## 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:

← → C ③ robotics.ee.uwa.edu.au/courses/des/nano/atmel-software/win/

## Index of /courses/des/nano/atmel-software/win

Name	Last modified	Size	Description
Derest Directory		-	
AvrStudio4Setup.exe	31 Aug-2016 16:38	125M	
WinAVR-20100110-install.ext	e 31-Aug-2016 16:37	28M	
WinAVR-Note-install.txt	31-Aug-2016 16:37	384	
A avrdude-54 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	
Dissection all	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

<b>P</b>	Start Page - AtmelStudio						
File	Edit View VAssistX ASF P	roject Debug	Tools	Window	w Help		
	New		۰ 🖬	Projec	:t	Ctrl+Shift+N	1
	Open		• 10	File	1	Ctrl+N	1 - ;
	Close		<b>B</b>	Examp	ole Project	Ctrl+Shift+E	
Ĩ	Close Solution		-				
	Import						
	Save Selected Items	Ctrl+S					
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9	Save Selected Items As Save All Export Template Page Setup	Ctrl+Shift+S	Sta	<b>1</b> arted	Tools Help	Latest Nev	NS
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	Save Selected Items As Save All Export Template Page Setup Print Recent Files Recent Projects and Solutions	Ctrl+Shift+S Ctrl+P	Sta ter Juat	arted kits ion kits	Tools Help Debuggers P Software	Latest Nev Programmers	ws Tou

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

New Project					? 💌
Recent Templates	Sort by: Default	• • •		Search Installed Templates	Q
Instaled Template	Sort by: Default	• 🗼 🛄	Assembler	Search Installed Templates Type: Assembler Creates an AVR 8-bit Assembler p	р roject
				in the first our rates, a real delay de the right lags	
Name:	AssemblerApplication1				
Location:	c:\avr\lab1		•	Browse	
Solution name:	AssemblerApplication1			Create directory for solution	
				ок с	ancel

3. Select your chip. Atmega328p for the Arduino nano



4. Write your program and Build Solution

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🖻 🖙 🦝 🎖 Cli 🔍 🚲 🖆 🚽 🕅	Rebuild Solution Ctrl+Alt+Fi Clean Solution
1 /* 2 * lab1.asm 3 *	Build lab1 Rebuild lab1 Clean lab1
5 * Author: 21527254 6 */ 7 8 nop	Configuration Manager
9 nop 10 ldi r16, 5 11	

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

Output								
Show output from:	Build					- 01	(1 B)	🛼 🖃
Armeg	abzor memo	ry use sur	unary Lt	yres]:	DO DATAN-SAR	11 82 Car	COMMON	
Segmen	t Begin	End	Code	Data	Used	Size	Use%	
[.cseg	0x000000	0x000006	6	0	6	32768	0.0%	
[.dseg	0x000100	0x000100	0	0	0	2048	0.0%	
[.eseg	0x000000	0x000000	0	0	0	1024	0.0%	
Assemb	ly complete	, 0 errors	s. 0 war	nings				
Done execu-	ting task "	RunAssembl	LerTask'	۰.				
Done building	target "Con	eBuild" in	n projec	t "lab1	.asmpro	oj".		
Target "PostBu	ildEvent" s	kipped, du	ue to fa	alse con	dition	: ('\$(Po	stBuild	Event)' != '')
Target "Build"	in file "C	:\Program	Files (	(x86)\At	mel\Atr	mel Stud	tio 6.2\	Vs\Avr.common.
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Done building	project "la	b1.asmpro	i".		1. S.			
			8					
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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

Include in library 👻	Share with 👻 🛛	New folder	
Name	*	Date modified	Туре
📄 lab1.hex		13/09/2017 9:20 AM	HEX File
lab1.lss		13/09/2017 9:20 AM	LSS File
🐻 lab1.map		13/09/2017 9:20 AM	Linker Add
📄 lab1.obj		13/09/2017 9:20 AM	OBJ File
lab1.tmp		13/09/2017 9:20 AM	TMP File

## 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  $\rightarrow$  Device Manager



COM8 in this case

- 5. Open the CMD. Start  $\rightarrow$  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

