ESP8266 - Interface

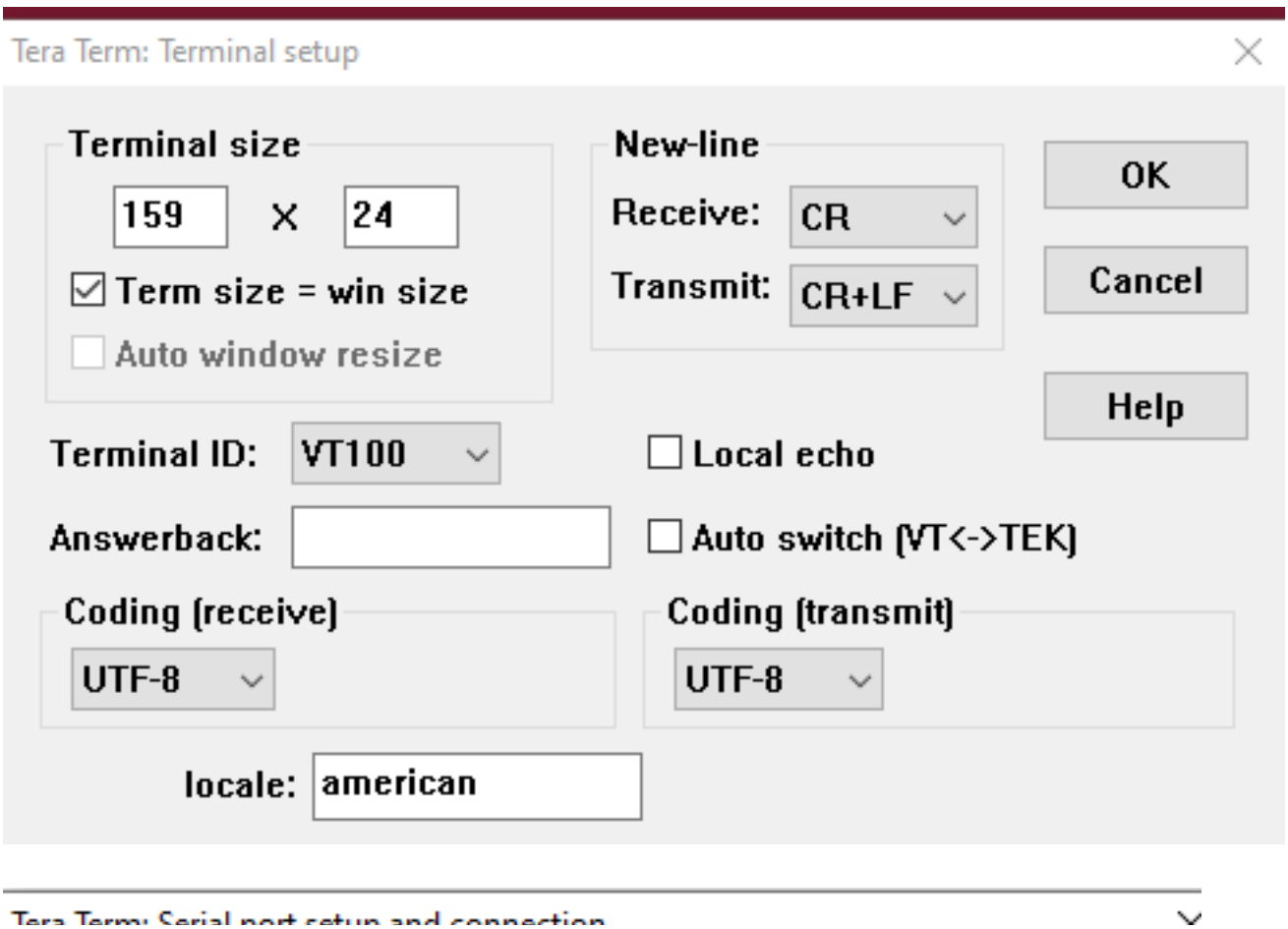
Wednesday, July 5, 2023 4:00 PM

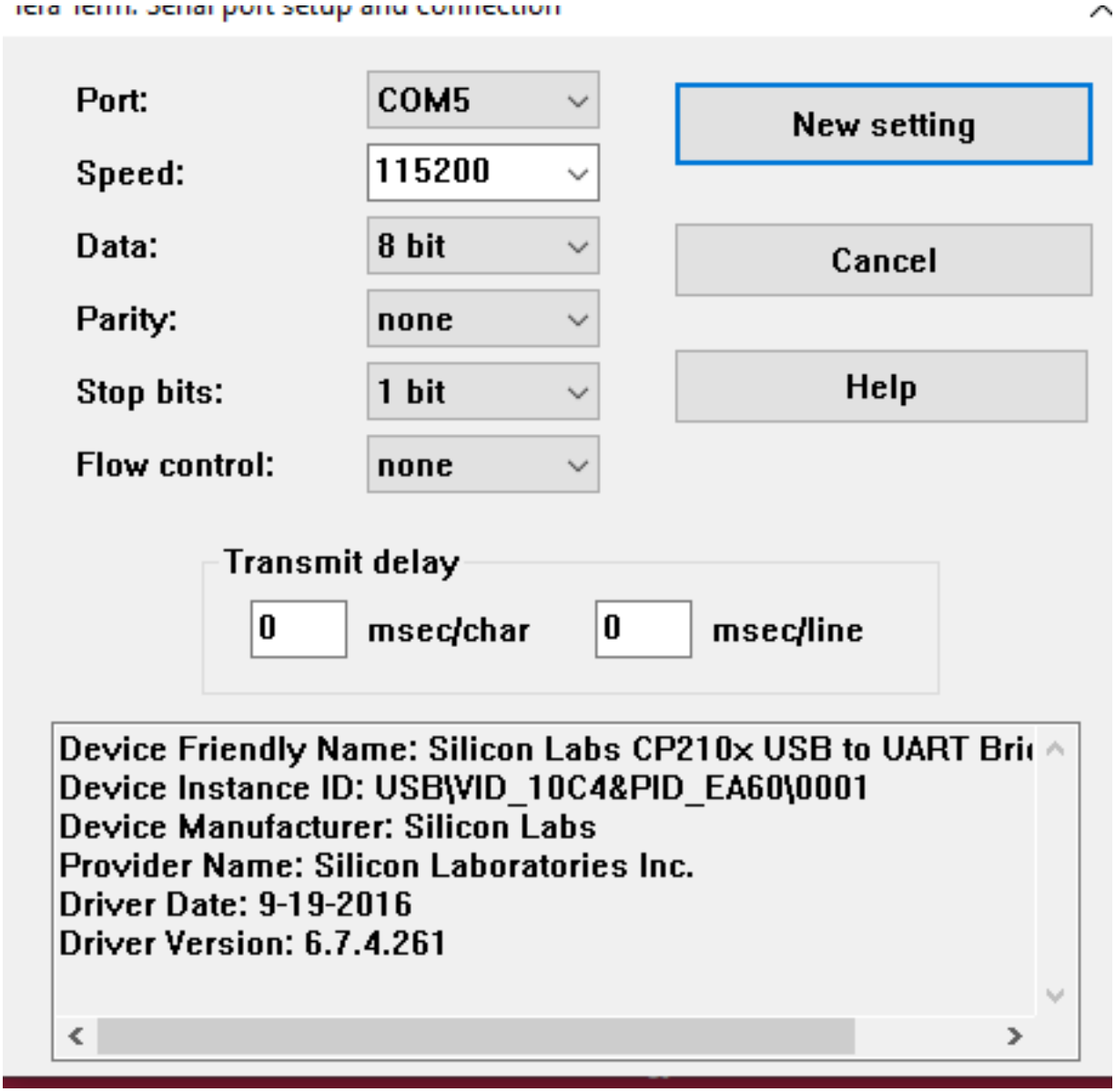
Parts You need:

PIC
USB Serial WIFI Transceiver
ESP8266-01 Module
Terminal Software (Tera Term or Termite)

