Installing Ringo for Arduino

Setting up

Installation

To start programming your own things on Ringo phone you're going to need a software called **CircuitBlocks**, which is our program developed specifically for Ringo phone. Alternatively, you can download **Arduino IDE**, which is a program you are already familiar with if you're into IoT.

If you already have it installed on your computer, you can skip this step.

Go to the address: https://www.arduino.cc/en/Main/Software



Download the installation file according to the OS you own. If you have Windows 8.1 or later, you can also download **Arduino IDE over Microsoft Store**. That version of the software will be considered to be a completely different program than the regular version by your system so keep in mind that your libraries will not be in sync. Other than that, these two versions work the same.

Now when you have installed Arduino we can go to the next step.

<u>Installing Ringo Add-On in Arduino</u> <u>IDE</u>

These instructions work on every OS since Arduino automatically downloads tools depending on detected system.

So just follow these steps and you will be fine!

1. Open Arduino IDE

NOTE: If this is your first time meeting Arduino IDE - get familiar, you're going to use it a lot.



2. Go to File -> Preferences



3. Enter the following address in the 'Additional board Manager URLs' :

https://raw.githubusercontent.com/CircuitMess/MAKERphone/boardArduino /package_CircuitMess_Ringo_index.json

	Preferences	×	P		
sketch aug	Settings Network				
void setup	Sketchbook location:		^		
// put y	C:\Users\medve\OneDrive\Documents\Arduino Browse				
1	Editor language: System Default (requires restart of Arc	duino)			
,	Editor font size: 12				
void loop	Interface scale: Automatic 100 🔦 (requires restart of Arduino)				
// put y	Theme: Default theme \checkmark (requires restart of Arduino)				
}	Show verbose output during: Compilation upload				
	Compiler warnings: None V				
	Display line numbers				
	Enable Code Folding				
	✓ Verify code after upload				
	Use external editor				
	Aggressively cache compiled core				
	Check for updates on startup				
	✓ Update sketch files to new extension on save (.pde -> .ino)				
	Save when verifying or uploading		~		
	Additional Boards Manager URLs:	C			
	More preferences can be edited directly in the file				
	C:\Users\medve\AppData\Local\Arduino15\preferences.bt				
	(edit only when Arduino is not running)				
9	ОК	Cancel	Uno on COM5		

Click OK.

NOTE: You can also click the little window button by the bar and enter it there, then click **OK**.

	Preferences ×	<mark>.⊘</mark> .
sketch_aug	Settings Network	
void setur	Sketchbook location:	^
// put y	C:\Users\medve\OneDrive\Documents\Arduino Browse	
1	Editor language: System Default (requires restart of Arduino)	
,	Editor font size: 12	
void loop(Interface scale: 🛛 Automatic 100 🔹 % (requires restart of Arduino)	
// put y	Theme: 💿 Additional Boards Manager URLs 🛛 🗙	
}	Show verbose	
	Compiler warn Enter additional URLs, one for each row	
	Display line	
	Enable Coc	
	Click for a list of unofficial boards support URLs	
	Use extern	
	Check for updates on startup	
	✓ Update sketch files to new extension on save (.pde -> .ino)	
	Additional Boards Manager URLs:	
	More preferences can be edited directly in the file	
	(edit only when Arduino is not running)	
9	OK Cancel	Uno on COM5

4. Go to Tools -> Board -> Boards Manager...



5. Type 'Ringo' into the bar on top of the popup window

File Edit Sketch Tools Help	
💿 Boards Manager	
Type All V Ringo	
Ringo by CircuitMess Boards included in this package: Ringo by CircuitMess. <u>More info</u>	Install
	Close
9	Arduino/Genuino Uno on COM5

There will be one result found called 'Ringo by CircuitMess'.

Click on the 'Install' button.

NOTE: Main board package and a few tools will now download and install on your system.

It all takes up about **200 MB** so the time of download will depend on your internet connection.



6. When it's all finished it will write out 'INSTALLED' next to the version mark

File Edit Sketch Tools Help	
🐵 Boards Manager	
Type All V Ringo	
Ringo by CircuitMess version 1.0.0 INSTALLED Boards included in this package: Ringo by CircuitMess. More info	
	Close
9	Arduino/Genuino Uno on COM5

Click on the 'Close' button and move on.

NOTE: The board file will be updated from time to time so make sure to check the version from time to time.

