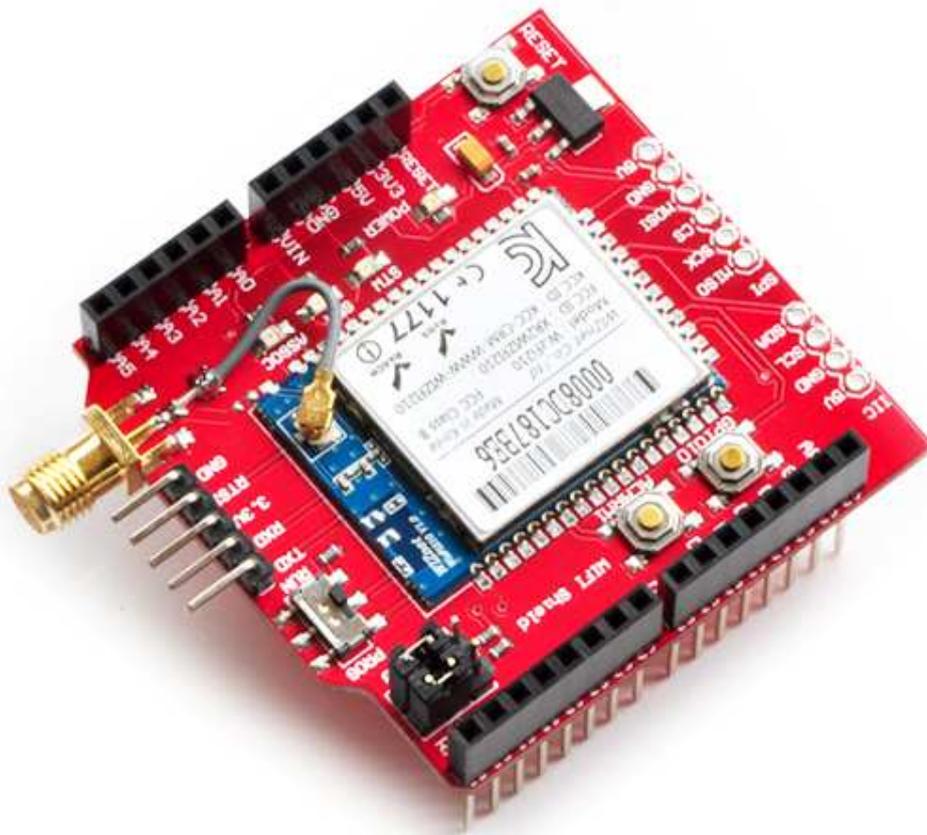

Arduino WiFi Shield

Quick Start



Tinyos Electronics © 2012
Version 1.0

Here is a Tinyos WiFi Shield tutorial. In this tutorial we will show you how to use the software to set the configuration of your WiFi shield, and how to get basic serial communication up and running between your PC and the WiFi shield V2.1.

Software needed:

Setting configuration: WIZSmartScript.exe

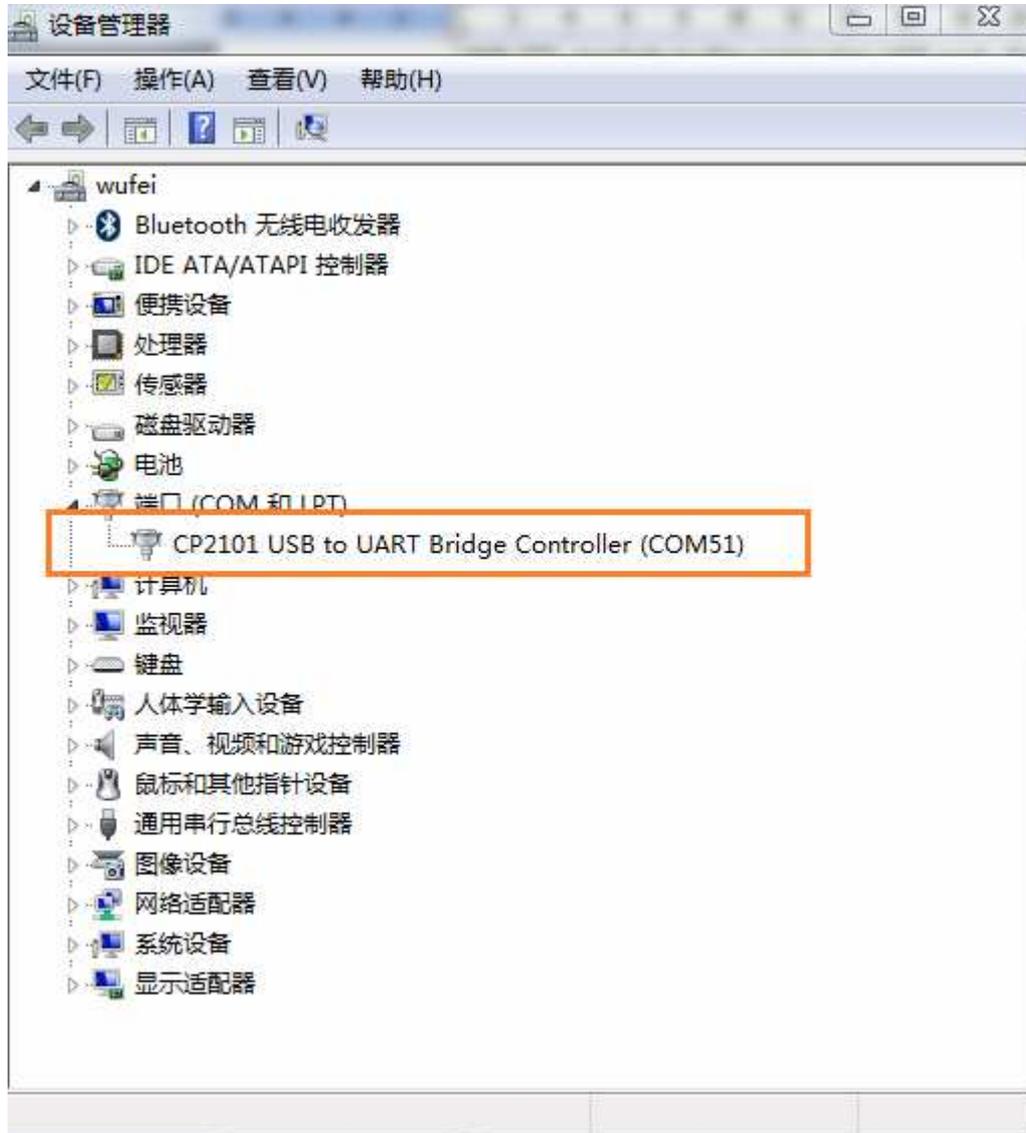
- WIZSmartScript.exe
- Terminal interface like Putty
- Arduino IDE

