UART-WIFI Webserver MODULE TEST

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We have another WIFI module in our shop. That WIFI module communicates via SPI interface, which is not easy for some beginners. But it might be a little hard to use this module. The code is long and complicate. Interpreting the code is always hard and boring, especially for those who don't want to waste much time on this module.

So we supply another WIFI module here. It has UART interface. And it is more powerful, with more functions.



According to the manual, here we show how to connect it to network.

Along this module, you will get an USB-TTL module.



If you are Arduino users, we strongly recommend <u>Arduino WiFi Module Shield</u>.



Test Steps

Step 1

Connect WiFi module with PC via this module. Before you do it, make sure your WiFi module is connected to USB-TTL modules in the right way. Make sure you choose 3.3V on the USB-TTL board. Please be careful, do not reverse the wire connection, or the module might be damaged.





If you use this module for the first time, please see Step 9 first.

Start the software UART-WIFI.exe and connect to the device.

	Superior Configuration
1. Select the COM of the module on PC	Port Connect
	Port: COM8 V Set
2.Click Set the configure the UART. The default setting is as follows	Wireless Connect
	CH: Close Vireles
	Modify All Search Encry M
Baud 115200 -	No. Port Device ID Key'
Data 8 💌	Netwo
Parity None 🔻	NetTyp
Stop 1	Fied IP
	Subnet
OK Calcer	Gatewa
	DNS Ac
/	PPP Us
	PPP Pa
Click Search to connect the WIEI module	Workm
via serial port	Transparent Transmission Auto
•	Exit
	Server/

If successful, you can get the following result:

ort C	onnect]	Configurati	on FuncTe	est Up	odateF	w Sy	/ste	mInfo			
ort:	COM8	▼ Set	R	efresh) [N	lodify				Reco	very
rele	ss Conne	ect		import	[E	Export				Adva	ince
H:	Close	- Set	Wirel	ess Setting								
			SSID:		123							
Mod	ifv All	Search	Encry	Mode:	OPEN			•	Key T	Type:	HEX	Ŧ
			Key I	ndex:	01	(2 (0:	3	0	0 4
ło.	Port	Device ID	Key:	[
1	COM8	001FA4FD2B60										
			Netw	ork Setting	_							
			NetTy	/pe:	Aut	omatic	: IP					•
			Fied I	P Addr:		0		0	1.1	0		0
			Subne	et Mask:		0		0		0		0
			Gatev	vay Addr:		0		0		0		0
			DNS A	Addr:		0		0	1	0		0
			PPP U	lser Name:								
			PPP P	assWord:								
		I ►	Work	mode Settin	g			~				
Trans	parent '	Transmission	Au	ito Workmoo	le							
				- (÷				

Sometimes the software will pop up a pomp reporting parameter error, please just ignore it.

If the software can't detect the device and you make sure your hardware connecting is right, this WiFi module might enter **Auto Workmode** in which all the data entered into it via UART will be sent wirelessly directly. You have to exit this mode first. Please refer to the last optional step, then repeat step 2 again.

Step 3

Enter the SSID, Encry Mode, Key Type and Key parameters. Those parameters much match your wireless router. Here is the configuration of my wireless router:

	homeless
Region:	China
Warning:	Ensure you select a correct country to conform local law. Incorrect settings may cause interference.
Channel:	Auto
Mode:	11bgn mixed
Channel Width:	40MHz •
Max Tx Rate:	300Mbps 💌
	Enable Wireless Router Radio
	Enable SSID Broadcast
	Enable WDS
	mana a second second and a second
WFA-FSK/WFA2-FSK	Advention
Factoria	
PSK Password	+8618903609780
, or a domota	(You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 ar
	86400 (in second, minimum is 30, 0 means no update)
Group Key Update Period:	

Enter the Parameter:

Port C	onnect		Confi	guration FuncT	[est	Updatei	Fw	Syste	mInfo	0		
Port:	COM7	▼ Set	[Refresh			Modi	fy			Recover	у
Wirele	ss Conne	act		Import			Expo	ort			Advanc	e
CH:	Close	- Set		Wireless Setting								
				SSID:	home	eless						
Mod	lifv All	Search		Encry Mode:	WPA	2-PSK(T	KIP)	•	Key	Type:	ASCII	•
				Key Index:	01	(0 2		0	3	04	ł
No.	Port	Device ID		Key:	+86	1890360	978	o				
1	COM7	001FA4FD2B60	702860									
			ſ	Network Setting								
				NetType:	S	tatic IP						•
				Fied IP Addr:		192	÷	168		1	. 1	19
				Subnet Mask:		255		255		255	. ()
				Gateway Addr:		192		168		1	•	1
				DNS Addr:		192		168		1	•	1
				PPP User Name:								
				PPP PassWord:								
4	1	1 F		Workmode Setti	ing							

Also you have to enter you're the NetType parameter. If you wireless router supports DHCP (most routers do), you can choose "Automatic IP". Or else you have to enter the IP and Gateway yourself. Here we enter a fixed IP.

