



*ESP8266 WIFI Shield (Demo)*  
*For Arduino*  
User's Guide

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## Chapter1. Overview and Board Description

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### Introduction

ESP8266 WIFI Shield based on simple and well designed to compatible with Arduino UNO, Arduino Mega, Arduino Leonardo and Arduino-Compatible board to communicate with ESP-01, ESP-07 and ESP-12. It is well to create or design WIFI-related projects or a leading platform for Internet of Things (IoT). More information you can download on website [www.mlt-group.com](http://www.mlt-group.com) for the user's guide with example, firmware, software and etc.

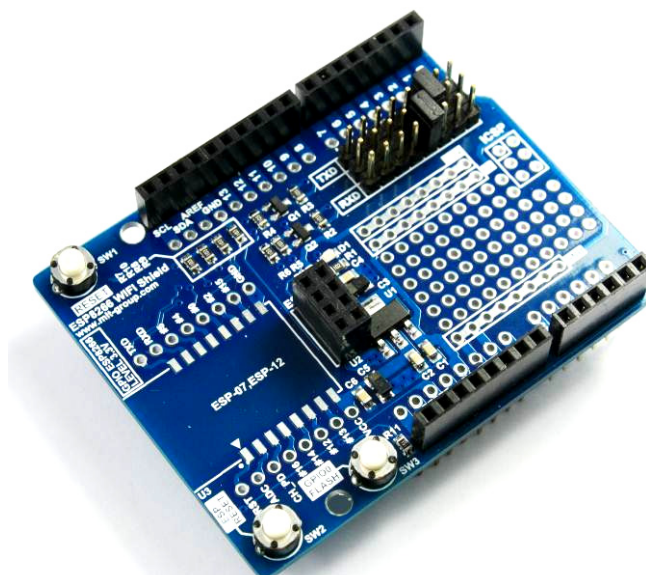


Figure 1. ESP8266 WIFI Shield not included ESP8266 module

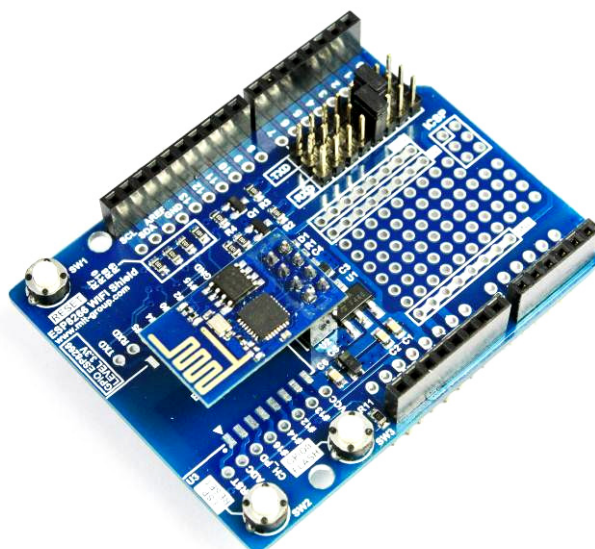


Figure 2. ESP8266 WIFI Shield included ESP-01 module

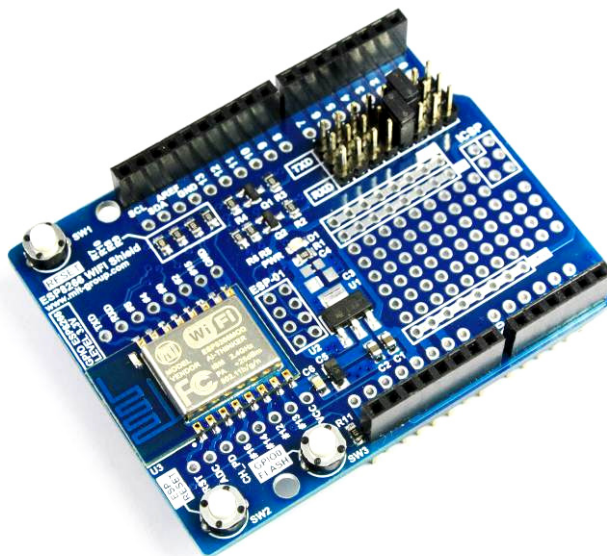


Figure 3. ESP8266 WIFI Shield included ESP-12 module



## ESP8266 WIFI Shield Feature

1. Support ESP8266 module is ESP-01, ESP-07 and ESP-12 (select one).
2. Support Arduino board is Arduino UNO, Arduino Mega, Arduino Leonardo and Arduino-Compatible board (select one) with standard pins.
3. Included standard pins interface to achieve full compatibility with Arduino UNO, Arduino Mega, Arduino Leonardo and Arduino-Compatible board.
4. Included the level shifter circuit 3.3V to prevent high voltage 5V (reference IOREF pin) from Arduino board (prevent ESP8266 module damage) while ESP8266 module connect to Arduino board.
