Wi-Fi Modules for Arduino

Use your Arduino Uno WiFi on the Arduino Desktop IDE

If you want to program your Arduino Uno WiFi while offline you need to install the <u>Arduino</u> Desktop IDE.

Installing Drivers for the Uno WiFi

OSX The first time you plug an Uno WiFi into a Mac, the "Keyboard Setup Assistant" will launch. There's nothing to configure with the UNO WiFi, so you can close this window by clicking the red button in the top left of the window.

Windows (tested on XP, 7, Vista and 10) At this point of this Getting Started guide you already have installed the drivers together with the Arduino Software (IDE) and the board will be recognized automatically.

Open your first sketch

Open the LED blink example sketch: File > Examples >01.Basics > Blink.

Select your board type and port

You'll need to select the entry in the **Tools** > **Board** menu that corresponds to your Arduino Uno WiFi board.

Select the serial device of the board from the Tools | Serial Port menu. This is likely to be **COM3** or higher (**COM1** and **COM2** are usually reserved for hardware serial ports). To find out, you can disconnect your board and re-open the menu; the entry that disappears should be the Arduino Uno WiFi board. Reconnect the board and select that serial port.

Upload the program

Now, simply click the "Upload" button in the environment.



Wait a few seconds - you should see the RX and TX LEDs on the board flashing. If the upload is successful, the message "Done uploading." will appear in the status bar.

💿 Blink Arduino — 🗆 🗙
File Edit Sketch Tools Help
Blink
11 .
12 modified 8 May 2014
13 by Scott Fitzgerald
14 */
15
16
17 // the setup function runs once when you press reset or power
18 void setup() {
19 // initialize digital pin 13 as an output.
<pre>20 pinMode(13, OUTPUT);</pre>
21 }
22
23 // the loop function runs over and over again forever
24 void loop() {
25 digitalWrite(13, HIGH); // turn the LED on (HIGH is the v
26 delay(1000); // wait for a second
27 digitalWrite(13, LOW); // turn the LED off by making the
28 delay(1000); // wait for a second
29 }
< >>
Done uploading
avrouge: reading on-chip flash data:
1 Arduino Uno WiFi on COM17

A few seconds after the upload finishes, you should see the on-board LED start to blink. If it does, congratulations! You've gotten your Uno WiFi board up-and-running for the USB programming.

Programming via OTA

This board allows you to upload your sketches over the air (OTA) using the WiFi connection. To get this method working, you need that your board is already connected to the same WiFi network to which your PC is connected. Please refer to the *First Configuration* chapter below to configure and connect the Arduino Uno WiFi to your WiFi network.

Power the board using the USB cable and a 5V USB power supply or use an external power supply connected to the power connector.. Now the procedure to program the board via OTA is

the same of that shown above but it differs only when you select the port. Here are all the steps..

Select your board type and port

You'll need to select the entry in the **Tools** > **Board** menu that corresponds to your Arduino Uno WiFi board.

💿 Blink | Arduino × File Edit Sketch Tools Help Auto Format Ctrl+T Archive Sketch Blink Fix Encoding & Reload 11 Serial Monitor Ctrl+Shift+M modifie 12 by Scott 13 Board */ 14 Port Serial ports 15 COM17 (Arduino Uno) 16 Programmer 17 // the set Network ports Burn Bootloader 18 void setup \checkmark arduinounowifi at 192.168.60.118 (Arduino Uno WiFi) // initialize digital pin 13 as an output. 19 20 pinMode(13, OUTPUT); callopengate at 192.168.60.102 (Arduino Yún) 21 } linino at 192.168.60.112 (Arduino Yún) 22 23 // the loop function runs over and over again forever 24 void loop() (25 digitalWrite(13, HIGH); // turn the LED on (HIGH is the v // wait for a second 26 delay(1000); 27 digitalWrite(13, LOW); // turn the LED off by making the 28 delay(1000); // wait for a second 29 } < > Remember to set the UNO WiFi board in 'STA' mode through the configuration panel. on-chip flash data: ^ ¥ < > Arduino Uno WiFi on 192.168.60.118

Select the board from **Tool>Port>Network** ports menu

Note: Be sure that the PC and the board are connected to the same network and that the board is in STA MODE, for more information see *First Configuration* below.

Upload the program

Now, simply click the "Upload" button in the environment.



Wait a few seconds - you should see the RX and TX LEDs on the board flashing. If the upload is successful, the message "Done uploading." will appear in the status bar.