Do not select Auto Workmode. You can learn more about Auto Workmode in the manual.

Click **Modify** the save the configuration:



Click the **Reset Now** to reset the module. Then close the software and restart it again. Search and connect to the device as descripted above.

Step 4

Choose the FuncTest in the top menu, and click Connect. If successful, you will get:

Port Connect	Configuration FuncTest UpdateFw SystemInfo
Port: COM7 💌 Set	Wireless Network Command
Wireless Coppect	Connect Disconnect Scan Status Reset
CH: Close V Set	Socket Command
	Create Close Query Send Receive
Modify All Search	
No. Port Device TD	Input/Output Box
✓ 1 COM7 001FA4FD2B60	AT+ Send Clear
	Connect/create network.
	Connect/create network complete. NetMode Encry BSSID Channel SSID
	Infra Yes F4EC3828C0EE 4 homeless
< >	
Turner to Turner i enire	
Transparent Transmission	
8.921 1	

Step 5 (optional)

If you set a fixed IP for this module as we did above, you can skip this step. Or if you use DHCP, you have to do this step to get the IP information.

Fort L'oppost	Configuration FuncTest UpdateFw SystemInfo
Port: COM7 V Set	Wireless Network Command
	Connect Disconnect Scan Status Deset
Wireless Connect	
CH: Close 🔻 Set	Socket Command
	Create Close Query Send Receive
Modify All Search	
	Input/Output Box
No. Port Device ID	AT +LKSTT Send Clear
✓ 1 COM7 001FA4FD2B60	
	Connect/create network. Connect/create network complete. NetMode Encry BSSID Channel SSID Infra Yes F4EC3828C0EE 4 homeless
	AT +LLSTT
	+ERR=-2
	AT +LKSTT +OK=1,"192.168.1.119","255.255.255.0","192.168.1.1","192
Transparent Transmission Exit	CO.

Please refer to AT+LKSTT command in the manual for more information.

Step 6

Verify the connection. We will ping this module from PC and also visit the web-congif page of this module.

Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. Hil Fights reserved.
C:\Users\wilson>ping 192.168.1.119
Pinging 192.168.1.119 with 32 bytes of data:
Reply from 192.168.1.119: bytes=32 time=9ms TTL=255
Reply from 192.168.1.119: bytes=32 time=6ms TTL=255
Reply from 192.168.1.119: bytes=32 time=8ms TTL=255
Reply from 192.168.1.119: bytes=32 time=9ms TTL=255
Ping statistics for 192.168.1.119:
Packets: Sent = 4. Received = 4. Lost = 0 (0% loss).
Annwoyimate wound thin times in milli-seconds:
Minimum = 6mc Mayimum = 9mc Ausware = 8mc
HINIMAN ONS, HAXIMAN PNS, NVCTAGE ONS
C:\lsevs\uilson>

In your browser, visit <u>http://192.168.1.119</u>

In the windows, enter the following information:

User name: admin

Password: 000000

← → Ø http://192.168 Ø •	⊠ Ċ × Ø UART-WiFi ×	û ☆ @
	Basic	
Basic	V	Vireless Settings
Advanced	•	
System	SSID :	homeless
	Encryption :	WPA2-PSK(TKIP)
Window Cottines	Key Format :	ASCII
•wireless Settings: Wireless settings is the basic step for you to use the wifi module. The encryption can	Key Index :	◎ 1 ◎ 2 ◎ 3 ◎ 4
guarantee the security	Encryption Key :	+8618903609780
Network Settings:		Save
Settings can ensure	Ν	letwork Settings
hat your network is properly connected		DHCP Enable
Auto Mode Settings: If	Fixed IP Address :	192.168.1.119
he auto mode is	Subnet Mask :	255.255.255.0
module will transmit	Gateway Address :	192.168.1.1
		F I I I I I I I I I I I I I I I I I I I

Step 7

To do further test, we have to change some configuration. We will enable Auto Mode. In Auto Mode, all the data sent to serial interface will be transmitted wirelessly, and all the data (above TCP) received from wireless network will be sent back via serial interface. If you want to configure the module via serial port, you have to exit Auto Mode first. Please refer to the last step to know how to exit Auto Mode.