Hardware needed:

- Arduino
- Tinyos WiFi shield
- Wireless Router
- USB-TTL module
- USB cable
- Jumper wire

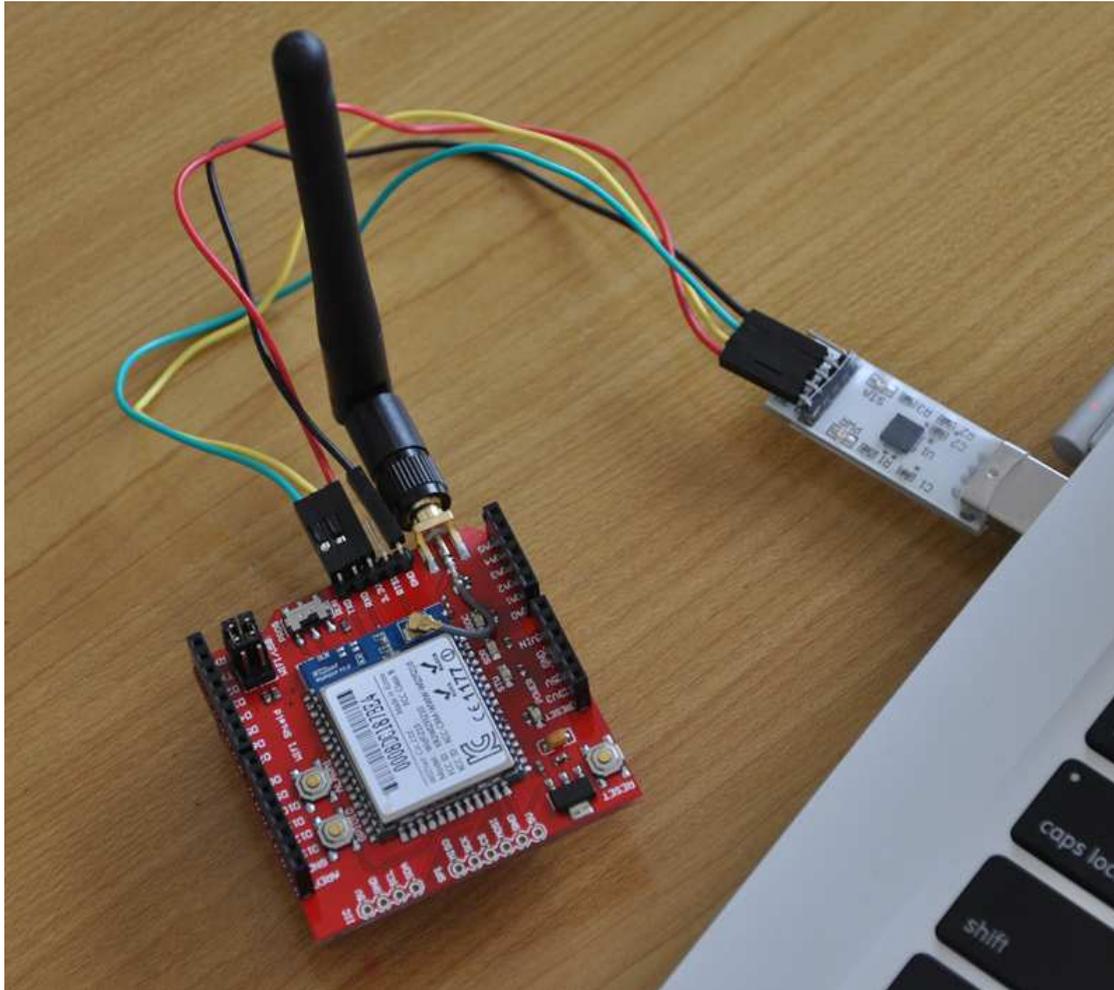
Step1:Install CP2102 Driver

Run cp210x Drivers.exe will create a New folder named 'SiLabs' in disk C. Then plug your USB-TTL module in the computer USB port. Find the drivers in 'SiLabs' folder and install it.



