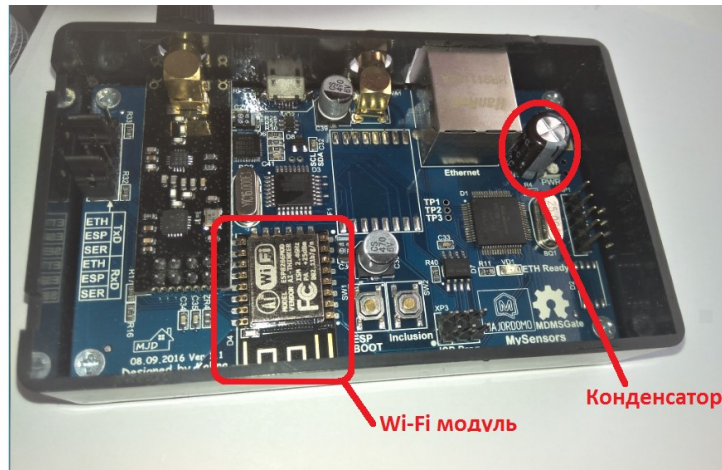# How to start Wi-Fi in MDMSGate.
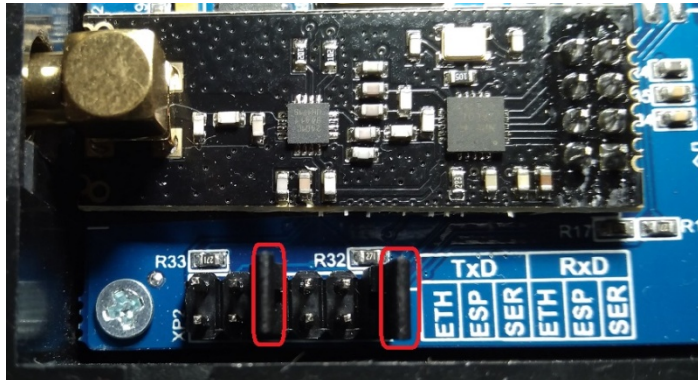## (in case when ESP-12 module wasn't soldered by factory).

1. Solder your own Wi-Fi module ESP-12 into the gateway. When soldering, be careful - a electrolytic capacitor is installed next to it.

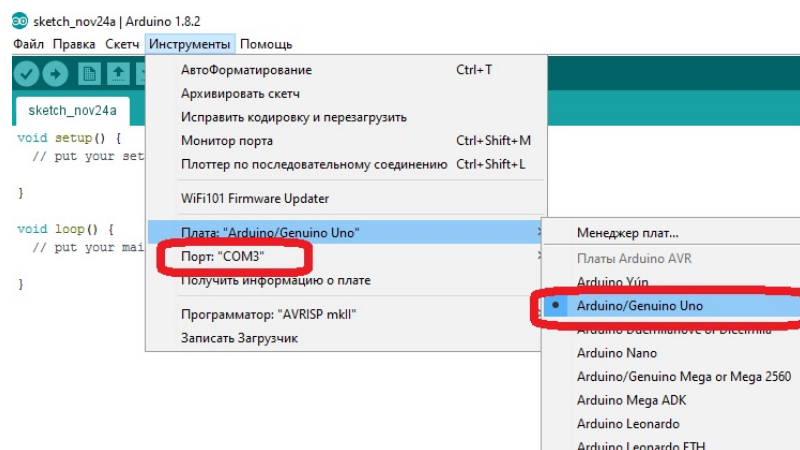**In no case don't touch capacitor by soldering iron!**

