SILICA STM WiFi

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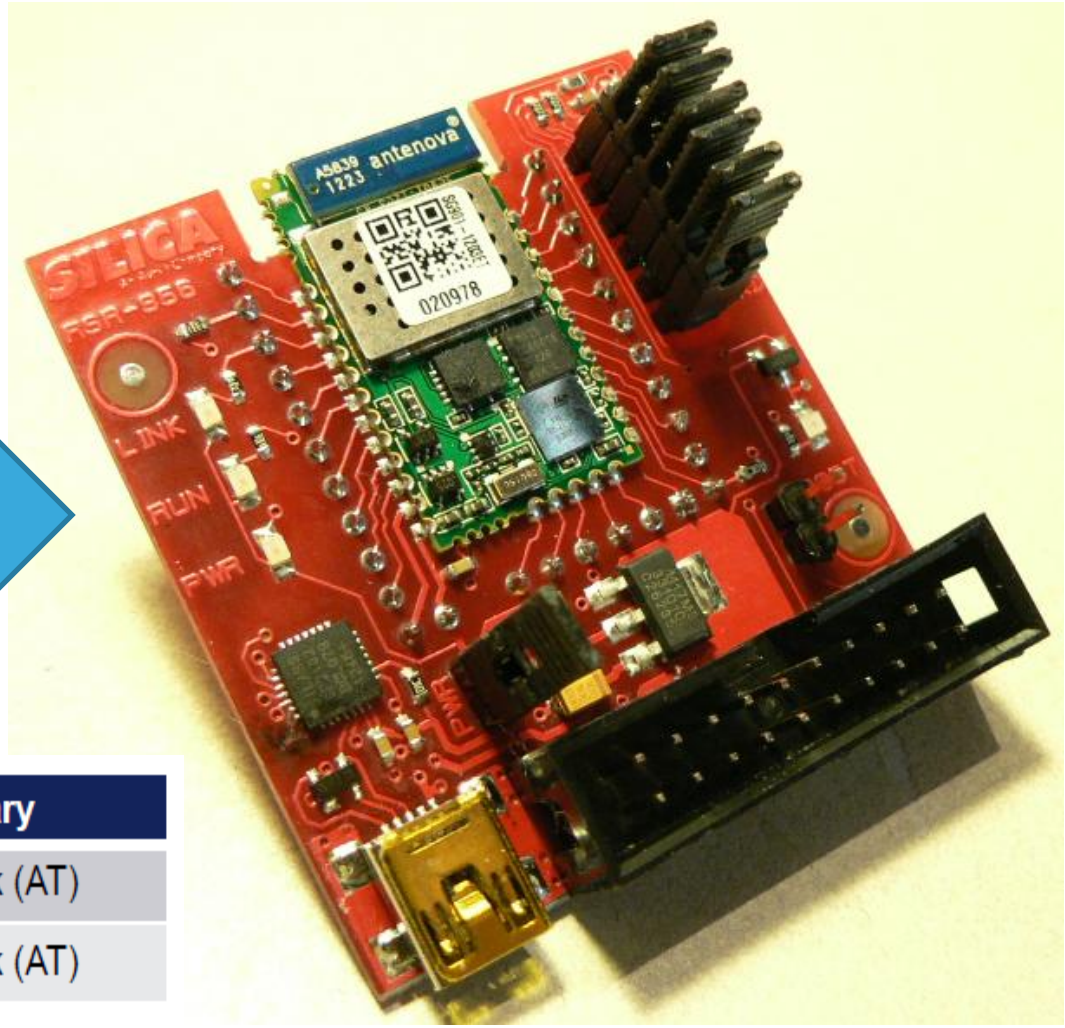
SILICA STM WiFi EvaBoard

STM WiFi

Part Number	Antenna Options	SW Library
SPWF01SA.11	Chip Antenna	Full Stack (AT)
SPWF01SC.11	U.FL	Full Stack (AT)



SILICA - STM WiFi EvaBoard

Full doc will be available here:

www.emcu.it/wifi

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STM32F0 + STM_WiFi = Web Server

All customers who want to perform practical tests on the Web Server, must install on their PC:

- **KEIL C Compiler** (MDK-ARM 32K free), get it here: http://www.keil.com/download/product/

- For those who have **Windows7** we suggest to install **Tera Term** (http://en.wikipedia.org/wiki/Tera_Term) download it from this link: http://ttssh2.sourceforge.jp/index.html.en

