Getting started with Arduino

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GETTING STARTED WITH ARDUINO

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WHAT IS ARDUINO?

Arduino is an open-source electronics platform based on easy-to-use hardware and software. It's intended for anyone making interactive projects.

ARDUINO SOFTWARE

You can tell your Arduino what to do by writing code in the Arduino programming language and using the Arduino development environment.

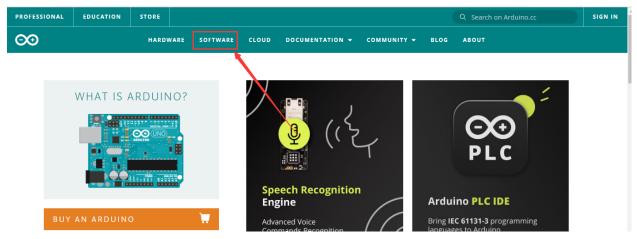
ONE

1. DOWNLOAD ARDUINO IDE

1.1 A. Windows System

You could download Arduino IDE from the official website: https://www.arduino.cc/

Enter the link and click **SOFTWARE**:



There are various versions of IDE for Arduino. Just download a version compatible with your system.

Downloads



Here we will show you how to download and install the windows version of Arduino IDE.

There are two versions of IDE for WINDOWS system. You can choose between the installer (.exe) and the Zip file. For installer, it can be directly downloaded, without the need of installing it manually while for Zip package, you will need to install the driver manually.



You just need to click JUST DOWNLOAD.

1.2 B. Mac System

The versions of Arduino IDE vary from operation systems.

For how to download Arduino IDE on Mac, please refer to Windows:

Downloads



After downloading, double-click to open it and follow the installation instructions.

1.3 C.Detailed installation steps

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E Pictures 🖈	arduino-ide_2.0.0-beta.3_Windows_64bit	2021-0		
Arduino	> Last month (1)			
project-dashboards				

1. Save the .exe file downloaded from the software page to your hard drive and simply run the file .

2.Read the License Agreement and agree it.

Constraint Arduino IDE Setup	_		\times	
License Agreement Please review the license terms before installing Arduino IDE.			\odot	
Press Page Down to see the rest of the agreement.				
Terms of Service				
The Arduino software is provided to you "as is" and we make no express or implied warranties whatsoever with respect to its functionality, operability, or use, including, without limitation, any implied warranties of merchantability, fitness for a particular purpose, or infringement. We expressly disclaim any liability whatsoever for any direct, indirect, consequential, incidental or special damages, including, without limitation, lost revenues, lost profits, losses resulting from business interruption or loss of data, regardless of the form of action or legal theory under which the liability may be asserted, even if advised of the possibility or likelihood of such damages.				
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Arduino IDE.				
Arduino IDE 2.0.0				
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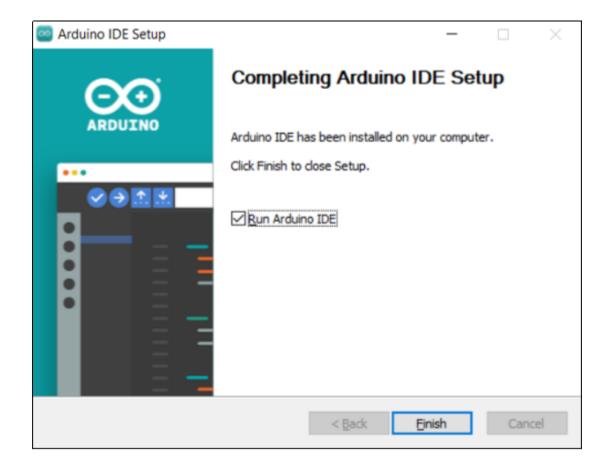
3. Choose the installation options.

C Arduino IDE Setup	—		\times	
Choose Installation Options Who should this application be installed for?			$\overline{\infty}$	
Please select whether you wish to make this software available to all u	sers or ju	ist yourse	51	
Anyone who uses this computer (all users)				
○ Only for <u>m</u> e				
Fresh install for all users. (will prompt for admin credentials)				
Arduino IDE 2.0.0				
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4. Choose the install location.

