CHANGING THE MODES OF MOD-WIFI-ESP8266-DEV

REFERENCE

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Designed by OLIMEX Ltd, 2014

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ESP8266 has three modes of operation: FLASH mode (default), UART mode, and SDIO mode. By default the board is configured for FLASH mode operation. FLASH mode means that the board would execute code stored in the flash memory.

If you wish to change the code that would get executed in FLASH mode you would often need to set the board to boot in UART mode. This requires setting GPIO0 low during power-up.

The easiest way to enter UART mode requires you to disconnect the power supply from the board and then press and hold the button, apply the power supply (3.3V), release the button. On next power up, do not use the button and the board would boot in FLASH mode.

The button is available in MOD-WIFI-ESP8266-DEV boards since hardware revision B.

You can manipulate the position of the on-board SMT jumpers in order to access each of the three modes. The jumpers are called called **GPIO0**, **GPIO2** and **MTDO**. They are located at the top of the board below the UEXT pads. Each of the jumpers can be set to either position 0 or position 1 (via cutting the connection between the pads of the original position and soldering together the pads of the desired position). The jumpers are highlighted on the picture below:
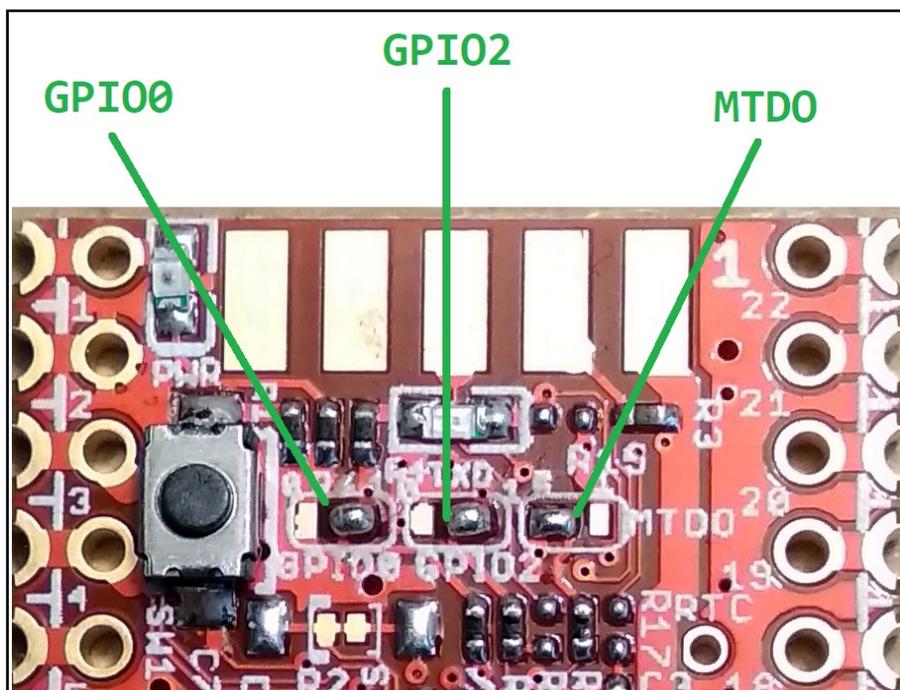
The jumpers for the default FLASH mode were set during production as follows: GPIO0 is set to position 1; GPIO2 is set to position 1; MTD0 is set to position 0.

The positions for the all the modes are printed on the board itself. The table looks like this:

MODE / JUMPER	MTDO	GPIO0	GPIO2
SDIO	1	x	x
UART	0	0	1
FLASH (DEFAULT)	0	1	1

For example:

Initially, you can't update the firmware of MOD-WIFI-ESP8266-DEV since by the board starts in the default FLASH mode. In order to update the firmware of the board you would need to change the starting mode to UART. This is done by:

(1) Using the button: press the button before applying power, then apply power, then release the button

Or

(2) Changing the position of the jumpers: change the position of jumper named GPIO0 to 0. After the update is done – change the position of GPIO0 back to 1 again.

In order to change the position of an SMT jumper like that you would need basic soldering skills. There are two things that you would need to do:

1. Remove the original connection between the pads. If it was made using soldering – unsolder it and remove the soldering residue. If it was a hardware PCB connection – make sure to cut between the pads with a sharp tool (like a sharp cutter).

2. Connect the pads of the desired position – solder together the two pads. Do not use a large amount of soldering residue. Do not keep the soldering iron pressed to the board longer than 10 seconds. Make sure that there is no left-over soldering residue which might lead to accidental short-circuits.

If you want, you can add wires and a PTH jumper or a slide switch to the pads of the jumpers. This would allow easier change of the jumpers in future. There is no need to add button to GPIO0 since such was added in hardware revision B of the board.

More details about the three different modes might be found in the
ESP8266EX datasheet.

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