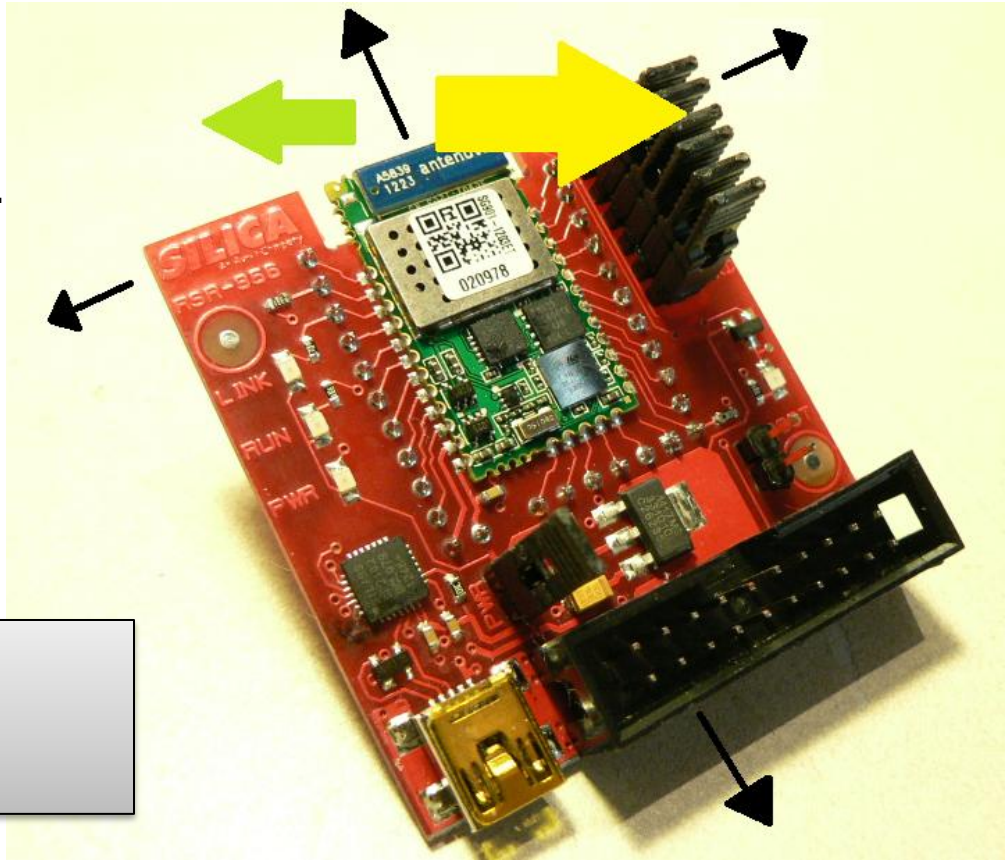
- Install the driver for: **SILICON LABS CP2102** - VCP Driver Kit, download it from this link: http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx

- **Angry IP Scanner** is here: http://sourceforge.net/projects/ipscan/?source=dlp

Remind that

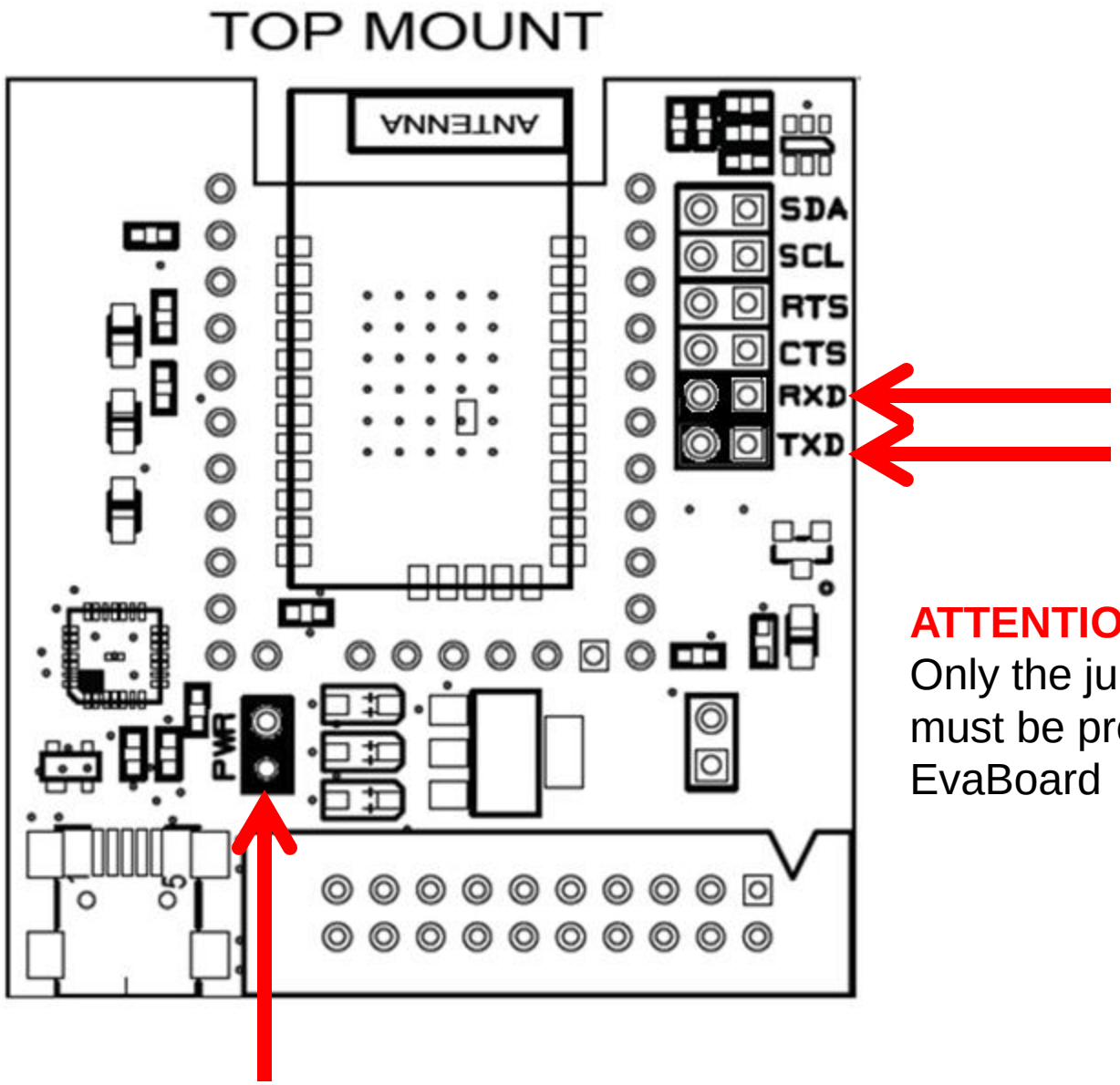
Keep in mind the directionality of the antenna mounted on the WiFi module.