Arduino IDE Setup	_		\times
Choose Install Location Choose the folder in which to install Arduino IDE.			\odot
Setup will install Arduino IDE in the following folder. To install in a differ and select another folder. Click Install to start the installation.	ent folde	er, dick Br	rowse
Destination Folder C:\Program Files\Arduino IDE	Bro	wse	
Arduino IDE 2.0.0	tall	Car	ncel

5.Click finish and run Arduino IDE



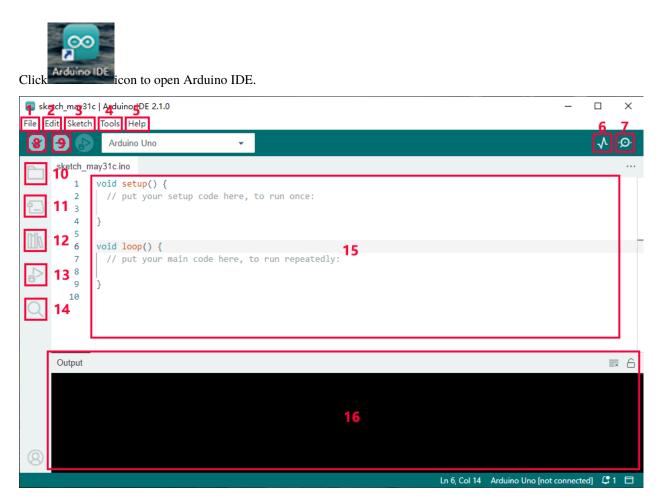
2. INSTALL DRIVER

We need a driver to boot our development board. Or else, the COM port connected to computer will not be found. Select the corresponding development board and computer system in the table and click the link to enter the tutorial:

Sku	Develop- ment Board	Image	Windows System	MAC Sys- tem
ks049	7 keyestudio V4.0		CP2102- WINDOWS	CP2102- MAC
ks049	8 keyestudio MEGA		CP2102- WINDOWS	CP2102- MAC
ks048	6 keyestudio Plus	W W	CP2102- WINDOWS	CP2102- MAC
12			ter 2. 2. Inst	

THREE

3. ARDUINO IDE SETTINGS



- 1. "File": Including New Sketch, Open..., Sketchbook, Examples, Close, Save(Save as...), Preferences, Advanced..., etc.
- 2. "Edit": Including Copy, Paste, Auto Format, Increase/Decrease Font Size, etc. Commonly, you can use shortcuts to do these operations.
- 3. "Sketch": Including Verify/Compile, Upload, Include Library, etc.
- 4. "Tools": Including Board and Port, which are two of the most important functions.
- 5. "Help": Including Check for Updates as well as some official data references.
- 6. "Serial Plotter": To display the data from serial port in the way of a line chart.

- 7. "Serial Monitor": To prints the data from serial port.
- 8. Verify code.
- 9. Verify and upload code.
- 10. "Sketchbook": To create a new sketch, or sign in to Arduino Cloud to sync and edit your Cloud Sketches.
- 11. "Boards Manager": To install or remove development board.
- 12. "Library Manager": To install or remove library.
- 13. "Debug": To monitor code and debug breakpoints.
- 14. Search.
- 15. Sketch editing area.
- 16. IDE Output: To report error or successful uploading, and to display data from serial monitor.

4. UPLOAD CODE VIA ARDUINO IED

Example of using Keystudio Plus UNO for tutorials marked with '/'

Development board	windows system	MAC system
Keyestudio Plus UNO	Win Plus UNO Tutorial	Mac Plus UNO Tutorial
Keyestudio NANO	/	/
Keyestudio MEGA 2560	/	/
Keyestudio Leonardo	1	/
Keyestudio Micro pro\por Mini	1	/
Keyestudio ESP32\ESP32 Plus	Win ESP32 Tutorial	Mac ESP32 Tutorial
raspberry pi pico	Win Pico Tutorial	Mac Pico Tutorial

FIVE

5. IMPORT LIBRARY

First of all, the corresponding Arduino library files are required.