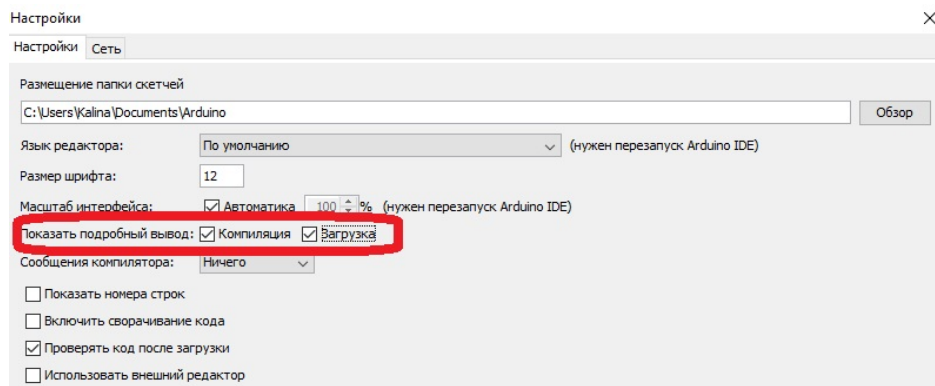2. Solder the electrolytic capacitor (220μF 16V).

3. Set jumpers to "SER" position for the TxD and RxD lines, connect gateway to the computer using a microUSB cable..

4. Launch Arduino IDE, select the "Arduino / Genuino UNO" board and the corresponding port (in my case it's COM3).

5. In Arduino IDE - go to the "Settings" menu and set the "Compilation" and "Download" checkboxes. If necessary, install the MySensors library.
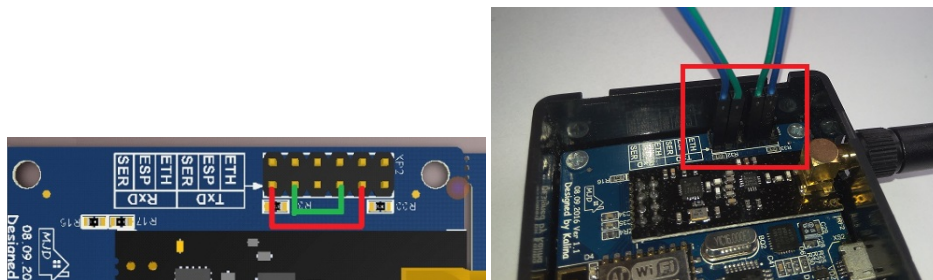

6. Open and load the sketch, the successful loading of which will display the corresponding message. The sketch can be downloaded here. https://github.com/DmytroKalinkin/MDMS/blob/master/Gateway_2.4GHz_Wi_Fi_mode/MDMSGate.ino.
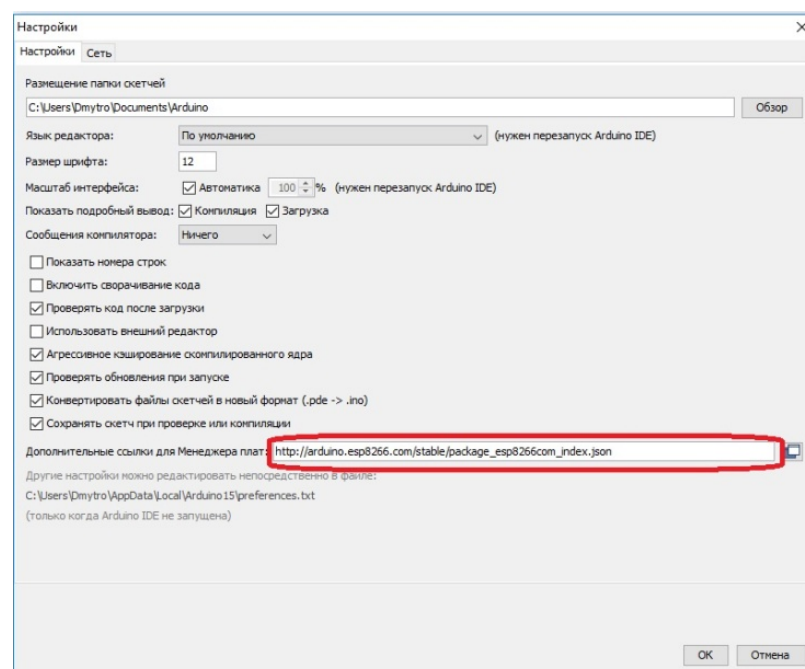
7. Disconnect gateway from the computer's USB port.
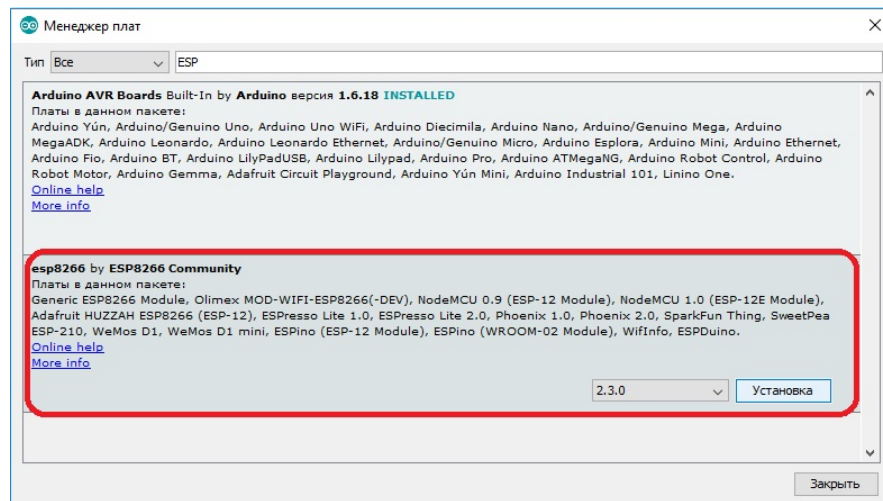
8. Set jumpers, according to the figures below.