At the end of the web-config page, do the following configuration.

Auto Mode Settings						
	P Arde Made Fachle					
	Auto Mode Enable					
Protocol :	TCP •					
C/S Mode :	SERVER -					
Server Address :	0.0.0.0					
Tcp Link TimeOut :	120 s (range <0 , 1000000>)					
Port Number :	8090					
	Save					

Click Save and the module will restart.

Step 8

Connect this module with Arduino.



If you got an Arduino WiFi Module Shield, connection will be easier:

If you don't have the shield, you can connect with wires, as follows:



Note: you can't connect WiFi module's VCC pin to Arduino 3.3V pin. Because Arduino 3.3V pin can't supply enough current for WiFi module.

Please wait for some time. It will connect to network automatically. The read LED will flash if it gets into network.

```
void setup()
          Serial.begin(115200);
void loop()
          boolean currentLineIsBlank = true;
   while(1){
   if (Serial.available()) {
   char c = Serial.read();
    // if you've gotten to the end of the line (received a newline
    // character) and the line is blank, the http request has ended,
    // so you can send a reply
    if (c == '\n' && currentLineIsBlank) {
     // send the webpage
     Serial.println("HTTP/1.1 200 OK\r\nContent-Type: text/html\r\n\r\n<center><h1>Hello World!! I am WiFi
WebServer!!!</h1></center>");
     break;
    if (c == ' \setminus n') {
     // you're starting a new line
     currentLineIsBlank = true;
    else if (c != ' | r') {
     // you've gotten a character on the current line
    currentLineIsBlank = false;
```

Then upload the following code to Arduino:

Note: in the code above, we initial serial interface at 115200bps. If you connect WiFi module with wires, we recommend you configure the interface at 9600bps. Of course you should modify the serial baud rate on WiFi module too. Please refer to latter information for more details.

From the code above, we can see that there is nothing with network thing (such as TCP/IP), which make much easier for those who know little about networks.

Visit <u>http://192.168.1.119:8090</u> in your browser.





If you can't access this module by UART-WIFI.exe, you may have to exit Auto Workmode.

Please close the UART-WIFI.exe first and start some COM-config software. Here I use Arduino IDE serial monitor.

1. Select the COM first

∞ sketch_jul03a File Edit Sketch	Arduino 0022 Tools) Help		
sketch_jul03a	Auto Format Archive Sketch Fix Encoding & Reload	Ctrl+ I	
	Serial Monitor Board	Ctrl+Shift+M	
	Serial Port Burn Bootloader	•	Сом7
Annalan		and the second states of th	A. Salar

Please go to Hardware Manager in your PC if you do not know the COM number.

2. Open serial monitor and configure it

SCOM7		
+++		Send
ANN .		
V Autoscroll	No line ending	

Please note that choose No line ending and the baud rate 115200.

3. Send "+++". If return "+OK", it means successful.

ſ	솔 COM7 🗆 🗆 🗵	ſ
l	Send	
L	+0K 🔹	
k	and a state and the state of the strength from the state state state of the state state state state state state	l.

If you need to modify baud rate of WiFi module, In the Web-config page, click **Advanced** in the left-top menu, change the Baud rate in the **Serial Port Settings**:

Serial Port Settings				
Baud rate :	9600 • bps	Parity :	None 💌	
Data bits :	8 -	Stop bits :	1 -	

Click Save and the module will restart.

Known problems and Solution

- 1. If you use our <u>Arduino WiFi Module Shield</u>, please use external power supply. Because the working module might be over 300mA, which might cause damage to your USB if your power supply comes from your USB adaptor.
- 2. If you use our <u>Arduino WiFi Module Shield</u>, and the wifi module doesn't work while you connect it to Arduino and power it up, please erase the program in your Arduino. You can do it by burning the Blink example.
- 3. The power regulator chip might become very hot. This is because the current is large, over 300ma, and the drop voltage on the chip is large too if your external power is 9V. One solution is replacing 9V adaptor with 7V adaptor. Then the heat will reduce much.

Disclaimer and Revisions

The information in this document may change without notice. Revision History

Rev.	Date	Author	Description
А	May. 12 ^₅ , 2011	Wilson Shen	Initial version
В	Oct. 22 nd , 2011	Wilson Shen	Add WiFi shield part
С	Dec.12 th ,2011	Wilson Shen	Add "Known problems and Solution"

Please visit <u>www.elechouse.com</u> for any updated information.