**Bruce Hall Morse Tutor with Updated VE3OOI Firmware**

Written by: Dave Rajnauth (VE3OOI) Aug 2022

This documents the configuration of the W8BH morse code tutor running on an ESP32 microcontroller that supports WiFi. This is NOT applicable to the STM32 version.

1. Load the new firmware onto the ESP32. If you have not done this before, you are in for a ride. If you have not loaded firmware to the ESP32 then I strongly recommend that you get someone that has done it to do it for you.
   * I prefer to use PlatformIO and my github page has the files for PlatformIO. You need to import the project. See “Morse Tutor Arduino.docx” file for guidance
2. Once the device boot up properly and the paddle or key is working. See Bruce Halls website for information on how to use the morse tutor. His instructions for 2 ways communication is similar to this new code except this is done across the internet
   * For details on how the new firmware works see <https://youtu.be/wOhMsPQrY3k> (Update to W8BH Morse Tutor Firmware)
3. You will need to ensure your Morse Tutor is connect to your PC’s USB and you can open a TTY session. Arduino calls this “Serial Monitor”. The port must be set to 115200 bps.
4. Navigate, using the rotatory encoded to the “Config” option and then select “CLI” to enable CLI commands to be entered using the TTY interface. The following should appear on the console:

CLI v0.1 (c)VE3OOI

:>

1. Here is a list of the commands available:
   * C - enter callsign
   * D - dump eeprom
   * E - erase eeprom (DANGERIOUS)
   * I - init eeprom with defaults
   * L - load eeprom & run
   * M - enter server name
   * P - print running config
   * P E - print eeprom config
   * R - enter room name
   * S - save running config to eeprom
   * U U - enter MQTT username
   * U P - enter MQTT password
   * W S - enter Wi-Fi SSID
   * W P - enter Wi-Fi password
2. You will need to enter your callsign, server name, room name, username, password and of course WIFI SSID and password.
3. To enter your call sign simply enter C and press return. Then enter your callsign at the prompt. Here is an example:

:> C

Current: W8BH

Call Sign: VE3OOI

Changing: W8BH to: VE3OOI

1. To define the server’s hostname, enter M and press return. Enter ‘mqtt.ve3ooi.ca’as the server’s name. Note the video refers to is moving to ‘ve3ooi.ddns.net’ which is obsolete. Its was changed in Aug 2022 and the ve3ooi.ddns.net name may no longer work.

:> M

Current: \*\*\*\*

Server DNS Name: mqtt.ve3ooi.ca

Changing: \*\*\*\* to: mqtt.ve3ooi.ca

1. The room name (MQTT Topic) is the group name that can communicate together. All tutors that use this name will receive and send morse to each other. You can use any name you want. However, all tutors you want to communicate with must also use this name. To enter the room name, enter R and press return. Enter morsetutor (the default).

:> R

Current: \*\*\*\*

Room Name: morsetutor

Changing: \*\*\*\* to: morsetutor

1. Next enter the MQTT username and password. Currently there are two usernames and passwords. Either one can be used. Contact me for this information ([drajnauth@rogers.com](mailto:drajnauth@rogers.com)).

Here is an example. PLEASE DO NOT USE THIS. It will not work!

:> U U

Current: \*\*\*\*

Enter username: dummy

Changing: \*\*\*\* to: dummy

:> U P

Current: \*\*\*\*

Enter password: hey here is my password

Changing: \*\*\*\* to: hey here is my password

1. Repeat similar for WiFi SSID and password. Enter information associated with your local WiFi

Here is an example. PLEASE DO NOT USE THIS. It will not work!

:> W S

Current: \*\*\*\*

Enter SSID: MYWIFI

Changing: \*\*\*\* to: MYWIFI

:> W P

Current: \*\*\*\*

Enter password: MYPASSWORD

Changing: \*\*\*\* to: MYPASSWORD

1. Before saving the configuration, you should test it with the “T” command. A sample output is enclosed below. If you see the “SUCESS!!! Don't forget to save config” message displayed, then the configuration is working. If you get a “FAILURE!!!” message, then check and reenter your configuration. Use the “P” command to view the configuration.

:> T

Testing WiFi and MQTT Connection

MQTT Sensor v0.1 Initialization

Connecting to IKILLU\_SLOW....

WiFi connected

IP address: 192.168.1.72

DNS IP address: 149.112.121.20

Gateway IP address: 192.168.1.1

Resolving MQTT hostname...

MQTT host address resolved:132.145.106.38

Attempting MQTT connection...

Sending MQTT message: KMV:

Sending MQTT message: KMV:c

Sending MQTT message: KMV:q

Sending MQTT message: KMV:

MQTT Connected

SUCESS!!! Don't forget to save config

Closing WiFi...

Disconnected from MQTT

Wireless now closed

1. Finally, enter the “S” command to save the information to the EEPROM. You can print out the information with the “P” command or the “P E” command. The “P” command shows what configuration that the tutor is currently running, and the P E command show what is stored in EEPROM. The configuration stored in EEPROM is loaded every time the tutor is restarted.
2. Once the tutor is configured you can navigate to the Send menu and then select “Two-Way” to enable communication with anyone else that is using the room you defined.