5. Included jumpers to set the select option connect between ESP8266 module and Arduino board via the signal pins D0-D7.
6. Included the regulator circuit 3.3V, current 1A supply to ESP8266 module.
7. Included switches (ESP RESET, GPIO0 FLASH) to quickly upgrade firmware for ESP8266 module which operates with the USB to TTL cable such as FT232R.
8. Easy to use with stackable design which it can continue to accumulate above the other boards or other shields with standard pins.
9. Soldering points 86 points for experiment.
10. Board dimension is 5.33cm.(W) x 6.86cm.(L) x 1.90cm.(H).



## ESP8266 WIFI Shield Description

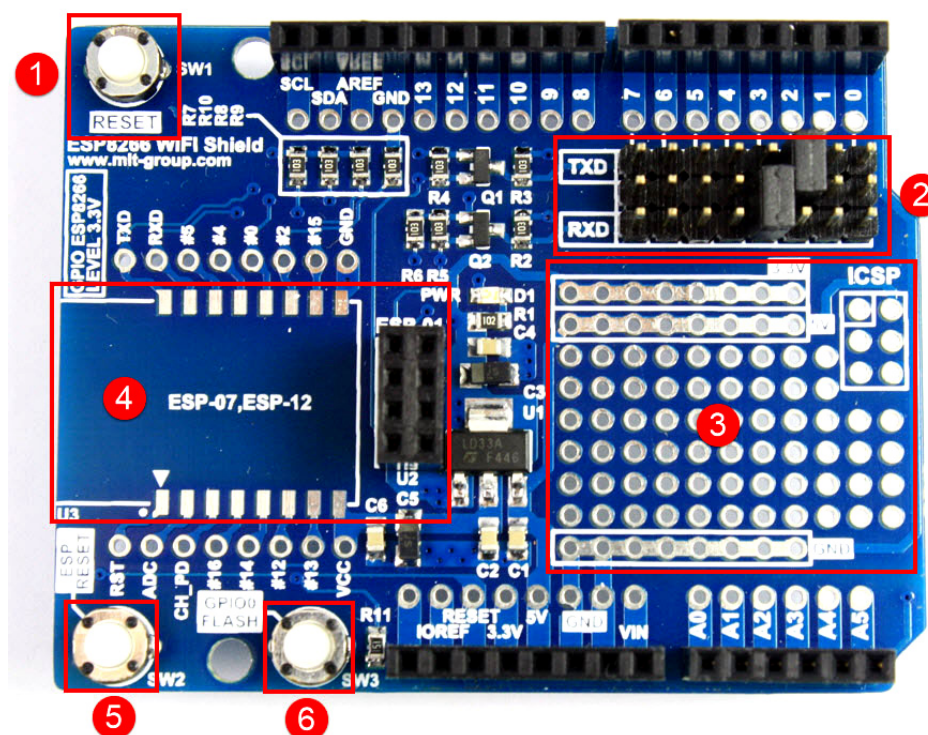


Figure 4. ESP8266 WIFI Shield description

- No1.** RESET switch to reset your Arduino board.
- No2.** Jumpers to set the select option connect between ESP8266 module and Arduino board via the signal pins D0-D7.
- No3.** Soldering points 86 points for experiment.
- No4.** Soldering points for ESP8266 module is ESP-01, ESP-07 and ESP-12 (select one).
- No5.** ESP RESET switch to reset your ESP8266 module.
- No6.** GPIO0 FLASH switch to upgrade (boot loader process) firmware of your ESP8266 module.



## Schematic

# Demo



## Chapter2. Getting Started



### Starting ESP8266 WIFI Shield to send data “hello ESP8266”

1. Connect this ESP8266 WIFI Shield to your Arduino board. For this example is Arduino UNO board then you jump (enable) D2 pin by a jumper TXD and jump (enable) D3 pin by a jumper RXD as figure 6.

Note: This example default apply “software serial” with D2 pin and D3 pin. You can apply D2-D7 pins except D0 pin and D1 pin.

