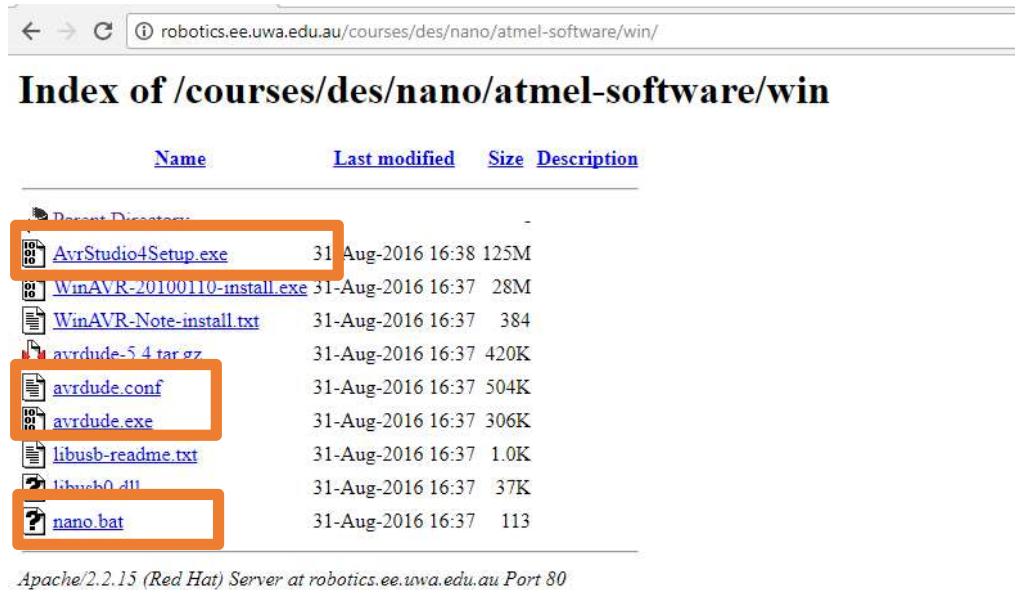


Windows Assembly programming – Arduino nano: AVRStudio and AVRDUDE

1. Go to:

<http://robotics.ee.uwa.edu.au/courses/des/nano/atmel-software/win/>

And Download the following files:



The screenshot shows a web browser window with the address bar containing the URL <http://robotics.ee.uwa.edu.au/courses/des/nano/atmel-software/win/>. The page title is "Index of /courses/des/nano/atmel-software/win". Below the title is a table with columns for Name, Last modified, Size, and Description. The table lists several files, with four of them highlighted by orange boxes: `AvrStudio4Setup.exe`, `avrdude.conf`, `avrdude.exe`, and `nano.bat`. The footer of the page reads "Apache/2.2.15 (Red Hat) Server at robotics.ee.uwa.edu.au Port 80".

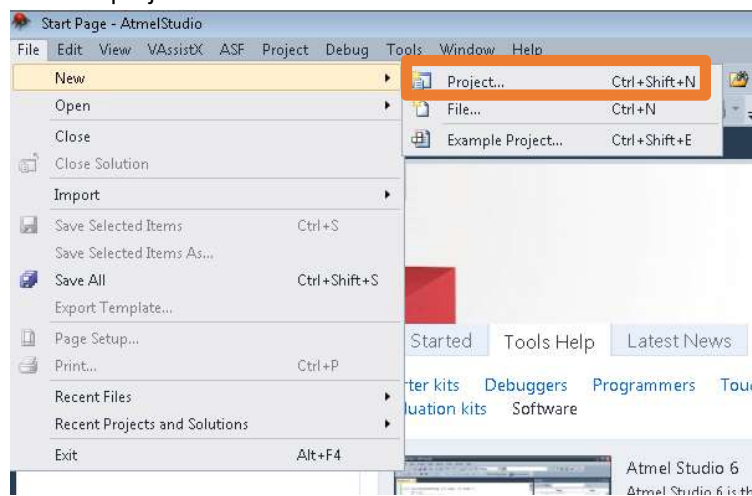
Name	Last modified	Size	Description
AvrStudio4Setup.exe	31-Aug-2016 16:38	125M	
WinAVR-20100110-install.exe	31-Aug-2016 16:37	28M	
WinAVR-Note-install.txt	31-Aug-2016 16:37	384	
avrdude-5.4.tar.gz	31-Aug-2016 16:37	420K	
avrdude.conf	31-Aug-2016 16:37	504K	
avrdude.exe	31-Aug-2016 16:37	306K	
libusb-readme.txt	31-Aug-2016 16:37	1.0K	
libusb-0.dll	31-Aug-2016 16:37	37K	
nano.bat	31-Aug-2016 16:37	113	