The arrows (see drawing) indicate the direction where the antenna is more sensitive.



Yellow arrow == Maximum sensitivity
Green arrow == Medium sensitivity
Black arrows == Low sensitivity

Connect to the PC the SILICA WiFi EvaBoard



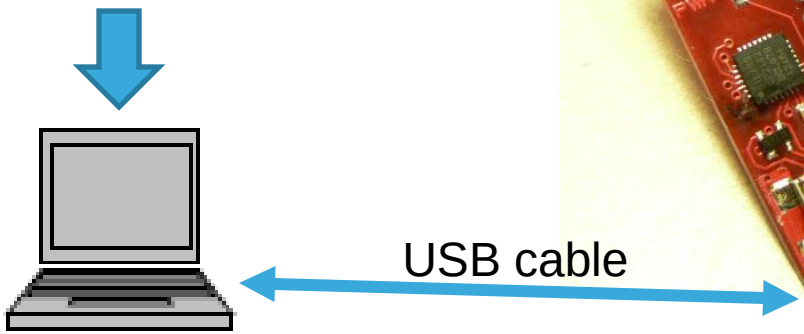
ATTENTION:

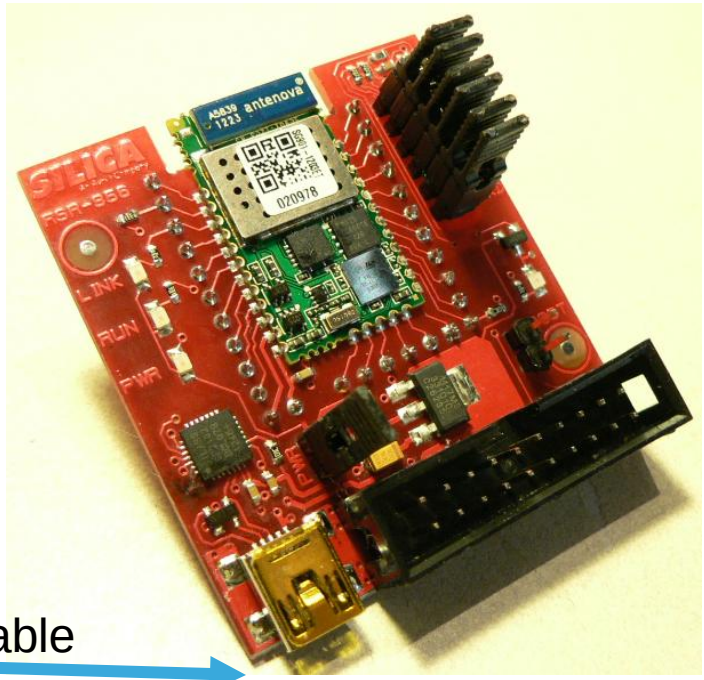
Only the jumpers: **PWR** , **TXD**, **RXD** must be present on SILICA STM WiFi EvaBoard

Connect to the PC the SILICA WiFi EvaBoard

For Windows7 we suggest to use: Tera Term

For Windows XP we suggest to use: Hyper Terminal





The first time you connect the SILICA STM WiFi EvaBoard to PC probably it requests the driver (**SILICON LABS CP2102** - VCP Driver Kit) that you get here.
http://www.silabs.com/products/mcu/Pages/USBtoUARTBridgeVCPDrivers.aspx
The USB/RS232 driver is available for:

- Windows XP/Server 2003/Vista/7
- WinCE
- Macintosh OSX
- Linux

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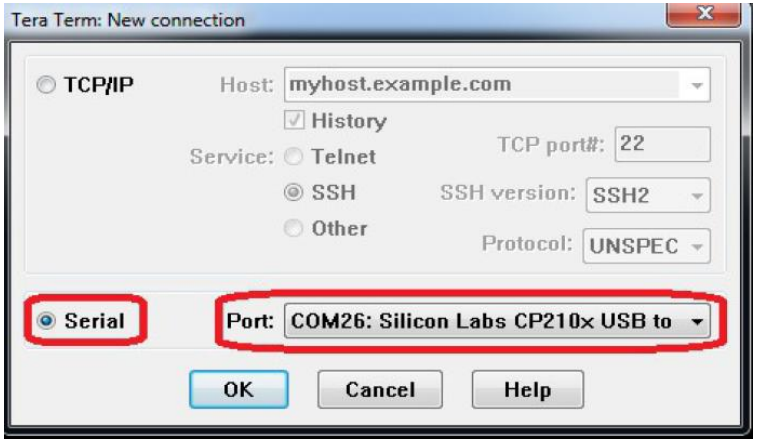
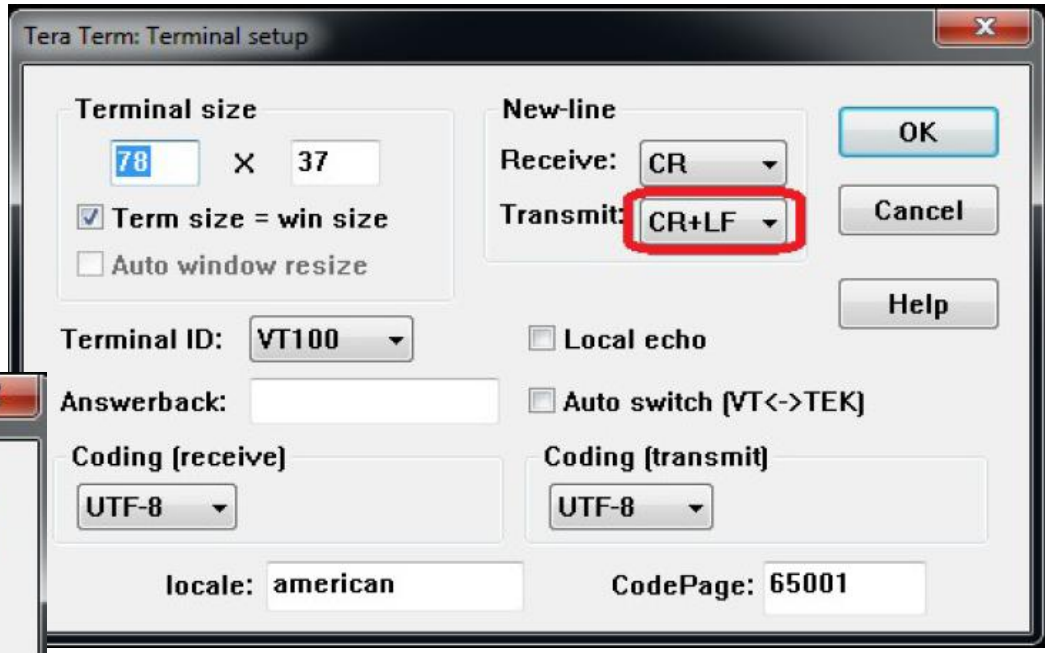
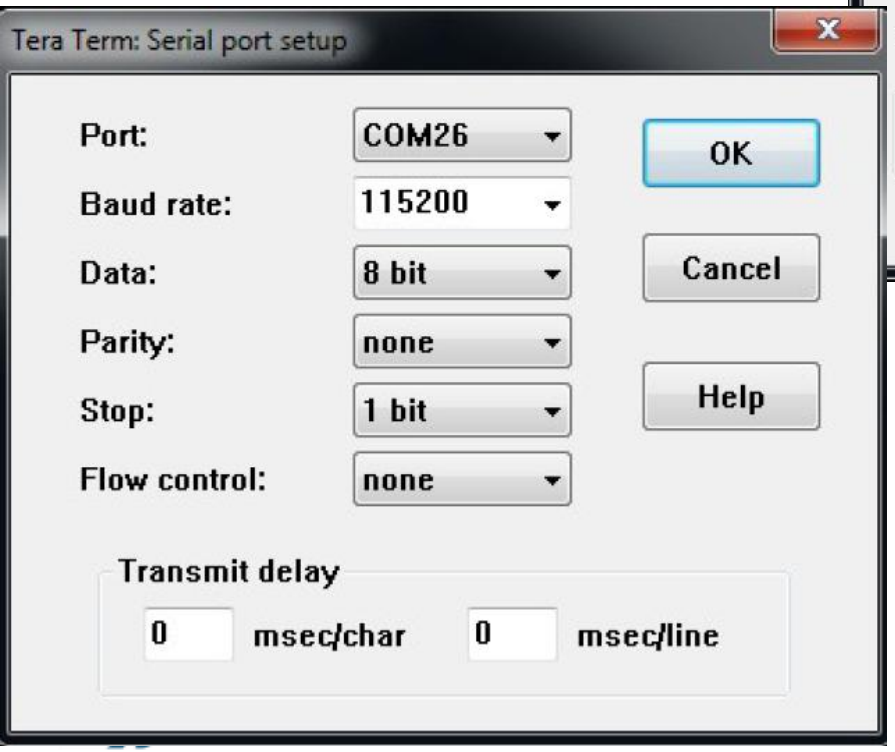
SetUp Tera Term







Connect the STM WiFi module to a WiFi A.P./Router

at+s.ssidtxt=name_router

// Connect to WiFi router.