When there is an option '**Update'**, please click it in order to stay in touch with the latest firmware.

<u>Creating with Ringo and Arduino</u>

NOTE



Whenever you upload a program it will effectively "erase" the whole Ringo firmware from the phone. If you want to return it, follow step 13! If you don't want to do any work on your phone right now, you can skip these next few steps.

7. Select the installed board



Again go to **Tools -> Board** and in the dropdown menu under category **'ESP32** Arduino' find 'Ringo by CircuitMess'.

It should be somewhere at the bottom. Select the board.

8. If you haven't already, connect your Ringo phone to the PC via micro-USB to USB cable

File Edit Sketch	ools Help			
	Auto Format	Ctrl+T		. <u>.</u>
	Archive Sketch			
sketch_aug05l	Fix Encoding & Reload			
void setup()	Manage Libraries	Ctrl+Shift+I		^
// put you	Serial Monitor	Ctrl+Shift+M		
	Serial Plotter	Ctrl+Shift+L		
}	WiFi101 / WiFiNINA Firmware Updater			
<pre>void loop()</pre>	Board: "Ringo by CircuitMess"	>		
// put you	Upload Speed: "921600"	>		
,	Flash Frequency: "80MHz"	>		
3	Partition Scheme: "Minimal SPIFFS (Large APPS with OTA)"	>		
	Core Debug Level: "None"	>		
	Port: "COM5"	>	Serial ports	
	Get Board Info		COM5	
	Programmer	>		
	Burn Bootloader			
			-	
				~
2			F	Ringo by CircuitMess on COM5

It will connect to one of the **COM** ports.

Go to '**Tools'** and under '**Board'** section select '**Port'** and find the port on which Ringo is connected.

NOTE: If '**Port'** is greyed out it means the phone is not correctly connected.

Change the USB port and/or check your cable.

9. Write your first program

In the **void setup()** section write the following line:





10. After a few moments, the text should say 'Done uploading'

Now the only thing left to do is to check if everything is working properly.

Click the magnifier icon in the upper right corner of the screen.



11. On a newly opened window, from a dropdown menu, select '115200 baud'

That is the speed that the software writes in the **Serial monitor**.

If the text says the line that you wrote in the **print** function, then everything works!



<u>Library and restoring firmware</u>

12. Installing Ringo library

There is also a Ringo library in Arduino Library Manager that allows you to use all the important functions and libraries from the Ringo firmware when writing your own programs. Printing out things on the screen and pressing buttons won't be possible without this one.

Go to **Sketch-> Include Library -> Manage Libraries....** Enter the keyword **'Ringo'** in the search bar and click the **'Install'** button to download and install the library.



13. Re-uploading the 'Default Ringo software'

Whenever you want to re-upload **'Default Ringo Software'** you have to go to **Tools -> Programmer** and select

'Ringo Firmware'.



Now go to **Tools** -> **Burn Bootloader** and you will have the latest default firmware on your Ringo as soon as

the upload is finished.

File Edit Sketch To	ools Help					
	Auto Format	Ctrl+T				Ø
	Archive Sketch					
sketch_oct07b	Fix Encoding & Reload					
<pre>#include</pre>	Manage Libraries	Ctrl+Shift+I				^
	Serial Monitor	Ctrl+Shift+M				
MAKERphon	Serial Plotter	Ctrl+Shift+L				
	WiFi101 / WiFiNINA Firmware Updater					
void setu	Board: "Ringo by CircuitMess"	:	*			
mp.begi	Upload Speed: "921600"					
mp.disp	Flash Frequency: "80MHz"					
}	Partition Scheme: "Minimal SPIFFS (Large APPS with OTA)"	:	•			
	Core Debug Level: "None"	:				
void loop	Port: "COM10 (Ringo by CircuitMess)"	;	•			
mp.upda	Get Board Info					
	Programmer: "Ringo Firmware"	;	•			
mp.disp	Burn Bootloader					
}						~
Done burning bootl	oader.					
Writing at	UXUUUd4UUU (98 %)					^
Writing at	0x000d8000 (100 %)					
Wrote 15391	04 bytes (827711 compressed) at 0	x00010000	in 13.5 seconds	(effective	913.4 kbit/s)	
< of dat	a ventried					>
1					Ringe by Circu	itMess on COM10

Congrats! You have successfully set up Ringo phone.

Now let's get to business and start creating some cool apps and games!