First configuration

Your Arduino Uno WiFi needs a first configuration to join your WiFi network and it allows you to enter the relevant information creating its own Access Point. Please execute the following procedure every time you bring Arduino Uno WiFi in a location where the WiFi network access needs to be reconfigured.

Power the board and wait some time. Search the board in the network list, it has an ESSID like this: **Arduino-Uno-WiFi-xxxxxx**. Connect your PC/MAC to the Arduino Uno WiFi AP: Open a browser and connect at this address: <u>http://192.168.240.1/</u>

OVERVIEW MIFI CONSOLE Network SSID Wifi status Wifi status Wifi address OUNCE Wifi incole AP+STA Wifi channel I Flash chip ID Ox01 0x4016 Flash size		The Arduino UNO WiFi firmware allows yo can use Arduino IDE for that. Please refer	u to upload an Arduino sketch via OTA - Over The Air technology. You to the online <u>Starter Guide</u> on Arduino.org
OVERVIEW Hostname arduino cuwci MIFI CONSOLE Network SSID cuwci Wifi status idle Wifi address 0.0.0.0 CONNECTIVITY WiFi mode DEBUG LOG WiFi channel Flash chip ID 0x01 0x4016 Flash size 4MB-512/512		SUMMARY	
MIFI CONSOLE Network SSID Wifi status Idle Wifi address 0.0.0 CONNECTIVITY WiFi mode DEBUG LOG WiFi channel Flash chip ID 0x01 0x4016 Flash size 4MB-512/512	OVERVIEW	Hostname ards	uino Owne
Wifi status idle Wifi status 0.0.0.0 CONNECTIVITY WiFi mode DEBUG LOG WiFi channel Flash chip ID 0x01 0x4016 Flash size 4MB-512/512	WIFI CONSOLE	Network SSID	CHANGE
Wifi address 0.0.0 CONNECTIVITY WiFi mode AP+STA DEBUG LOG WiFi channel 1 Flash chip ID 0x01 0x4016 Flash size		Wifi status idle	
WiFi mode AP+STA DEBUG LOG WiFi channel 1 Flash chip ID 0x01 0x4016 1 Flash size 4MB-512/512 1	WIFI	Wifi address 0.0.	0.0
WiFi channel 1 Flash chip ID 0x01 0x4016 Flash size 4MB:512/512	CONNECTIVITY	WiFi mode AP-	+STA
Flash chip ID 0x01 0x4016 Flash size 4MB:512/512	DEBUG LOG	WiFi channel 1	
Flash size 4MB:512/512		Flash chip ID 0x0	1 0x4016
		Flash size 4MI	B.512/512

This is the screen that it will appear:

If you want to modify the hostname of the board then click on **CHANGE** from **OVERVIEW** menu or select the **WiFi** on the left menu and insert a new name under **HOSTNAME** field and after click on **CHANGE**.

60	WIFI CONFIGURATION		
	HOSTNAME	WIFI STATUS	1
OVERVIEW	arduno	Configured network	
WIFI CONSOLE	CHANGE	WiFi status	idle
		WiFi address	0.0.0.0
123/25	WIFI CONNECTION	WiFi rssi	-61dB
(IFI		WiFi phy	110
CONNECTIVITY	To connect to a WiFi network, please select one of the detected networks, enter the password, and hit	WIFI MAC	5c cf 7f 10 e9 c2
DEBUG LOG	the connect button	WiFi mode	AP+STA
	A	SWETC	H TO STA HOOG

Connect the Arduino Uno WiFi to your AccessPoint Router, selecting your network from the **WiFi Menu**, insert the correct password and then click on **CONNECT**, as shown in the image below:

	MOMOR 2010	
	-54dB DHLabs	SMITCH TO STA MODE
$\bigcirc \bigcirc$	⊙ 🔒 .atll -55d8 Insirio	
ARDUINO	🛛 🔂 📶 -83dB UNIME-WIFI	ADVANCED
UNO WIFI	🛛 🔂 📶 -68dB UNIME-WIFI	
	◎	© Static IP
OVERVIEW	© 🛱 ₊ŧŧÌ -87dB UNIME-WIFI	CHANGE
	© 🛱 ₊ffl -83dB UNIME-WIFI	
WIFI CONSOLE	🛛 🛍 📶 -87dB UNIME-WIFI	
SETTING	© 🛱 📶 -82dB UNIME-WIFI	
WIFI	ା 🖬 📶 -89dB UNIME-WIFI	
CONNECTIVITY	Hidden network	
DEBUG LOG	WiFi password, if applicable:	
	cosssword	>