// Substitute **name_router** with your **WiFi-Router name**

at+s.scfg=wifi_wpa_psk_text, network_password

// SetUp the network password

// Substitute **network_password** with your **WiFi-Router password**

at+s.scfg=wifi_priv_mode,2

// SetUp the protection mode used in your WiFi-router network

// 0 == OPEN

// 1 == WEP

// 2 == WPA/WPA2

at+s.scfg=wifi_mode,1

// Set radio mode to STA (client station)

at+s.scfg=ip_use_dhcp,1

// Enable dhcp client. The WiFi-router give us the address.

at&w

// Save settings

at+cfun=1

// Soft reset

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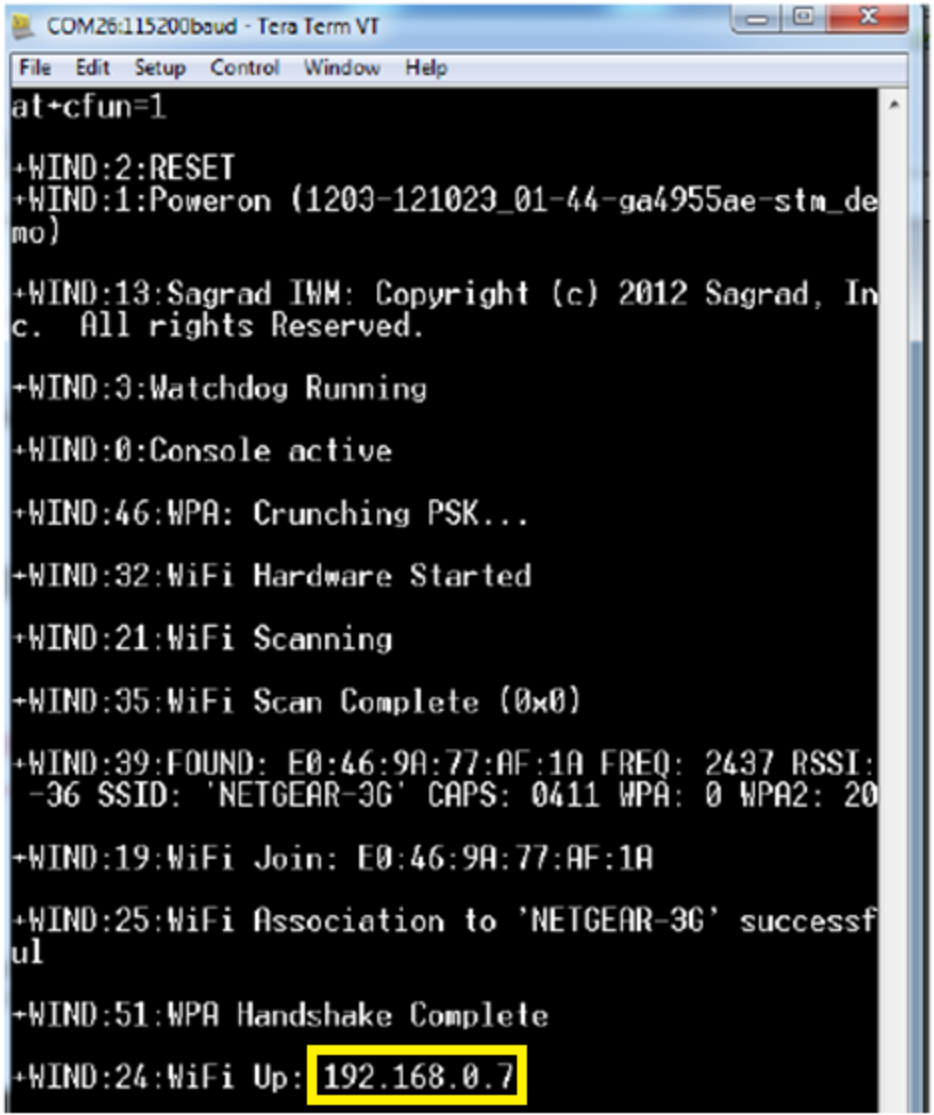
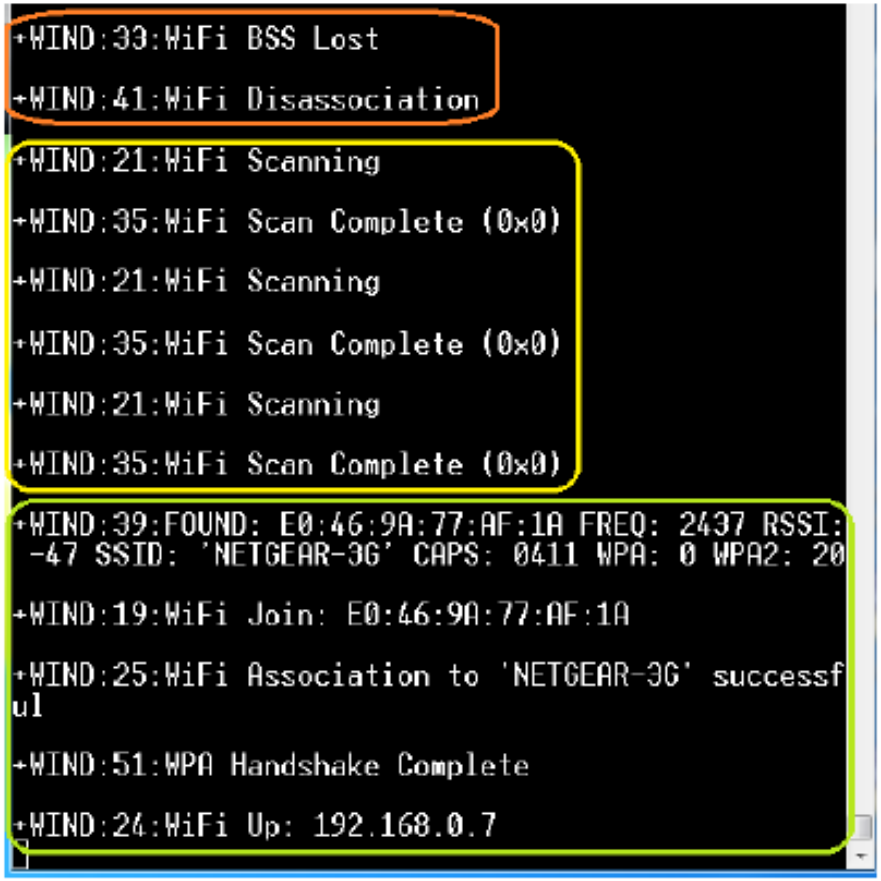
Connect the STM WiFi module to a WiFi A.P./Router