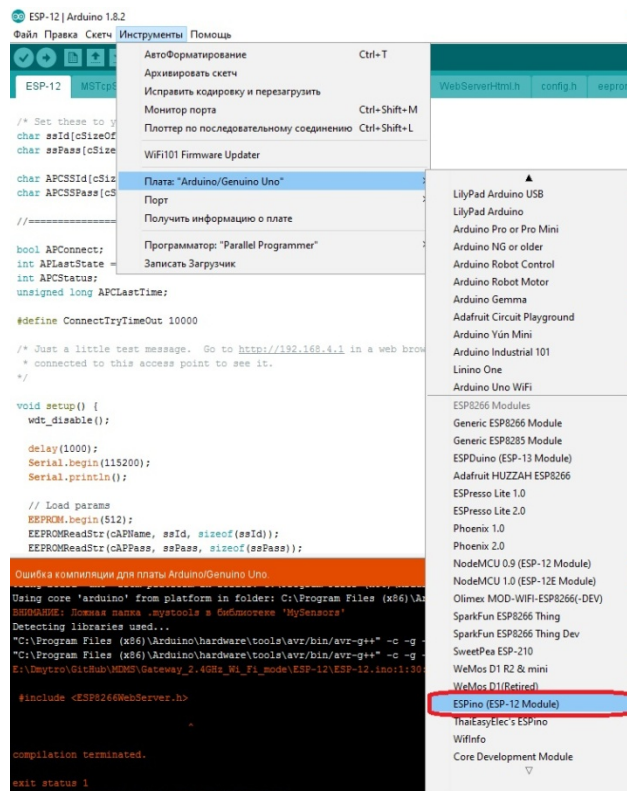9. Install the "**ESPino board (ESP-12 Module)**" support. For this you have to do:
   9.1 Open the "Settings" menu and enter the below line in the "Additional Boards Manager URLs": «**http://arduino.esp8266.com/stable/package_esp8266com_index.json**»