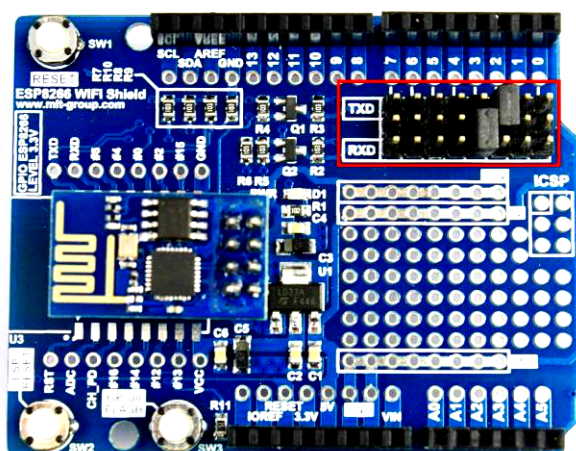


Figure 6. Jumper selection

2. Open an example program is “ESP8266\_Test” from a free CD then uploads this program. This example set “baud rate 9600bps” to connect ESP8266 module.

Note: This example default apply “software serial” with baud rate 9600bps. You can apply ESP8266’s baud rate not over 57600 bps.

```

ESP8266_Test
7  #include <SoftwareSerial.h>
8  #define DEBUG true
9
10 SoftwareSerial esp8266(2,3); // make RX Arduino line is pin 2, make TX Arduino line is pin 3.
11                               // This means that you need to connect the TX line from the esp
12                               // and the RX line from the esp to the Arduino's pin 3
13 void setup()
14 {
15   Serial.begin(9600);
16   esp8266.begin(9600); // your esp's baud not over 57600 (software serial)
17   sendData("AT+RST\r\n",2000,DEBUG); // reset module
18   sendData("AT+GMR\r\n",1000,DEBUG); // firmware version
19   sendData("AT+CWMODE=3\r\n",1000,DEBUG); // configure as AP+STA
20   sendData("AT+CIFSR\r\n",1000,DEBUG); // get ip address
21   sendData("AT+CIPMUX=1\r\n",1000,DEBUG); // configure for multiple connections
22   sendData("AT+CIPSERVER=1,80\r\n",1000,DEBUG); // turn on server on port 80
23   Serial.println("Server Ready");
24 }
  
```

Figure 7. Example program

# Demo



# Demo

# Demo

8. You write text which this example write “hello ESP8266” text then click “Send” button from Hercules program as figure 14. And then the wizard of serial monitor will appear “hello ESP8266” text as figure 15.