At the end of the command showed above the STM WiFi module is connected to WiFi network (see below).





If WiFi network falls, the STM WiFi module highlights this (see the orange box above) and starts automatically a new scan for reconnecting the network. See above.

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Some AT commands

*** List the current files set in your STM WiFi module or dongle.
AT+s.fsl

*** Dump all settings
AT&V

*** Report current status/statistics
AT+S.STS

*** Reset the WiFi
AT+CFUN=1

End first section

Close Tera Term or Hyper Terminal and disconnect the SILICA STM WiFi EvaBoard from the PC

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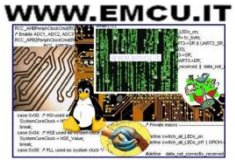
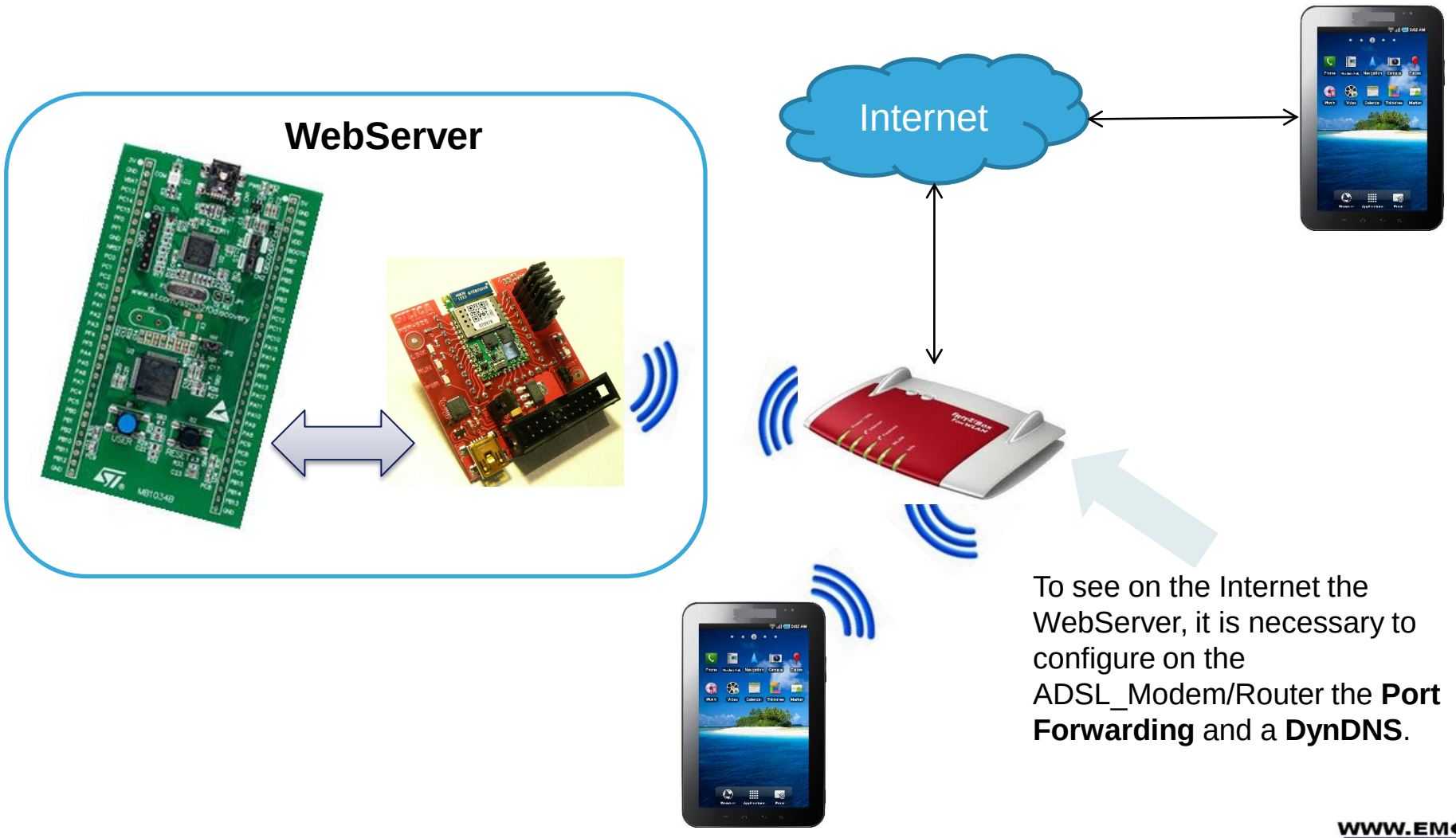
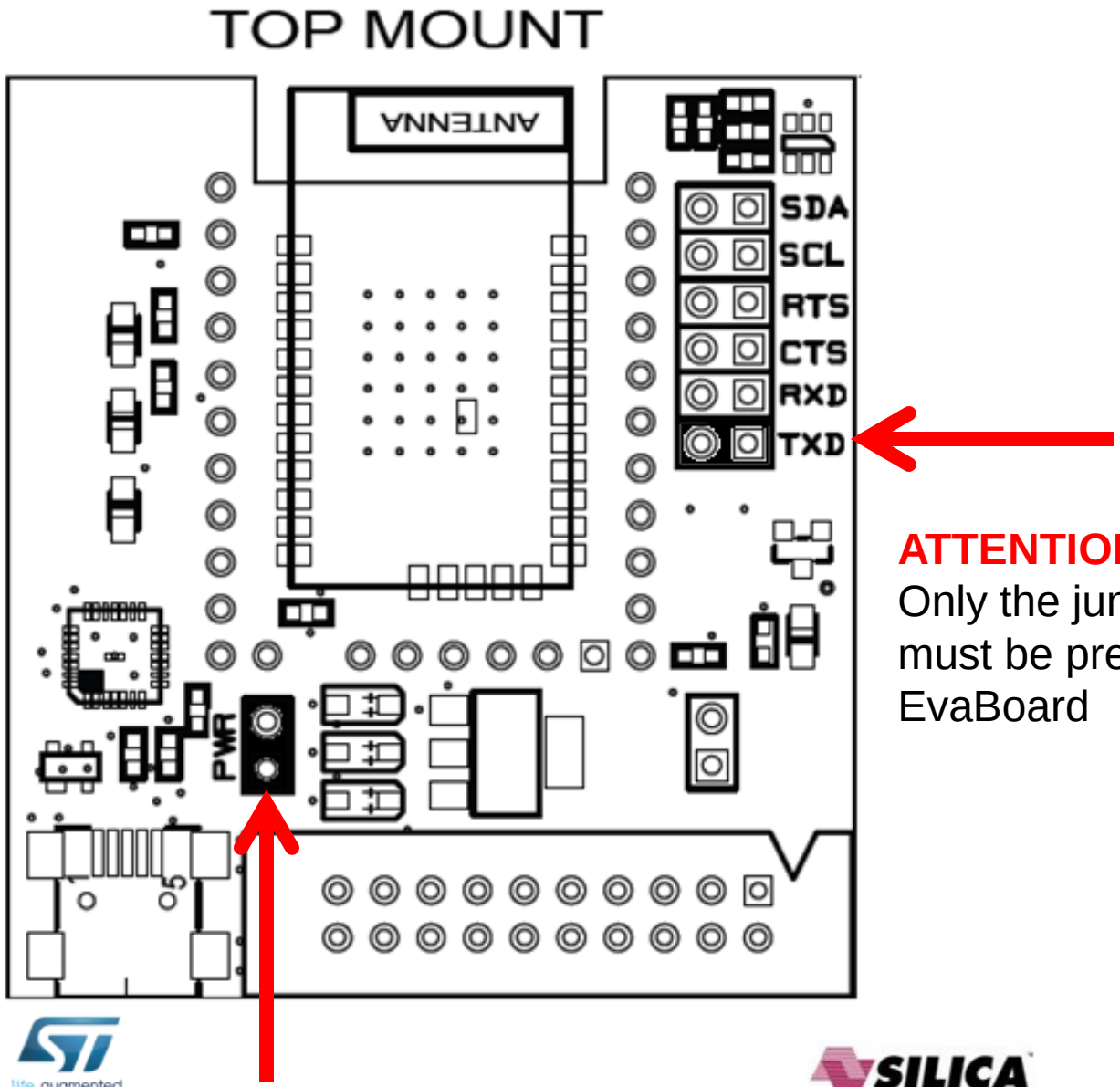