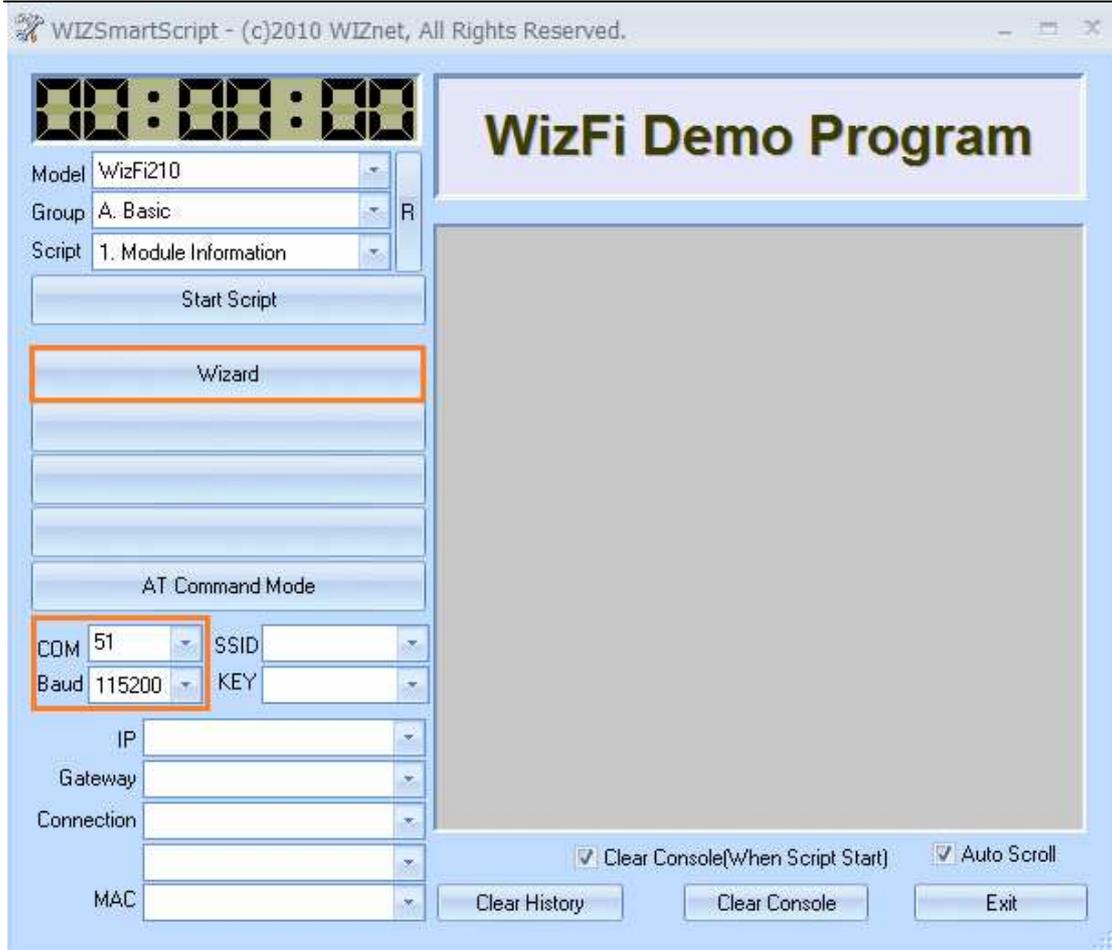
Generate a new COM port

Step2:Connect USB-TTL module and WiFi shield

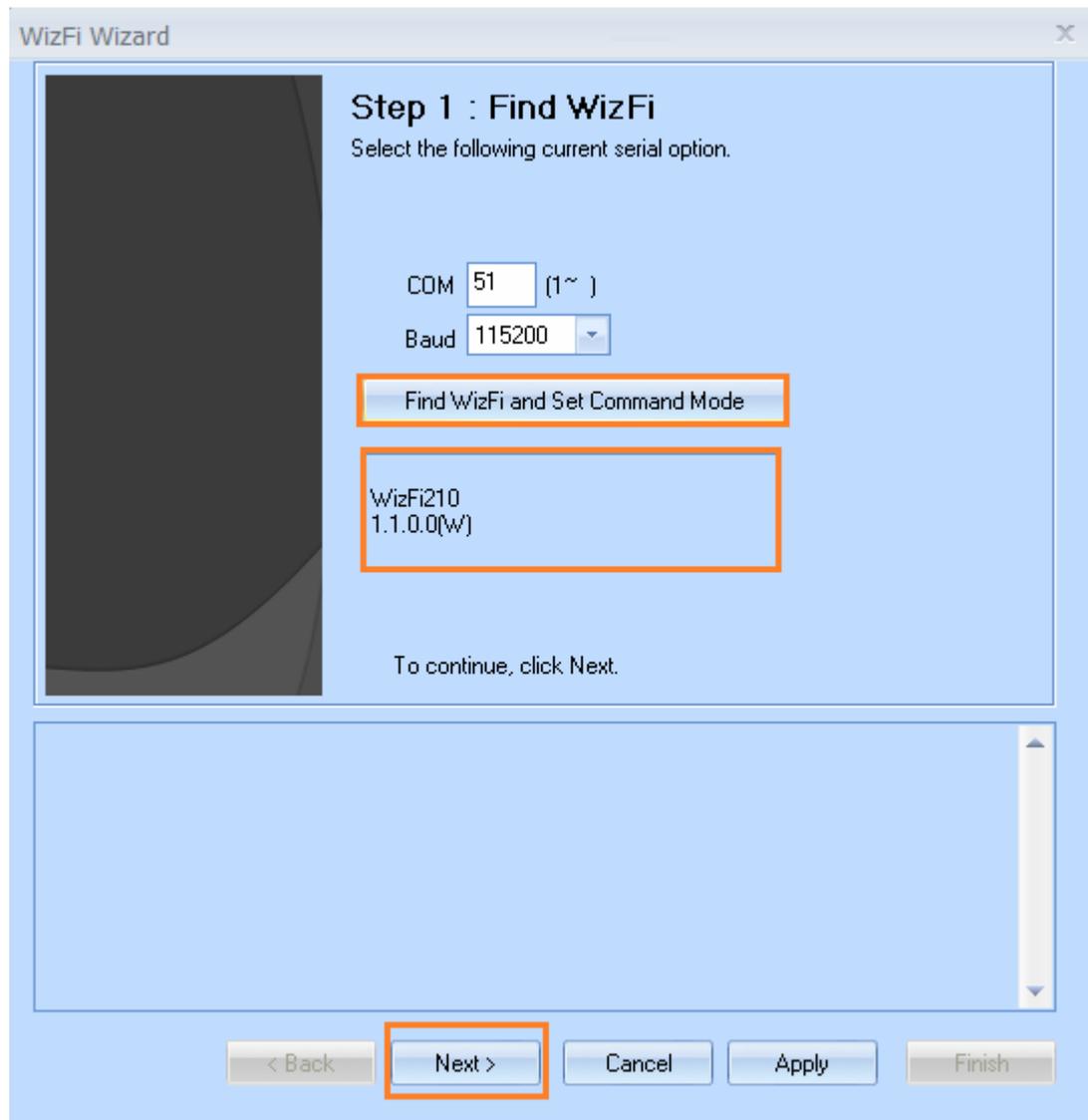


Step3:Configure the WiFi shield

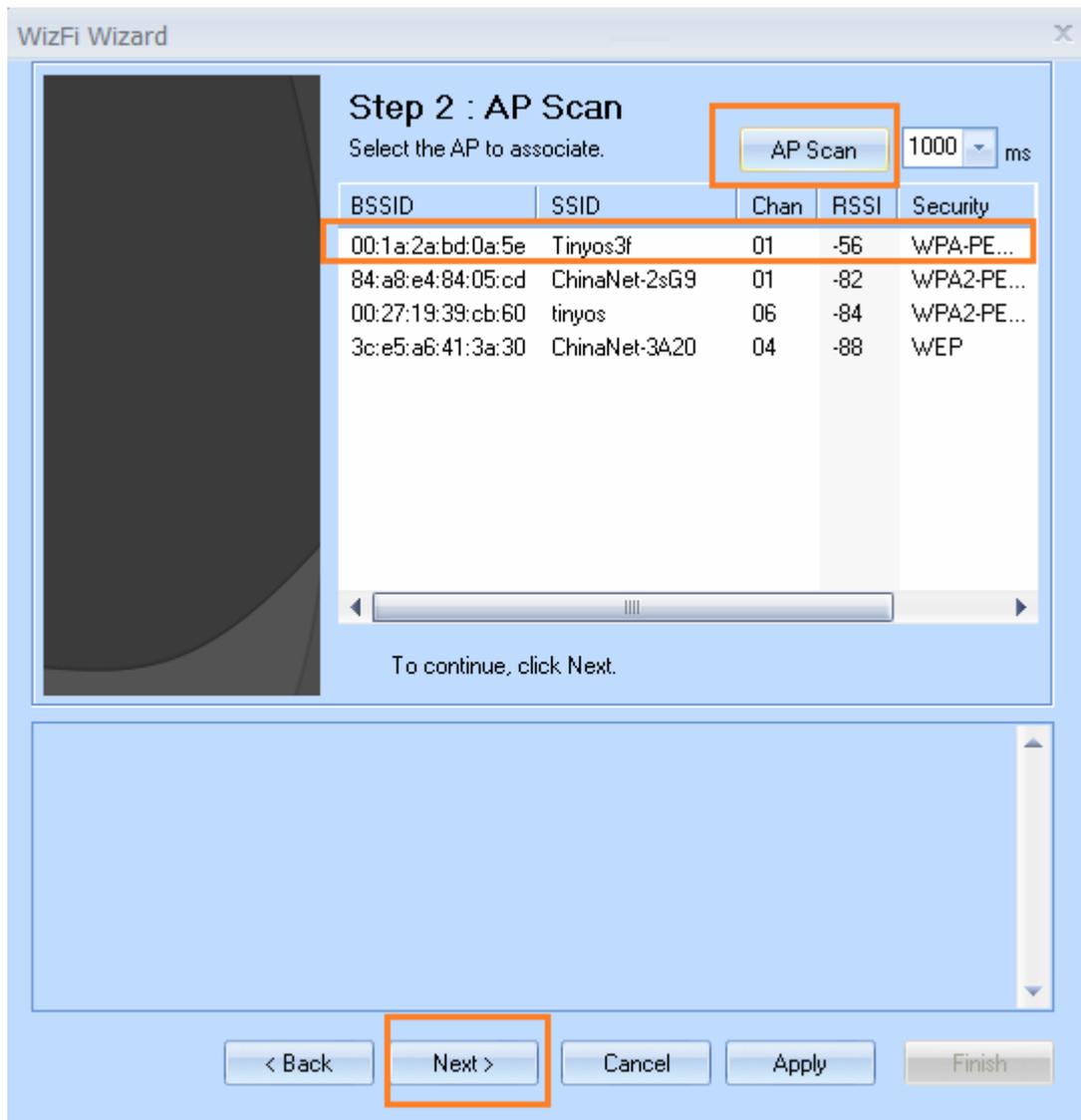
Once all the hardware settings done,let's run the software "WIZSmartScript" to set the configuration of the Wifi module. You can download the software from the Wiznet website. Run "WIZSmartScript.exe", you should get an interface that looks like this:



Input the correct serial port number and the default baud rate "115200" in the bottom left and click on "Wizard" in the middle left. Then we come into this page to start setup:



Click "Find WizFi and Set Command Mode" in the middle, and if the connection is ok, there will be the right information of the Wifi chip shown below the button. And click "Next".



For this page, we click "AP Scan" to scan the available APs around, if your wireless router works fine, it will exist in the list below. As the picture shown above, our wireless device is the first. Click to choose it and then click "Next".

Step 3 : WiFi Security
Select the following WiFi security.

WiFi General Configuration

SSID: WiFi Mode:

Authentication mode:

WEP Key1: WEP Key2:

WEP Key3: WEP Key4:

WPA Passphrase:

EAP Configuration

WiFi EAP Configuration

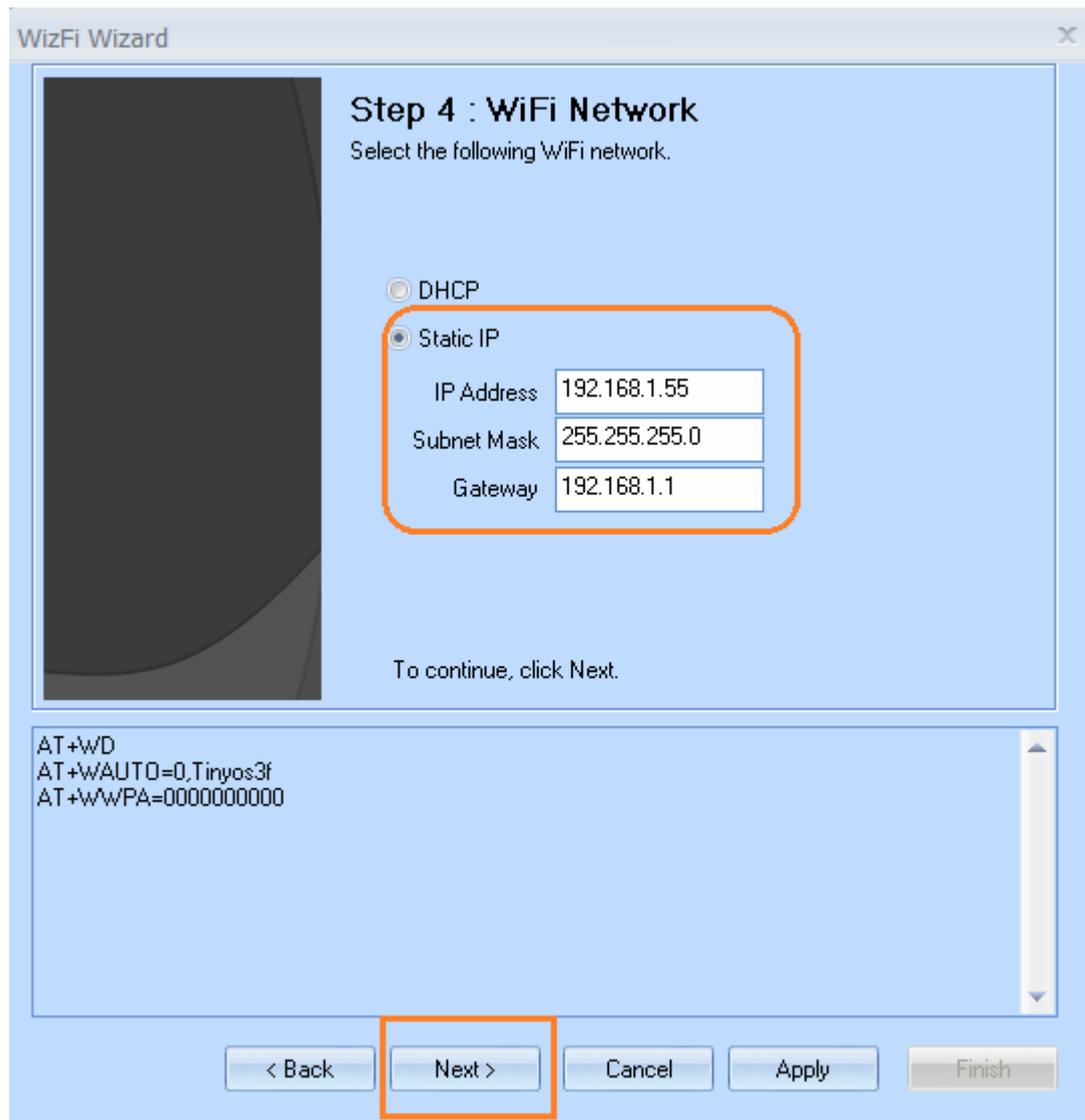
Outer: Inner:

User name: Password:

To continue, click Next.

< Back **Next >** Cancel Apply Finish

This step is for the security. The name of your wireless device will shown in the form of SSID, and choose "infrastructure" for WiFi mode. And you also need to input the password in the form called WPA Passphrase to get your wireless router access. The password we set in our router is "0000000000". Click "Next."



In this tutorial we tried the static IP connection, so we chose the static IP option and input the followings according to your router settings. Click "Next."



If you do not want to change the baud rate of the serial communication for the WiFi module, just leave it alone and click "Next".

WizFi Wizard [Close]

Step 6 : S2W Channel
Select the following Serial-to-WiFi channel.

Protocol TCP UDP
 Mode Server Client

Destination IP Port
 Local Port

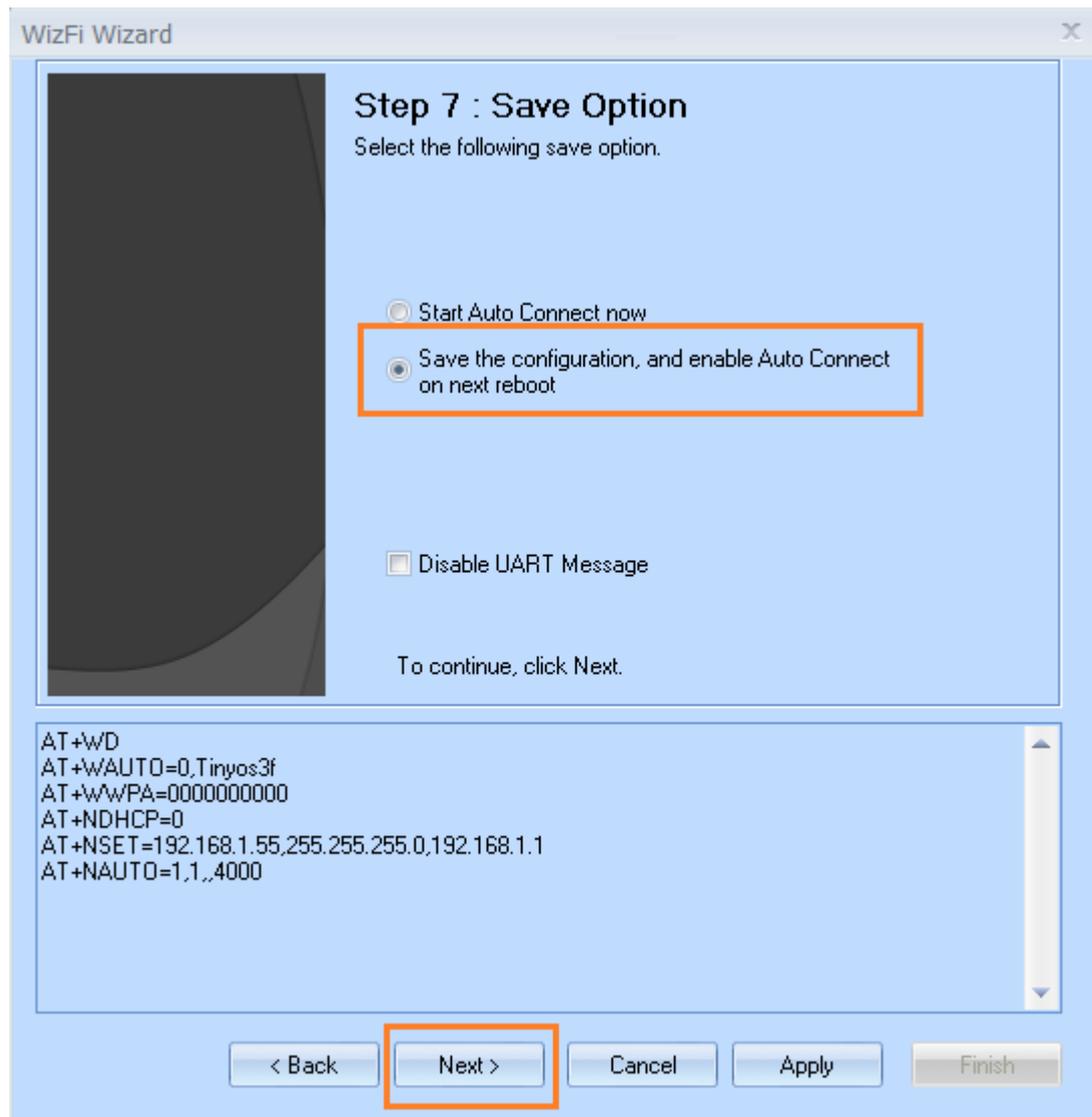
To continue, click Next.

```

AT+WD
AT+WAUTO=0,Tinyos3f
AT+w/WPA=0000000000
AT+NDHCP=0
AT+NSET=192.168.1.55,255.255.255.0,192.168.1.1
    
```