Apache/2.2.15 (Red Hat) Server at robotics.ee.uwa.edu.au Port 80

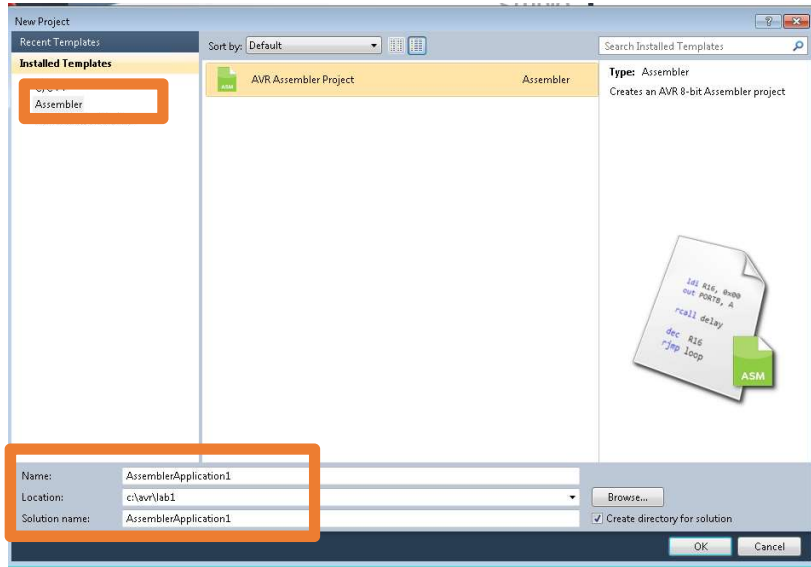
2. Instal AVRStudio
3. You will use AVRStudio to write your program and compile it.
4. You will use AVRDUDE to upload the compiled file to your Arduino