When the board is connected to the network, the ip address will appear at the top of the panel:

	WIFI CONFIGURATION	ot IP 192.168.60.110	
UNO WIFI	HOSTNAME	WIFI STATUS	
		WiFi channel	1
OVERVIEW	arouno	Configured network	DHLabs
WIFI CONSOLE	CHANGE	WiFi status	got IP address
		WiFi address	192.168.60.110
ISTTOKS	WIFI CONNECTION	WiFi rssi	-53dB
WIFI		WiFi phy	11n
CONNECTIVITY	If you are in the same network, go to 192.168.60.110, else connect to network DHLabs	WiFi MAC	5c cf 7f 10 e9 c2
DEBUG LOG	first.	WiFi mode	AP+STA
	To connect to a WiFi network, please select one of the detected networks, enter the password, and hit the connect buttor	SMITCH	TO STA MODE

Now connect the PC to the same network to which the board is connected and try to access the board by inserting the ip address in the browser.

← → C fi 1092.168.60.110/home	ahtm			☆ 😊 ≡
💷 App 🛄 DH Labs Trello 🚾 Arduino.org 🔤	Google Translate 📲 Bing Traduttore 🗋 osTicket : Staff Contri	🔲 Arduino Slack 📑 Arduino_facebook 🛅 LinkedIn	🛐 Infolobs M Monster.it 🔥 Gmail	» 🔝 Altri Preferiti
ARDUINO UNO WIFI	WELCOME The Arduino UNO WiFi firmware a can use Arduino IDE for that. Plea	illows you to upload an Arduino sketch via OTA se refer to the online <u>Starter Guide</u> on Arduino	Over The Air technology. You .org	
	SUMMARY			
OVERVIEW	Hostname	arduino	CHANCE	
WIFI CONSOLE	Network SSID	DHLabs	CHANCE	
SETTENS	Wifi status	got IP address		
WIFI	Wifi address	192.168.60.110		
CONNECTIVITY	WiFi mode	AP+STA		
DEBUG LOG	WiFi channel	1		
	Flash chip ID	0x01 0x4016		
	Flash size	4MB:512/512		
1				

Click on **WiFi** in the left menu and change the Wi-Fi configuration mode switching to **STA MODE**, as shown in the image below:

600	WIFI CONFIGURATION		
ARDUINO UNO WIFI	HOSTNAME	WIFI STATUS	
	arduino	WiFi channol	1
OVERVIEW		Configured network	DI ILabs
WIFI CONSOLE	OWNEE	WiFi status	got IP address
		WiFi address	192.168.60.110
Ded.4	WIFI CONNECTION	WiH rssi	-53dB
IFI		WiFi phy	11n
ONNECTIVITY	To connect to a WiFi network, please select one of the detected networks, enter the password, and hit	WIFI MAC	5c:cf:7f:10:e9:c2
EBUG LOG	Network SSID	WiFi mode	AP+STA
	* 🔒 📶 -48dB DHLabs	SILITON 1	TO STA MODE
• •	3 at		

Please note: It is important switching in **STA MODE** because so the board will be visible on the Arduino IDE and, furthermore, you will be able to protect it from possible attacks, since it will no longer be visible as open network.

Now the "Mode Changed" message should appear at the top of the panel:

$\Theta \Theta$	WIFI CONFIGURATION	WIFI CONFIGURATION		
ARDUINO	HOSTNAME	WIFI STATUS		
		WiFi channel	1	
OVERVIEW	anduno	Configured network	DHLabs	
WIFI CONSOLE	CHANCE	WiFi status	got IP address	
		WiFi address	192.168.60.110	
1945	WIFI CONNECTION	WIFi rssi	-59dB	
afi		WiFi phy	11n	
CONNECTIVITY	To connect to a WiFi network, please select one of the detected networks, enter the password, and hit	WIFI MAC	5c.cf.7f:10.e9.c2	
DEBUG LOG	the connect button	WiFi mode	STA	
•	Network SSID	SWITCH TO	STA+AP HODE	

Now, you can access the webpage using your hostname: http://hostname.local

Your Arduino UNO WiFi is ready.