< Back **Next >** Cancel Apply Finish

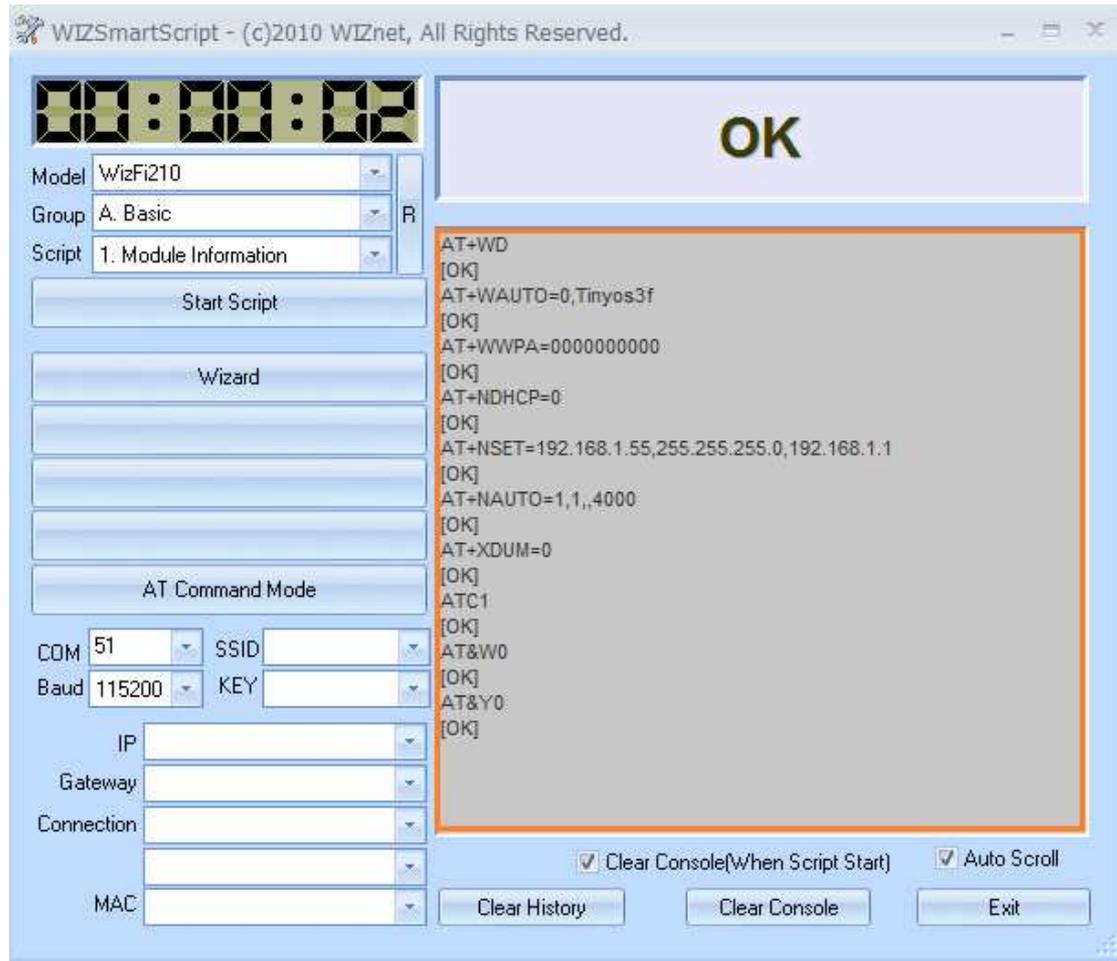
Choose TCP as the protocol and Server as the mode. And you need to input a port number like we input 4000. Click "Next."