9.2 Go to "Boards Manager" and install the **"ESPino board (ESP-12 Module)"**

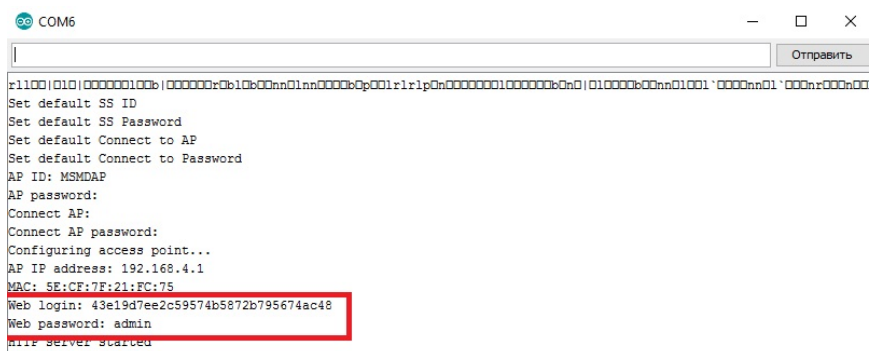10. Choose the **ESPino (ESP-12 Module)** in "Boards Manager".

11. Download and open the project for ESP-12 using the link below :
https://github.com/DmytroKalinkin/MDMS/tree/master/Gateway_2.4GHz_Wi_Fi_mode/ESP-12

12. Press and hold "ESP BOOT" key in the gateway, connect gateway to the computer via microUSB cable, install the corresponding COM port and click "Load sketch" . After a successful loadind, you should see a next message:
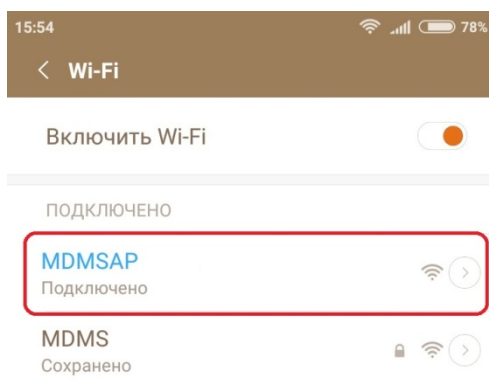
```
Uploading 262480 bytes from C:\Arduino-Output/ESP-12.ino.bin to flash at 0x00000000
        erasing flash
        size: 040150 address: 000000
        first_sector_index: 0
        total_sector_count: 65
        head_sector_count: 16
        adjusted_sector_count: 49
        erase_size: 031000
        espcomm_send_command: sending command header
        espcomm_send_command: sending command payload
        setting serial port timeouts to 15000 ms
        setting serial port timeouts to 1000 ms
        espcomm_send_command: receiving 2 bytes of data
        writing flash
................................................................ [ 31% ]
................................................................ [ 62% ]
................................................................ [ 93% ]
..................                                              [ 100% ]
starting app without reboot
        espcomm_send_command: sending command header
        espcomm_send_command: sending command payload
        espcomm_send_command: receiving 2 bytes of data
closing bootloader
        flush start
        setting serial port timeouts to 1 ms
        setting serial port timeouts to 1000 ms
        flush complete
```

