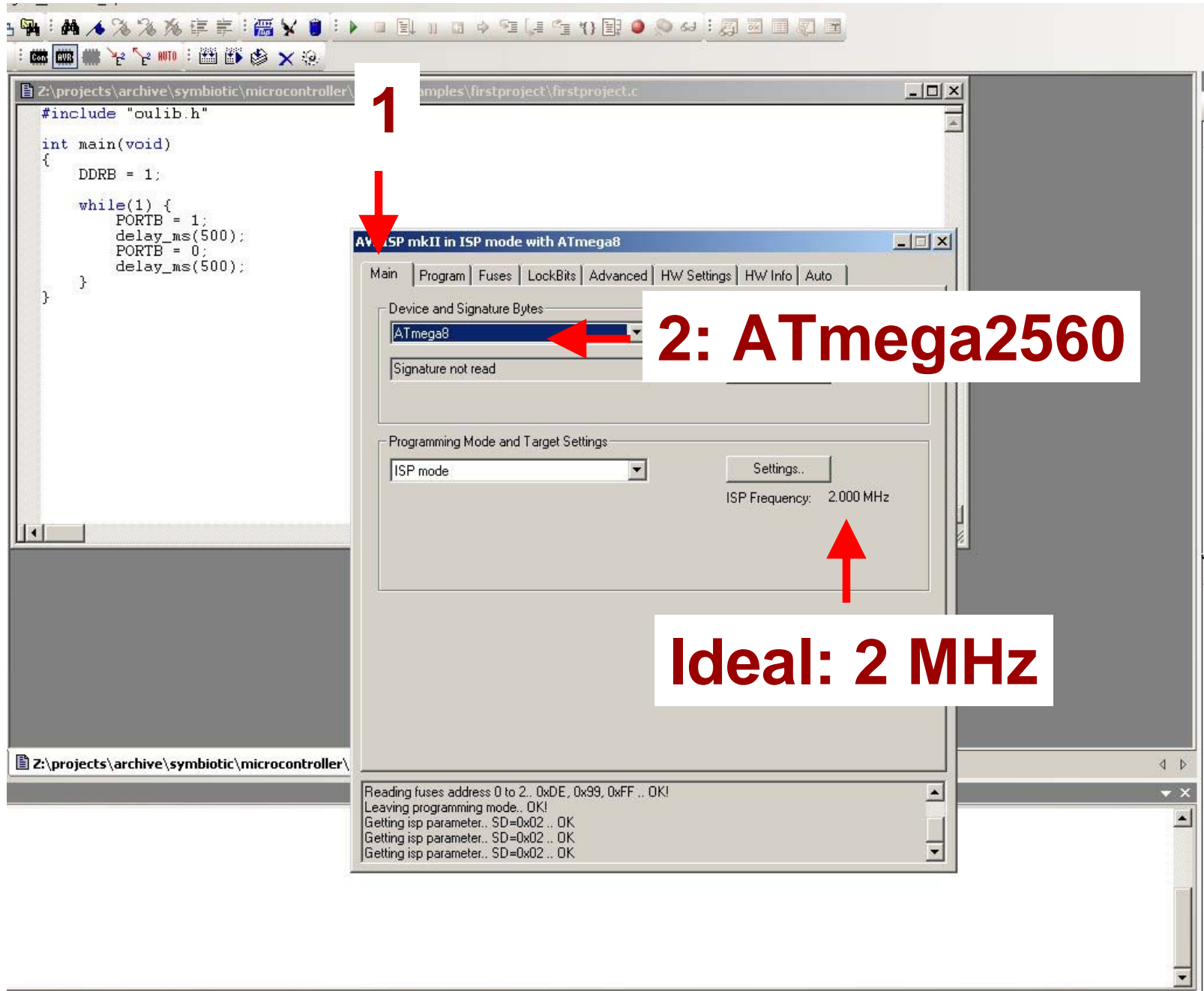
Info | Z:\projects\archive\sybiotic\microcontroller\atmel\examples\firstproject\firstproject\firstproject.c

```
.eeprom --set-section-flags=.eeprom="alloc,load" --change-section-lma .eeprom=0 -O ihex firstproject.elf firstproject.eep
```

```
re
-
:
```

```
6 bytes (39.4% Full)
+ .bootloader)
```

```
6 bytes (1.6% Full)
· .noinit)
```