Web panel functions details

The Arduino UNO WiFi has a Web panel that it can be reached in different ways:

- If the board hasn't been configured yet, you can access it entering in the browser this link: <u>http://192.168.240.1/</u> to configure the board read the **First configuration** paragraph.
- If the board is been configured already for your WiFi network then you can insert the ip address (xxx.xxx.xxx) or the hostname(hostname.local/) from browser.

The Web panel has a simple menu that it is formed from five items: **OVERVIEW**, **SERIAL MONITOR**, **WIFI**, **CONNECTIVITY** and **DEBUG LOG**.

The Home page of the Web Panel corresponds to **OVERVIEW** menu, as shown in the image below:

	WELCOME The Arduino UNO WiFi fi can use Arduino IDE for	irmware allows you to upload an Arduino s that. Please refer to the online <u>Starter Gui</u> c	ketch via OTA - Over The Air technology. You de on Arduino.org
	SUMMARY		
OVERVIEW	Hostname	arduinounowifi	CHANGE
SERIAL MONITOR	Network SSID	DHLabs	CHANGE
	Wifi status	got IP address	
WIFI	Wifi address	192.168.60.118	
CONNECTIVITY	W//Fi mode	STA	
DEBUG LOG	WiFi channel	1	
	Flash chip ID	0x01 0x4016	
	Flash size	4MB:512/512	

In the **Overview**is shown all the information about the configuration board: thehostname, **the network** SSID, **Wifi address**, **Wifi mode** and other details

COO!	SUMMARY		
ARDUINO	Hostname	arduinounowifi	CHANGE
UNO WIFI	Network SSID	DHLabs	CHANGE
	Wifi status	got IP address	
OVEDUTEN	Wifi address	192.168.60.118	
OVERVIEN	WiFi mode	STA	
SERIAL MONITOR	WiFi channel	1	
SETTINGS	Flash chip ID	0x01 0x4016	
WIFI	Flash size	4MB:512/512	
CONNECTIVITY	Current partition	user2.bin	
	SLIP status	disabled	
DEBUG LOG	MQTT status	disabled/disconnected	
esp-link master - 2016-03-02 10:04/41 - development	Serial baud	9600	

Clicking on **SERIAL MONITOR** displays a serial monitor, useful to display the results when you upload a sketch.

600	SERIAL MONITOR
ARDUINO UNO WIFI	
OVERVIEW	
SERIAL MONITOR	Text entry (ENTER to submit, ESC to clear)
SETTORS	History (UP/DOWN arrows to select)
DEBUG LOG	v.
esp-link master - 2016-01-02 10:04:41 - development	RESET µC @Autoscroll @CR(\r) @LF(\n)

Furthermore in this section it is possible to reset the microcontroller clicking on RESET μC button.

GO	SERIAL M	ONITOR	
ARDUINO			
TEN	4		v b
	Text entry	(ENTER to submit, ESC to clear)	
	History	(UP/DOWN arrows to select)	
ITY			
be a construction of the second se			
itez - 2016-03-02 - development	•	RESET UC	ØAutoscroll ØCR(V) ØLF(In)

Instead selecting from left menu the **WIFI** section, you can change the hostname simply typing the new hostname in the dedicated bar and after to click on CHANGE button, as shown in the below image:

$\Theta \Theta^{\dagger}$	WIFI CONFIGURATION		
ARDUINO UNO WIFI	HOSTNAME	WIFI STATUS	
		WiFi channel	1
OVERVIEW	Type hostname nere	Configured network	DHLabs
FRIAL MONITOR	CHANGE	WIFi status	got IP address
		WiFi address	192.168.60.118
5 5		WIFi rssi	-56dB
FI	WIFI CONNECTION	WiFi phy	11n
DNNECTIVITY	To connect to a WiFi network, please select one of the detected networks, enter the password, and hit	WIFI MAC	5c:cf:7f:10:eb:e5
EBUG LOG	the connect button	WiFi mode	STA
sp-link master - 2016-03-02 10:04:41 - development	Retwork SSID S3dB DHLabs	SWITCH TO	STA+AP MODE

It is possible also to switch to **STA MODE** or **STA+AP MODE** clicking the specific button, but keep in mind that it is advised to switch only in STA MODE because so the board will be visible on the Arduino IDE and, furthermore, you will be able to protect it from possible attacks, since it will no longer be visible as open network.