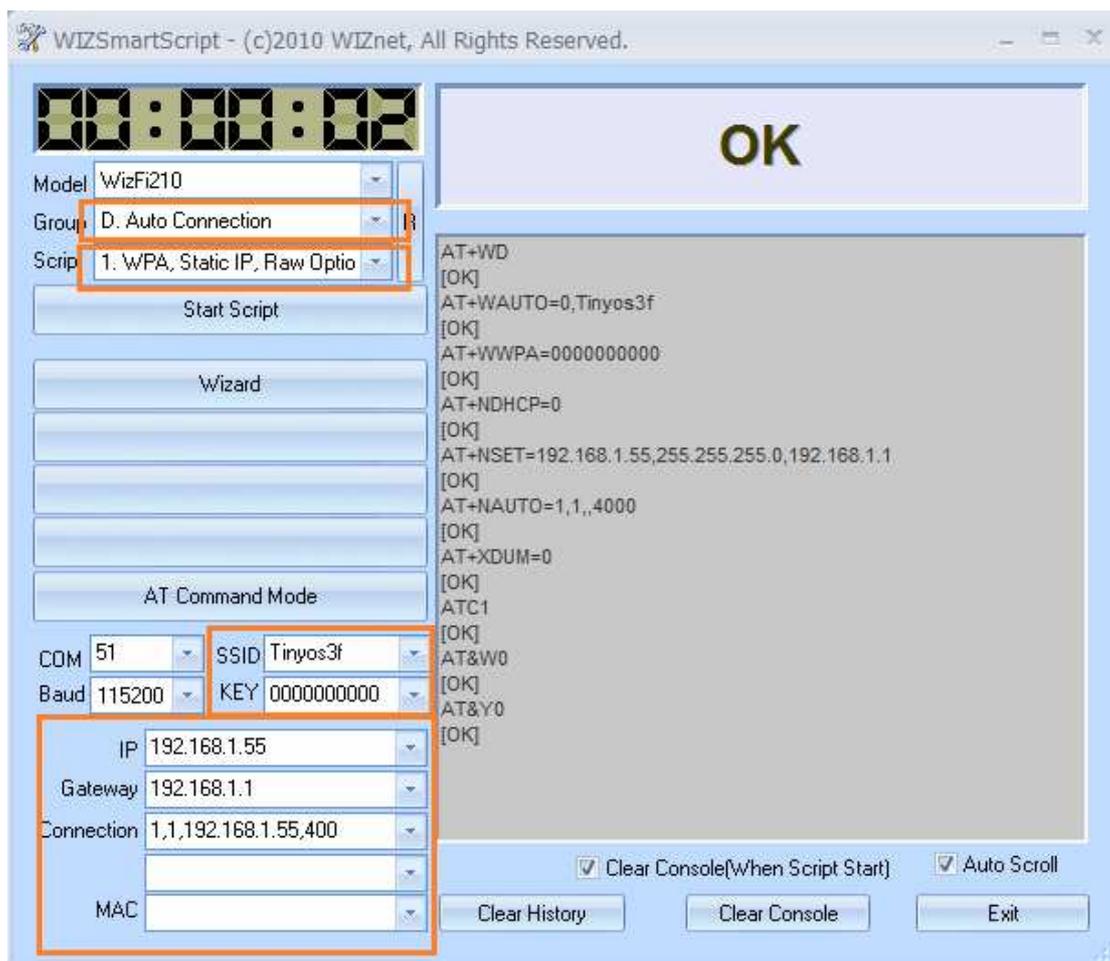
We choose the second option to save the changes in configuration, since we want to use this configuration in our following projects. Then Click "Next."



All the settings and the corresponding commands will be shown in the list and if everything is ok, click "Finish".



All the settings and the corresponding commands will be there on the right side.



It is time to connect the WiFi shield with the router. Choose "Auto Connection" in the "Group". Choose the first option for the Script.

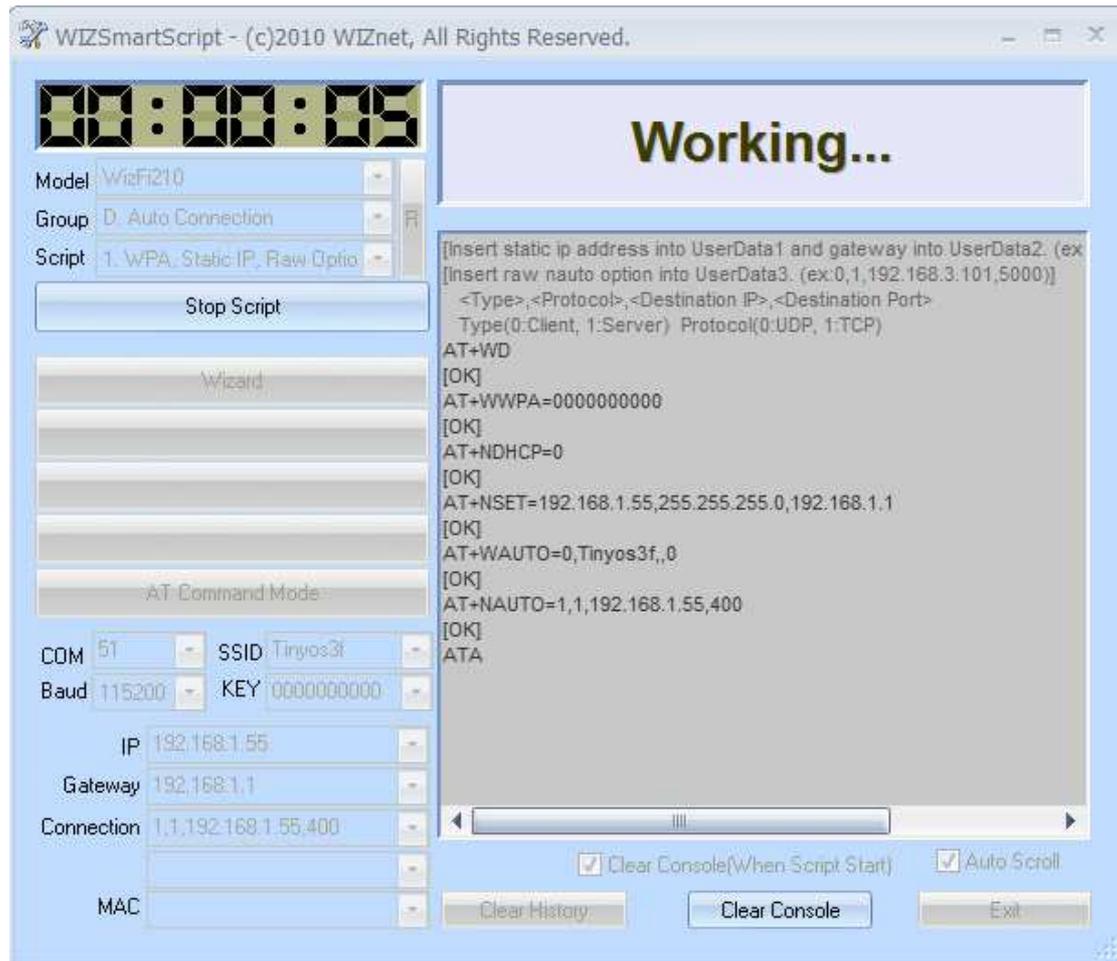
Input the router's SSID, the password, IP address, gateway and Connection information into the corresponding forms.