1

2: ATmega2560

Ideal: 2 MHz

```
#include "oulib.h"

int main(void)
{
  DDRB = 1;
  while(1) {
    PORTB = 1;
    delay_ms(500);
    PORTB = 0;
    delay_ms(500);
  }
}
```

AVR ISP mkII in ISP mode with ATmega8

Main | Program | Fuses | LockBits | Advanced | HW Settings | HW Info | Auto

Device and Signature Bytes

ATmega8

Signature not read

Programming Mode and Target Settings

ISP mode

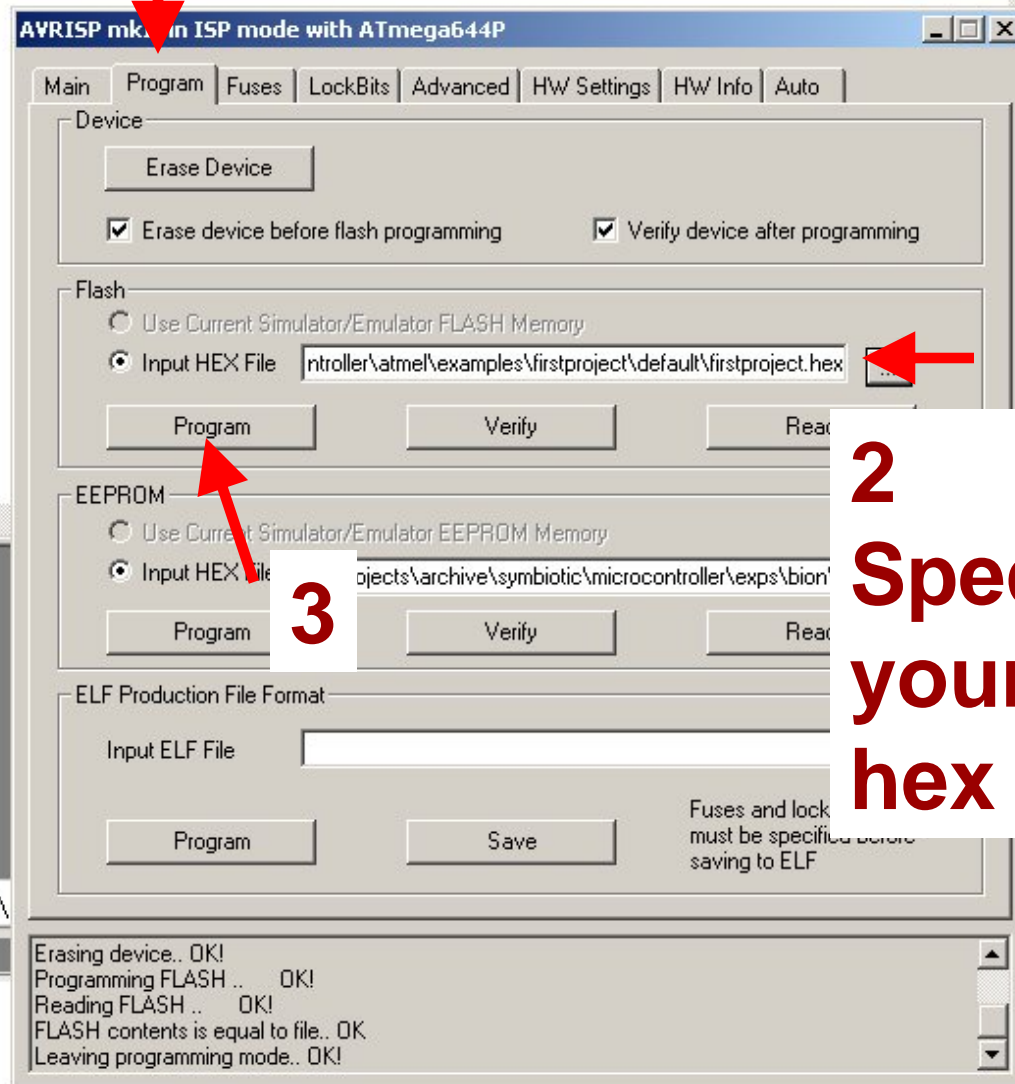
Settings...

ISP Frequency: 2.000 MHz

Reading fuses address 0 to 2.. 0xDE, 0x99, 0xFF .. OK!
Leaving programming mode.. OK!
Getting isp parameter.. SD=0x02 .. OK
Getting isp parameter.. SD=0x02 .. OK
Getting isp parameter.. SD=0x02 .. OK

```
int main(void)
{
    DDRB = 1;

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



2
Specify
your
hex file

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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