	WIFI CONFIGURATION		
UNO WIFI	HOSTNAME	WIFI STATUS	
	Time bertrame have	WiFi channel	1
OVERVIEW	Type nosiname nere	Configured network	DHLabs
SERIAL MONITOR	CHANGE	WiFi status	got IP address
		WIFi address	192.168.60.118
TTENES		WIFi rssi	-56dB
MIFI	WIFI CONNECTION	WiFi phy	11n
CONNECTIVITY	To connect to a WiFi network, please select one of the detected networks, enter the password, and hit	WIFI MAC	5c:cf:7f:10:eb:e5
DEBUG LOG	the connect button	WiFi mode	STA
esp-link master - 2016-03-02 10:04:41 - development	Network SSID atti -53dB DHLabs A atti -53dB Interior	SWITCH TO	STA+AP HODE

It is possible to connect the board to a network selecting it, inserting the correct password and clicking on CONNECTbutton.

	⊙ 🛱 attl -53d8 Insirio	ADVANCED
œ⊙	© 🔒 ₊ffl -90dB DISPO-LAB	* 04/0
ARDUINO	◎ all -stdb UNIME-WIFI	© Static IP
UNO WiFi	🛛 🔒 📶 -63dB UNIME-WIFI	CHANGE
	all -stdb UNIME-WIFI	
	all -59dB Arduino-Uno-WiFi-10e32a	
OVERVIEW	© 🛍 📶 -74dB UNIME-WIFI	
SERIAL MONITOR	○ all -a6dB UNIME-WIFL	
SETTINGS	© 🔒 ₊ffl -90dB UNIME-WIFI	
NIFI	◎ all .95dB UNIME-WIFT	
COMMERTINITY	•	
CONNECTIVITY	WiFi password, if applicable:	
DEBUG LOG	p~sword	
esp-link master - 2016-03-02 10:04:41 - development	CONNECT	

In this section you can also choose if to use the DHCP or the Static IP, as shown in the picture:

	ADVANCED	
Θ	o 🔒 📶 -90dB DISPO-LAB	
ARDUINO	BII -81dB UNIME-WIFI Static IP	
UNO WIFI	CHANGE	
	© வி .all -stab unime-wiFi	
	🛛 🔂 📶 -59dB Arduino-Uno-WiFi-10e32a	
OVERVIEW	© 🚨 📶 -74dB UNIME-WIFI	
SERIAL MONITOR	© 🛱	- 1
SETTINGS	© வி all -sode unime-wiFi	
WIET	© வி .all -95dB UNIME-WIFI	
<u> </u>		
CONNECTIVITY	WiFi password, if applicable:	
DEBUG LOG	password	
	CONNECT	
esp-link master - 2016-03-02 10:04:41 - development		

In the **CONNECTIVITY** section you can enable the connection services for example the client MQTT and the SLIP:

~~··	CONNECTIVITY		
ARDUINO			
UNO WIFI	нотт	STATUS REPORTING	
OVERVIEW	Enable MQTT client MQTT client state: disconnected	 Enable status reporting via MQTT Topic 	
SERIAL MONITOR	Server hostname or IP	arduino	
SETTINGS	Server port	Message: ("rss1":-56, "heap_free":12512) UPDATE	
WIFI	1883		
CONNECTIVITY	arduino		
DEBUG LOG	Client Timeout (seconds)	SLIP	
	2	REST requests are enabled as soon as SLIP is	
esp-link master + 2016-03-02	Keep Alive Interval (seconds)	enabled. There are no REST-specific settings.	
10:04:41 - development	60		

Finally in the **DEBUG LOG** it is shown the debug log and it is possible to reboot the WiFi clicking the WiFiREBOOTbutton:

<u></u>	DEBUG LOG	
ARDUINO		
UNO WIFI	585341> bss7: UNIME-WIFI (-83) 585341> bss8: UNIME-WIFI (-84)	
	585341> bss9: UNIME-WIFI (-89) 585341> bss10: UNIME-WIFI (-94)	
OVERVIEW	5853415 055111 UNIPE-NIF1 (-94) 5853425 US1	
SERIAL MONITOR	S871555 GET scan: cg1Data=0 noAps=11 S871735 GET scan: cg1Data=1 noAps=11	
SETTINGS	REFRESH WIFI REBOOT	
WIFI		
CONNECTIVITY		
DEBUG LOG		

ROHINI COLLEGE OF ENGINEERING AND TECHNOLOGY 13