Note:

The format of connection information is shown like this:

<Type>,<Protocol>,<Destination IP >,< Destination Port >.

Type(0: Client, 1: Server) Protocol(0: UDP, 1: TCP)



Click "Start Script", then the connecting page will be shown. After soon, if the process succeeds, the following page will come.

WIZSmartScript - (c)2010 WIZnet, All Rights Reserved.

00:00:12

Model: WizFi210
 Group: D. Auto Connection
 Script: 1. WPA, Static IP, Raw Optio

Start Script

Wizard

AT Command Mode

COM: 51 SSID: Tinyos3f
 Baud: 115200 KEY: 0000000000
 IP: 192.168.1.55
 Gateway: 192.168.1.1
 Connection: 1,1,192.168.1.55,400
 MAC:

OK

```
[Insert static ip address into UserData1 and gateway into UserData2. (ex
[Insert raw nauto option into UserData3. (ex:0,1,192.168.3.101,5000)]
<Type>,<Protocol>,<Destination IP>,<Destination Port>
Type(0:Client, 1:Server) Protocol(0:UDP, 1:TCP)
AT+WD
[OK]
AT+WWPA=0000000000
[OK]
AT+NDHCP=0
[OK]
AT+NSET=192.168.1.55,255.255.255.0,192.168.1.1
[OK]
AT+WAUTO=0,Tinyos3f,,0
[OK]
AT+NAUTO=1,1,192.168.1.55,400
[OK]
ATA
IP      SubNet  Gateway
192.168.1.55: 255.255.255.0: 192.168.1.1
[OK]
```

Clear Console(When Script Start) Auto Scroll

Clear History Clear Console Exit

Now check the LEDs marked as "STW" and "ASSOC" on the WiFi shield, they will be on:



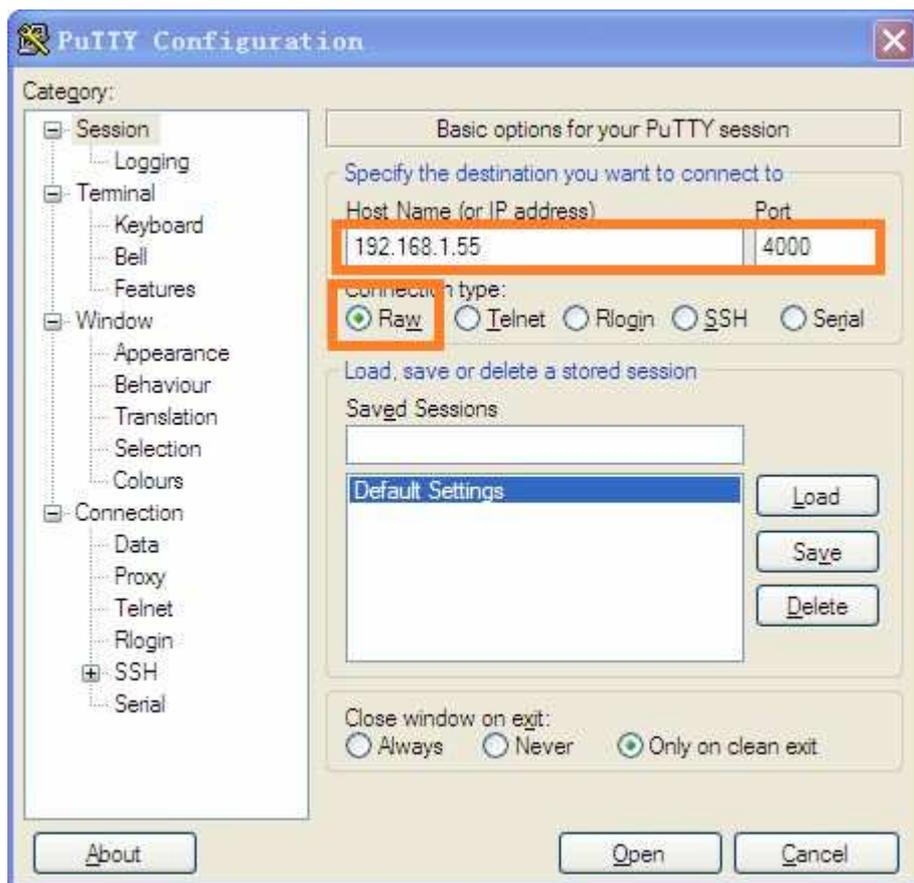
And there also will be a device connected shown on the main page of the router like this:

Wireless Statistics					
Current Connected Wireless Stations numbers: 1 <input type="button" value="Refresh"/>					
ID	MAC Address	Current Status	Received Packets	Sent Packets	
1	00-08-DC-17-A0-C1	WPA2-PSK	2	0	

Step4:Stack your WiFi shield on Arduino



Now open a terminal. You can use PuTTY, or if you have a Windows XP machine you can use the Hyperterminal included. and connect to the WiFi shield's IP address. Don't forget to indicate the server port. In our example we are using port "4000".



Settings to allow you to see what you are typing in PuTTY Once connected to the WiFi shield you should be able to send data to Arduino through WiFi. Just input data into Putty's input blank, and the serial monitor of arduino which connected with arduino will show the data arduino receives.