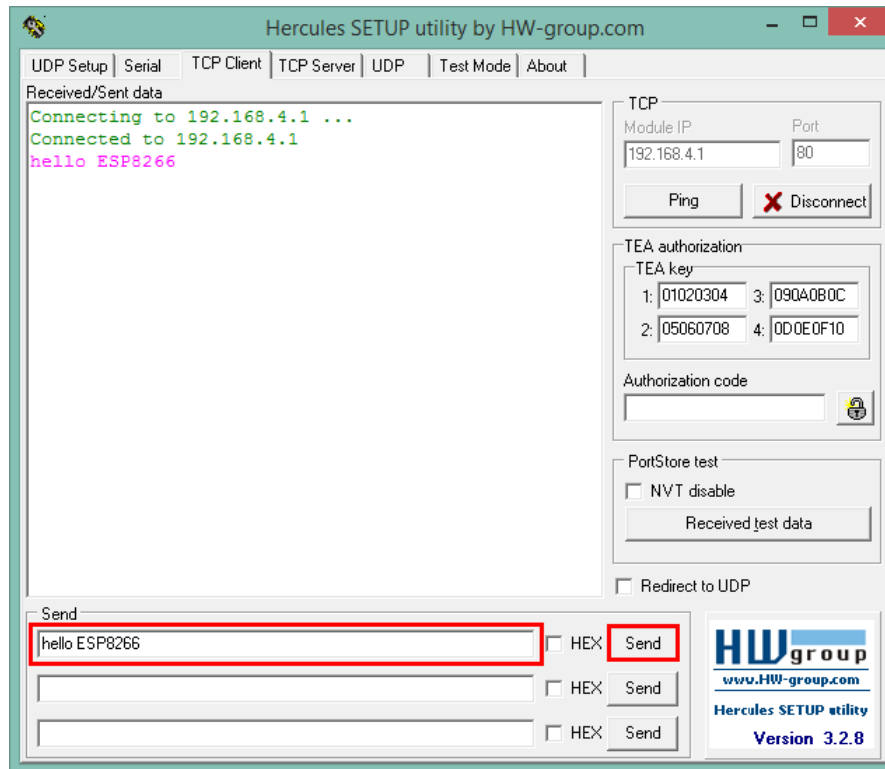


Figure 14. Sending “hello ESP8266” text

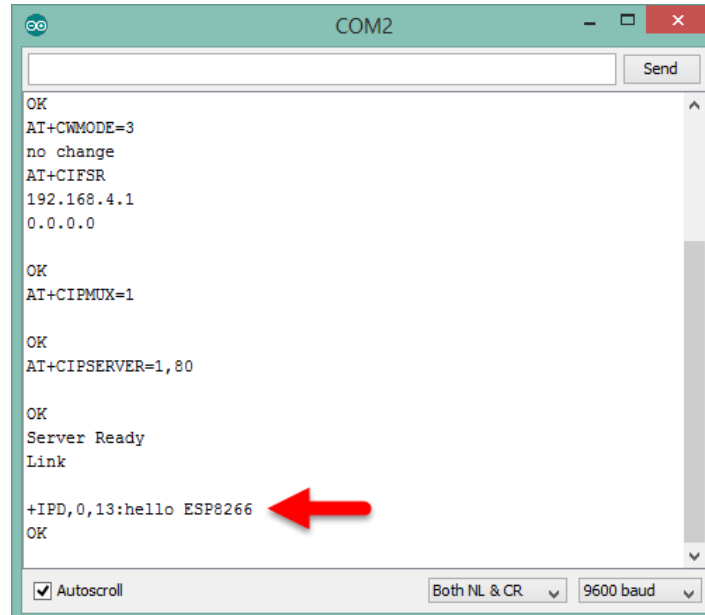


Figure 15. Appearing “hello ESP8266” text

9. You can also write “AT Command” to test ESP 8266 module. This example write “AT+GMR” command then click “Send” button as figure 16.