SETUP YOUR TERMINAL AND CONNECT THE TRANCEIVER TO THE LAPTOP

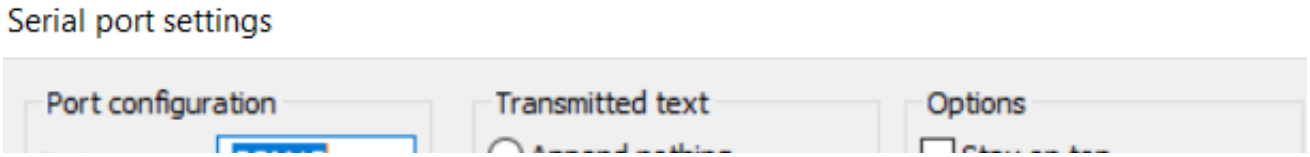
XTERM SETTING

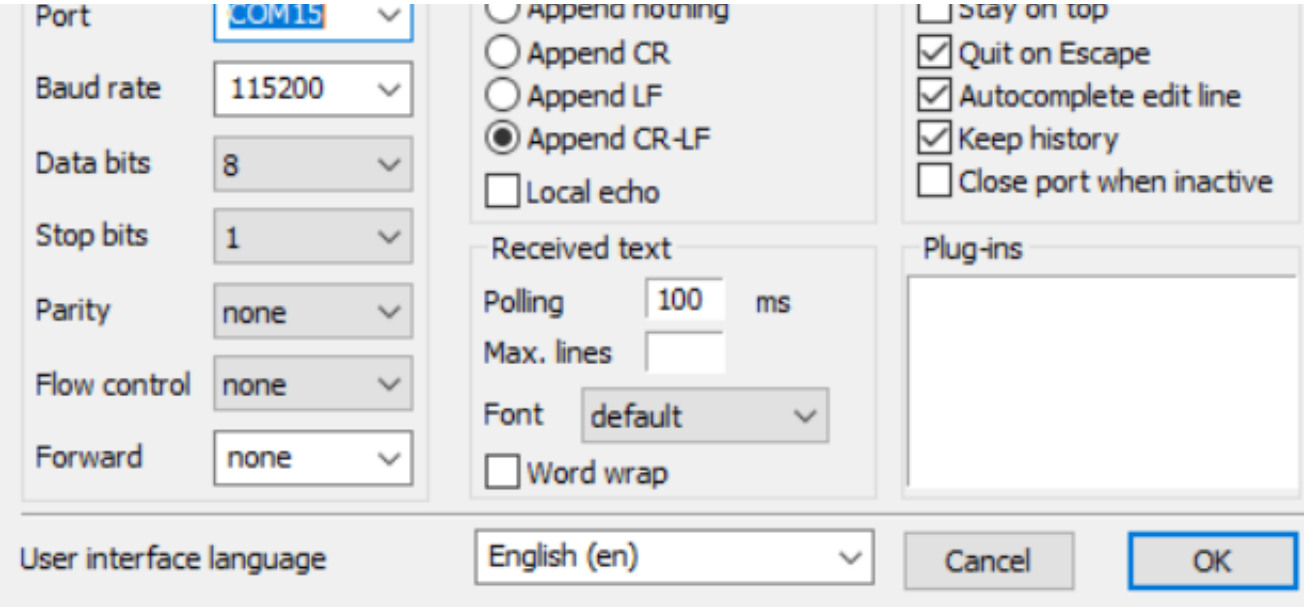




For Termite:

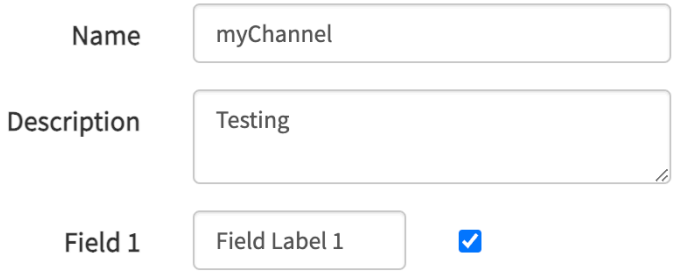
Use Termite
Setup--> Terminal --> Change the setting to:
New Line
Receive: CR
Transmit: CR+LF



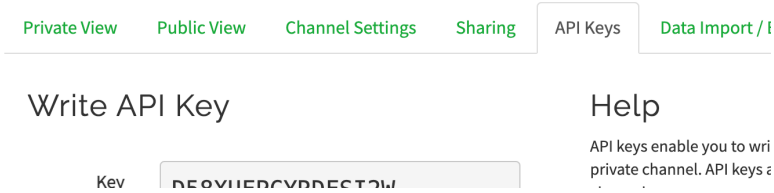


SETUP YOUR THINGSPEAK

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 PROVATE VIEW and not 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","Ivpass"
// 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=D58XUFPCYRDFSI2W&field1=5
AT+CIPSEND=48
>GET /update?api_key=D58XUFPCYRDFSI2W&field1=51
AT+CIPSEND=49
>GET /update?api_key=D58XUFPCYRDFSI2W&field1=515

Go to thingspeak.com

https://thingspeak.com/channels/2209815/private_show
curl --data "api_key=D58XUFPCYRDFSI2W&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=D58XUFPCYRDFSI2W&field1=800

You can share your plot with others:
https://thingspeak.com/channels/2209815/charts/1?bgcolor=%23ffffff&color=%

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://orionelectronicsblog.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://orionelectronicsblog.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