

ESP8266 - Interface

Wednesday, July 5, 2023

4:00 PM

Parts You need:

PIC

[USB Serial WIFI Transceiver](#)

[ESP8266-01 Module](#)

Terminal Software (Tera Term or Termite)

SETUP YOUR TERMINAL AND CONNECT THE TRANCEIVER TO THE LAPTOP

XTERM SETTING

Tera Term: Terminal setup

Terminal size

159 X 24

☒ Term size = win size

☐ Auto window resize

New-line

Receive: CR

Transmit: CR+LF

Terminal ID: VT100

☐ Local echo

Answerback:

☐ Auto switch [VT<->TEK]

Coding (receive)

UTF-8

Coding (transmit)

UTF-8

locale: american

OK

Cancel

Help

Tera Term: Serial port setup and connection

Port: COM5

Speed: 115200

Data: 8 bit

Parity: none

Stop bits: 1 bit

Flow control: none

New setting

Cancel

Help

Transmit delay

0 msec/char 0 msec/line

Device Friendly Name: Silicon Labs CP210x USB to UART Bridge
 Device Instance ID: USB\VID_10C4&PID_EA60\0001
 Device Manufacturer: Silicon Labs
 Provider Name: Silicon Laboratories Inc.
 Driver Date: 9-19-2016
 Driver Version: 6.7.4.261

For Termite:

Use Termite

Setup--> Terminal --> Change the setting to:

New Line

Receive: CR

Transmit: CR+LF

Serial port settings

Port configuration

Transmitted text

Options

SETUP YOUR THINGSPEAK

1. Go to Login page and create a new account: <https://thingspeak.com/login?skipSSOCheck=true> -
2. You can use my account:
faridfarahmand@gmail.com
Escience1
3. Click on NEW Channel - Select a Name (myChannel), and then save. That is all you need at this point.

4. Note that you get a Channel ID. Remember that!
5. Then click on API KEY - pay attention to API REQUEST Examples.

6. On Your mac or PC type : `curl https://api.thingspeak.com/update?api_key=D58????` / note that 58?? Is your API_KEY to WRITE.
7. Go back to PRIVATE VIEW and note that the data has been plotted

8. NOW.... let's do this with the 8266 chip!

START USING AT COMMANDS

Most of these commands come from here: :

At Command reference: https://github.com/espressif/ESP8266_AT/wiki/at_example_0020000903

```
AT+CIFSR // query
```

```
AT+CWMODE=3
```

```
AT+CIPMUX=0
```

```
AT+CIPMODE=0
```

```
AT+CWJAP="Wifissid","lvpas"
```

```
// note that once the above is done it will be saved in the CHIP
```

```
AT+CIPSTART="TCP","api.thingspeak.com",80 //protocol, server IP & port
```

```
AT+CIPSEND=37 // bytes to send
```

```
>GET /channels/2209815/feeds/last.txt
```

For the TCP SEND method use below AT command

```
AT+CIPSTART="TCP","api.thingspeak.com",80
```

```
AT+CIPSEND=47
```

```
>GET /update?api_key=D58XUFPCYRDFS12W&field1=5
```

```
AT+CIPSEND=48
```

```
>GET /update?api_key=D58XUFPCYRDFS12W&field1=51
```

```
AT+CIPSEND=49
```

```
>GET /update?api_key=D58XUFPCYRDFS12W&field1=515
```

Go to thingspeak.com

https://thingspeak.com/channels/2209815/private_show

```
curl --data "api_key=D58XUFPCYRDFS12W&field1=10"
```

<https://api.thingspeak.com/update.json>

You can also try it from your browser to write new data:

https://api.thingspeak.com/update?api_key=D58XUFPCYRDFS12W&field1=800

You can share your plot with others:

<https://thingspeak.com/channels/2209815/charts/1?bgcolor=%23ffffff&color=%23000000>

[23d62020&dynamic=true&results=60&type=line&update=15](#)

You can also embed the plot in your own web page.

You can also send an email

<https://orionelectronicblog.wordpress.com/2016/03/24/send-email-with-esp8266-by-at-command/>

REFERENCES TO PRACTICE AT COMMANDS USING USB WiFi TRANCEIVER

Summary of AT commands for 8266

<https://www.electronicshub.org/esp8266-at-commands/>

Complete AT commands for 8266

https://github.com/espressif/ESP8266_AT/wiki/CIPSTART

Send email using AT commands

<https://orionelectronicblog.wordpress.com/2016/03/24/send-email-with-esp8266-by-at-command/>

You can also use 8266 with a FT232 to practice with AT Commands - here is a good tutorial:

<https://electronics-fun.com/esp8266-at-commands/>

LET'S CONNECT PIC TO 8266-01

Before you do this tutorial, you must make sure your RX/TX UART operates properly.

Follow this tutorial:

PIC and 8266

<https://circuitdigest.com/microcontroller-projects/interfacing-pic-microcontroller-with-esp8266>