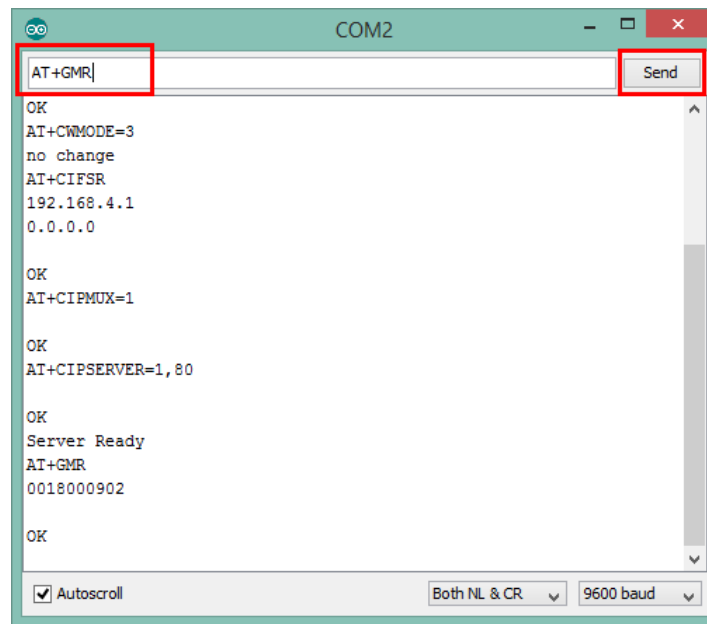


Figure 16. AT Command



## Upgrade Firmware of ESP8266 Module

1. Connect this ESP8266 WIFI Shield to your ESP8266 module and the USB to TTL cable such as FT232R as figure 17.

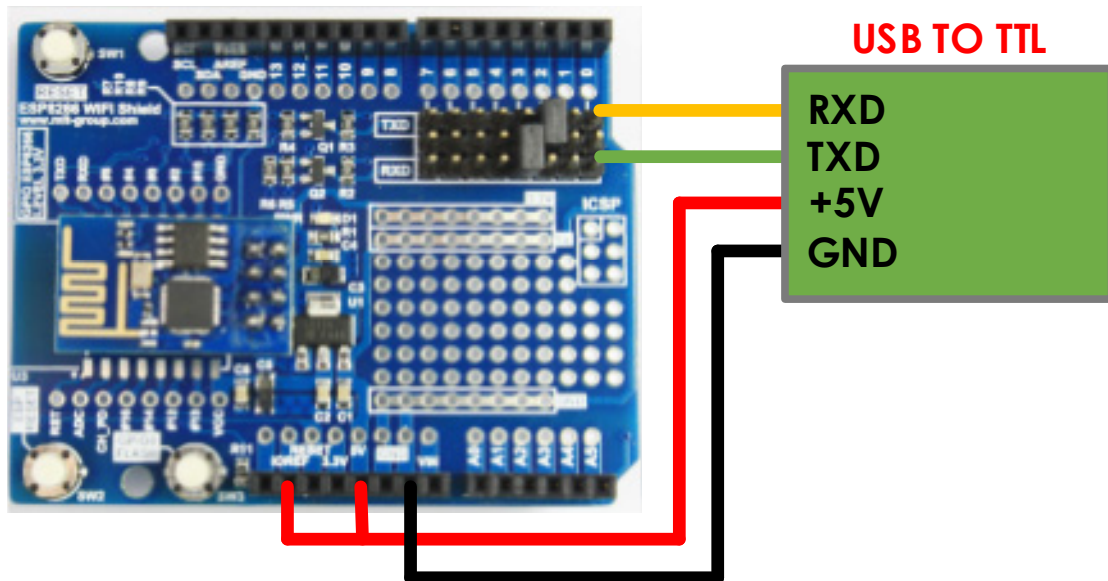


Figure 17. ESP8266 WIFI Shield wiring to upgrade firmware

# Demo

# Demo

6. If the ESP8266 module is successfully upgraded firmware. It will appear as figure 21.

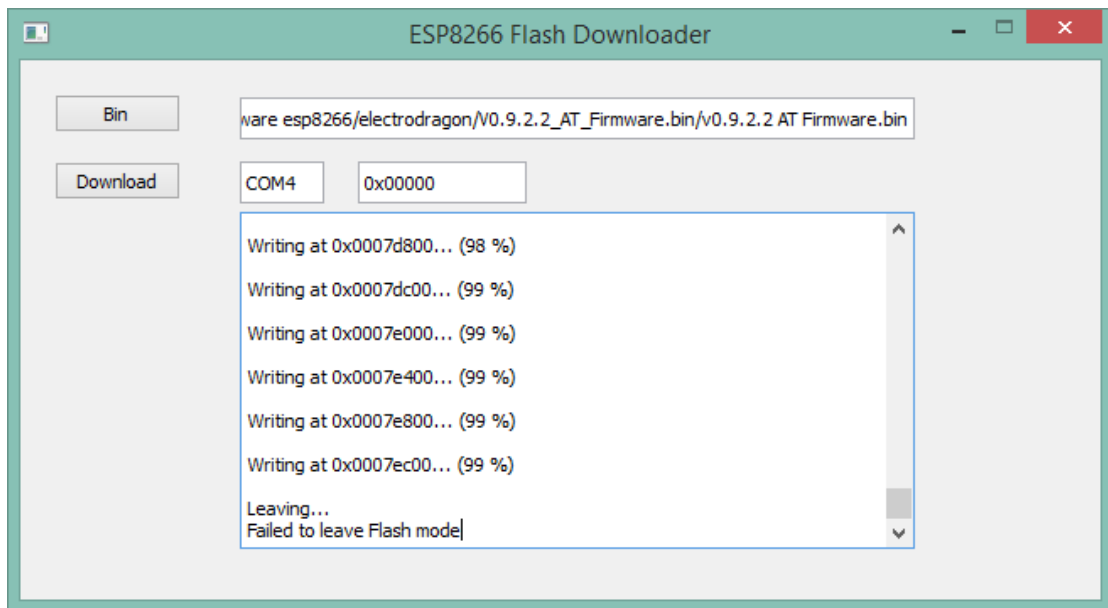


Figure 21. ESP8266 module is successfully upgraded firmware



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## Chapter3. Index

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### ESP8266 Firmware:

- **New!** ESP8266 AT Command firmware V 0.9.2.2

### Arduino Software:

- **New!** Arduino 1.6.7



### Example:

- Example of sending data “hello ESP8266”



### References:

- [www.mlt-group.com](http://www.mlt-group.com)
- [www.mltelectronic.com](http://www.mltelectronic.com)
- [www.arduino.cc](http://www.arduino.cc)
- [www.electrodragon.com](http://www.electrodragon.com)
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