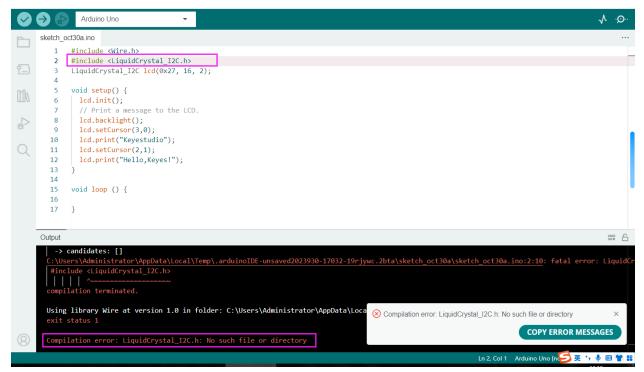
5.1 A. What are Libraries ?

Libraries are a collection of code that make it easy for you to connect a sensor, display, module, etc.

For example, the built-in LiquidCrystal library helps talk to LCD displays.

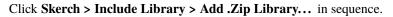
There are hundreds of additional libraries available on the Internet for download. The built-in libraries and some of these additional libraries are listed in the reference.

If there is an error 'No such file or directory' when compiling or uploading code, it means the library file is missing. As shown in the figure below, the error occurred when uploading LCD1602 module code due to the missing 'LiquidCrystal_I2C' library file.



5.2 B. How to Install a Library ?

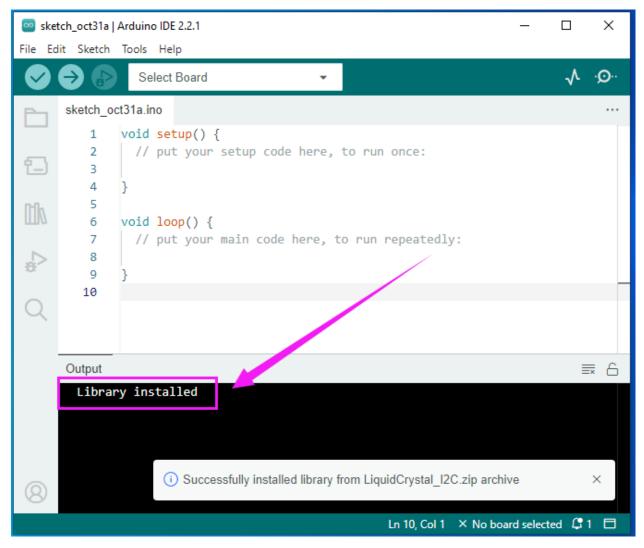
Here we will introduce the most simple way to add libraries.



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	Upload	Ctrl+U			•	
	Configure and Upload					
	Upload Using Programmer	Ctrl+Shift+U				
1	Export Compiled Binary	Alt+Ctrl+S				
	Optimize for Debugging					
tik	Show Sketch Folder	Alt+Ctrl+K				
	Include Library	+	Manage Libraries Ctrl+Shift+I			
÷	Add File		Add .ZIP Library			
	2		Add .Zir Libialy			
Q			X 3			
		X				
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8						

Find files(.zip) you need to add as library and wait. "Library installed" will be displayed if library is successfully added.

Select a zip file containing the library you'd like to add				
← → • ↑ 	> This PC > Desktop	✓ ♂ Search Desktop		
Organize 🔻 Ne	lew folder	:== - 💷 😮		
1.0.11	^ Name ^	Date modified Type		
📌 Quick access	LiquidCrystal_I2C	5/6/2023 8:40 AM Com		
 Downloads Documents Pictures Music Videos OneDrive 	* * * * *			
This PC				
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C. Desktop	∀ <	>		
	File name: LiquidCrystal_I2C	✓ Li ary ✓ Open Cancel		



Dynamic operation example:

For how to include a library, the method of the two system is the same.

For more details, please visit our official website: https://www.keyestudio.com/