AVRSTUDIO

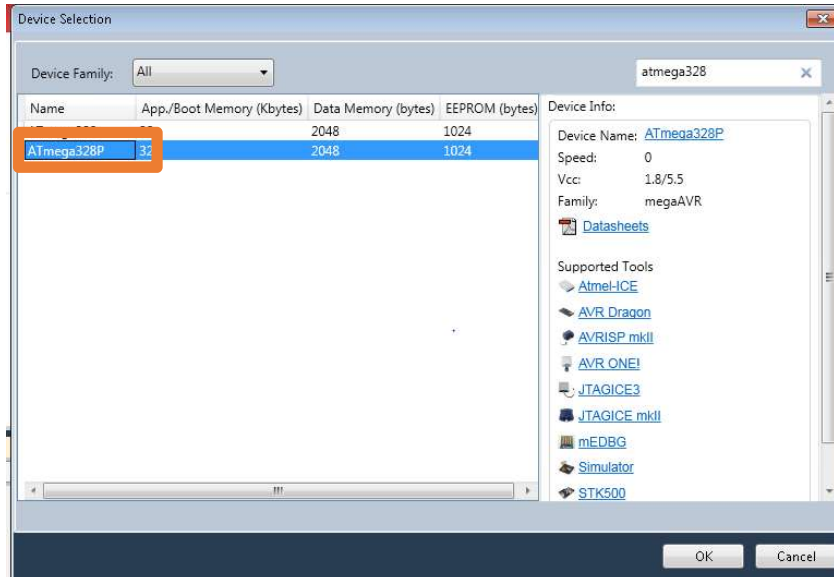
1. Create a project



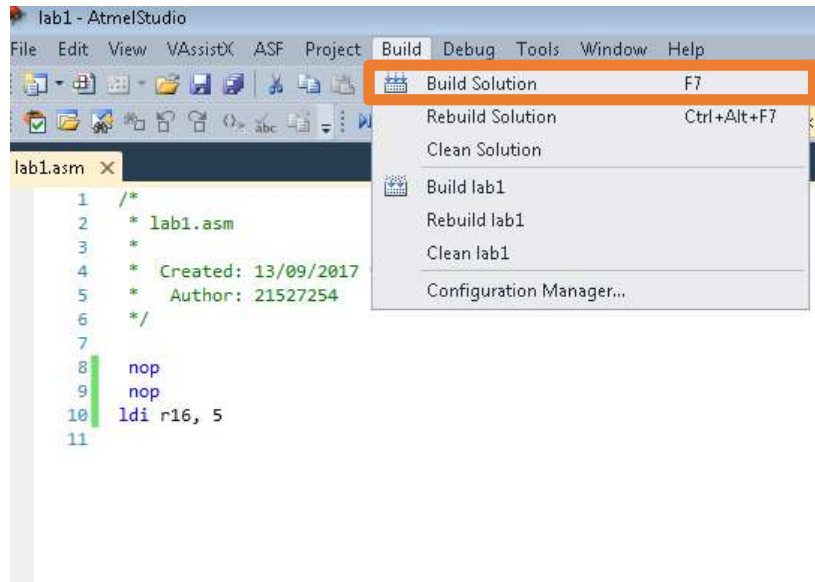
2. Choose Assembler and Write the name of your project and location.



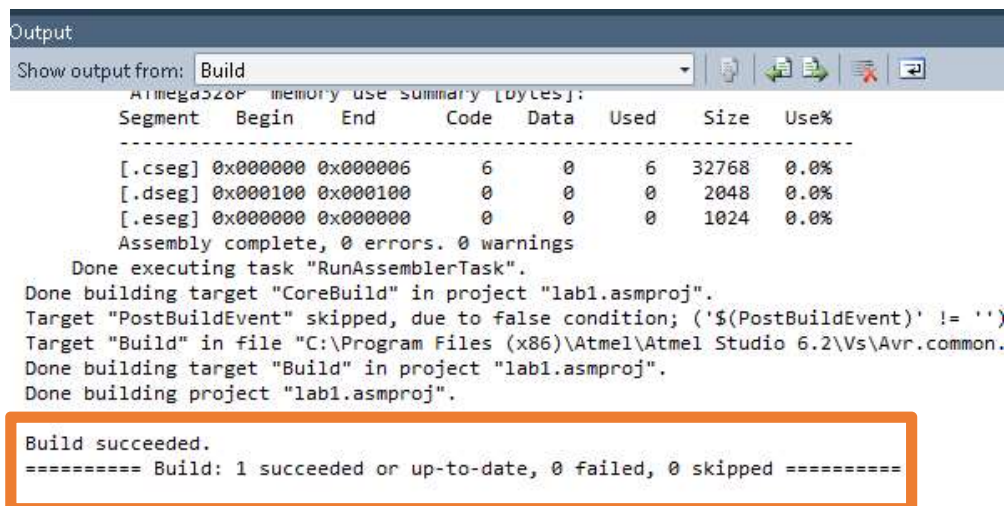
3. Select your chip. Atmega328p for the Arduino nano



4. Write your program and Build Solution



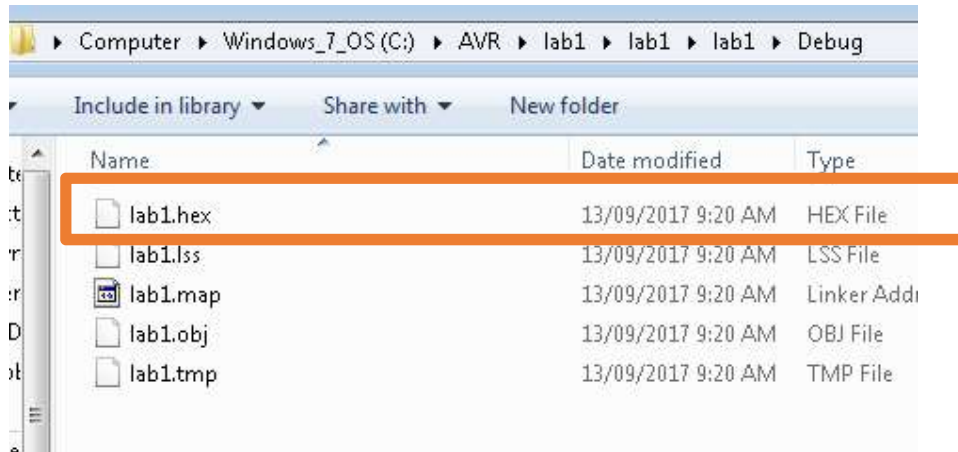
5. If everything is fine you should see this message at the bottom:



6. This process will create the following files in the destination folder you when creating the project.

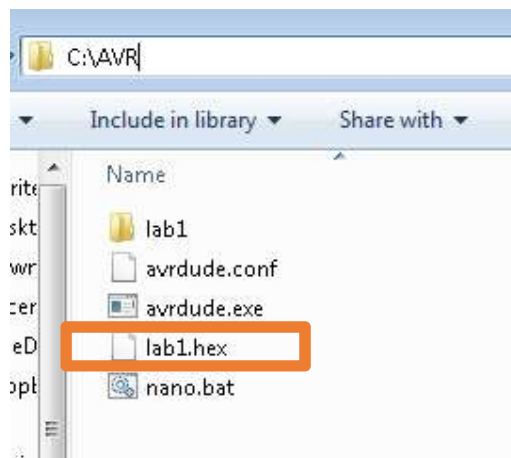
<your_project>/Debug

The .HEX file is the machine code to upload to the Arduino



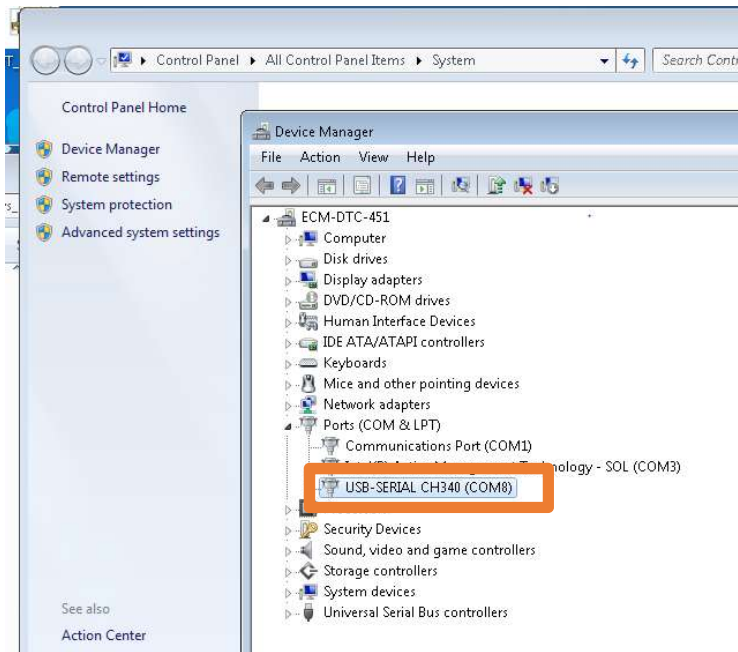
AVRDUDE

1. Move your downloaded files to an easy to access location such as c:\AVRDUDE\
2. Move your .HEX file to upload to the same folder



3. Connect your Arduino nano to your PC
4. Detect the COM PORT:

System → Device Manager



COM8 in this case

5. Open the CMD. Start → Command Prompt
6. Go to the folder where AVRDUDE is. 'cd c:/AVR'
7. Type:
Nano <COM_PORT> <.HEX file>
Nano COM8 lab1.hex

You will see the uploading process and at the end the message if successful

```
C:\windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\21527254>cd c:\AVR
c:\AVR>nano COM8 lab1.hex

avrdude: AVR device initialized and ready to accept instructions

Reading : ##### | 100% 0.00s

avrdude: Device signature = 0x1e950f
avrdude: NOTE: "flash" memory has been specified, an erase cycle will be performed
To disable this feature, specify the -D option.
avrdude: erasing chip
avrdude: reading input file "lab1.hex"
avrdude: writing flash (6 bytes):

Writing : ##### | 100% 0.04s

avrdude: 6 bytes of flash written
avrdude: verifying flash memory against lab1.hex:
avrdude: load data flash data from input file lab1.hex:
avrdude: input file lab1.hex contains 6 bytes
avrdude: reading on-chip flash data:

Reading : ##### | 100% 0.03s

avrdude: verifying ...
avrdude: 6 bytes of flash verified

avrdude: safemode: Fuses OK (E:00, H:00, L:00)

avrdude done. Thank you.

c:\AVR>_
```