13. Launch the "Serial Monitor" and look at the username and password settings for accessing to ESP-12 via the web interface.
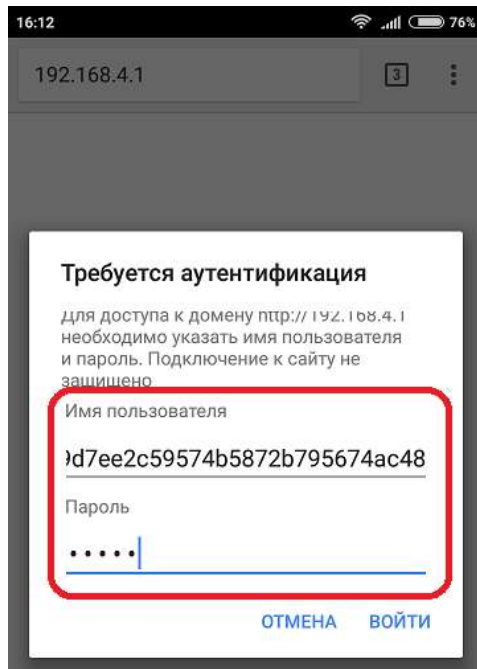
```
COM6                                                        —   □   ×
|                                                    Отправить
r11□□|□1□|□□□□□□1□□b|□□□□□□r□b1□b□□nn□1nn□□□□b□p□□1r1r1p□n□□□□□□1□□□□□□b□n□|□1□□□□b□□nn□1□□1`□□□□nn□1`□□□nr□□□n□□
Set default SS ID
Set default SS Password
Set default Connect to AP
Set default Connect to Password
AP ID: MSMDAP
AP password:
Connect AP:
Connect AP password:
Configuring access point...
AP IP address: 192.168.4.1
MAC: 5E:CF:7F:21:FC:75
Web login: 43e19d7ee2c59574b5872b795674ac48
Web password: admin
HTTP server started
```
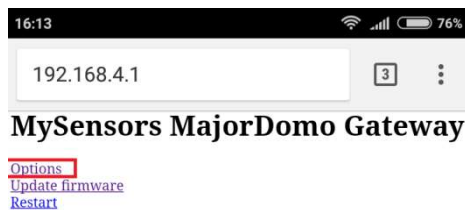
14. Connect to a new Wi-Fi AP "MDMSAP" via computer or mobile phone (as in my case).
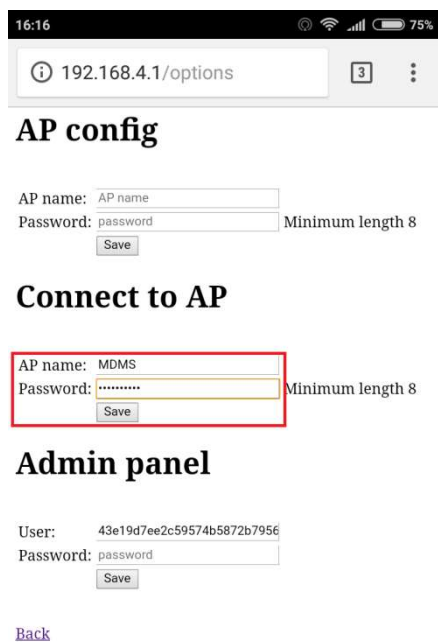
15. Enter the next address "192.168.4.1" and fill "username" and "password" fields with values that you have received.
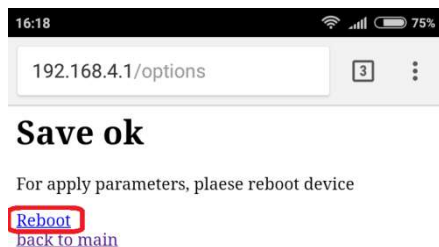

16. Select "Options" in the main menu.

17. Fill the name and password of your Wi-Fi router network (in the submenu "Connect to AP"), to which you want to connect. Click the save button.
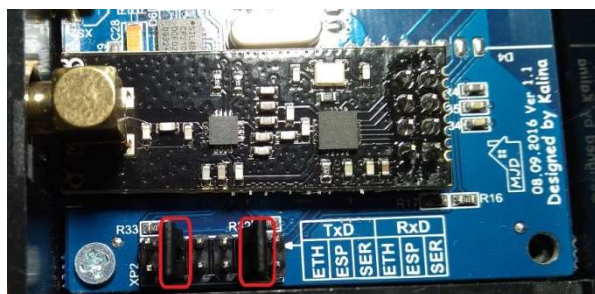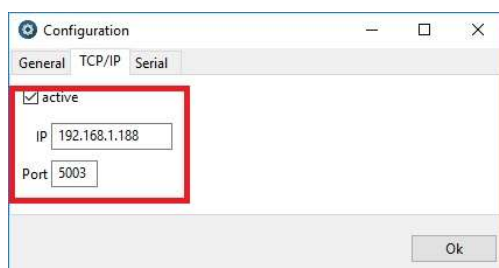
18. Reboot the ESP-12 now .

19. Find the IP address of the ESP-12 in web interface of your Wi-Fi router.

20. Set the jumpers to the "ESP" position for the RxD and TxD lines in the gateway as show below .

21. Launch the "MYSController" program and enter received IP address (and port 5003).

22. Press the "Connect" button and enjoy the work!