STM32F0 + STM_WiFi = Web Server



STM32F0 + STM_WiFi = Web Server

Connect STM WiFi module to STM32F0-Discovery



ATTENTION:
Only the jumpers: **PWR** and **TXD** must be present on SILICA STM WiFi EvaBoard

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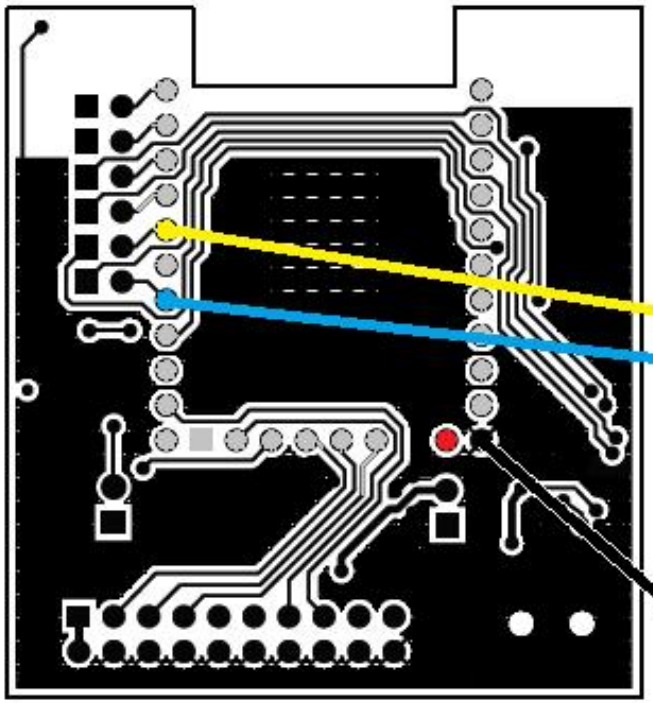
STM32F0 + STM_WiFi = Web Server

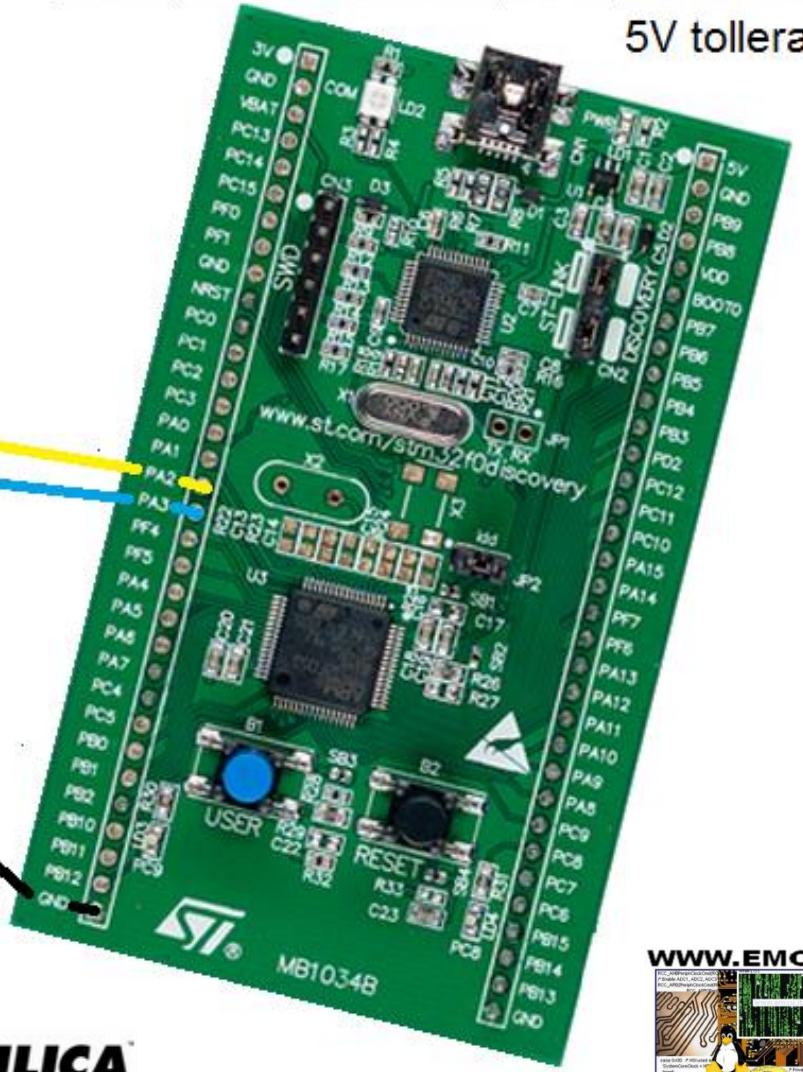
Connect STM WiFi module to STM32F0-Discovery

TX	UART Transmit line	PA2	USART2_TX
RX	UART Receive line	PA3	USART2_RX

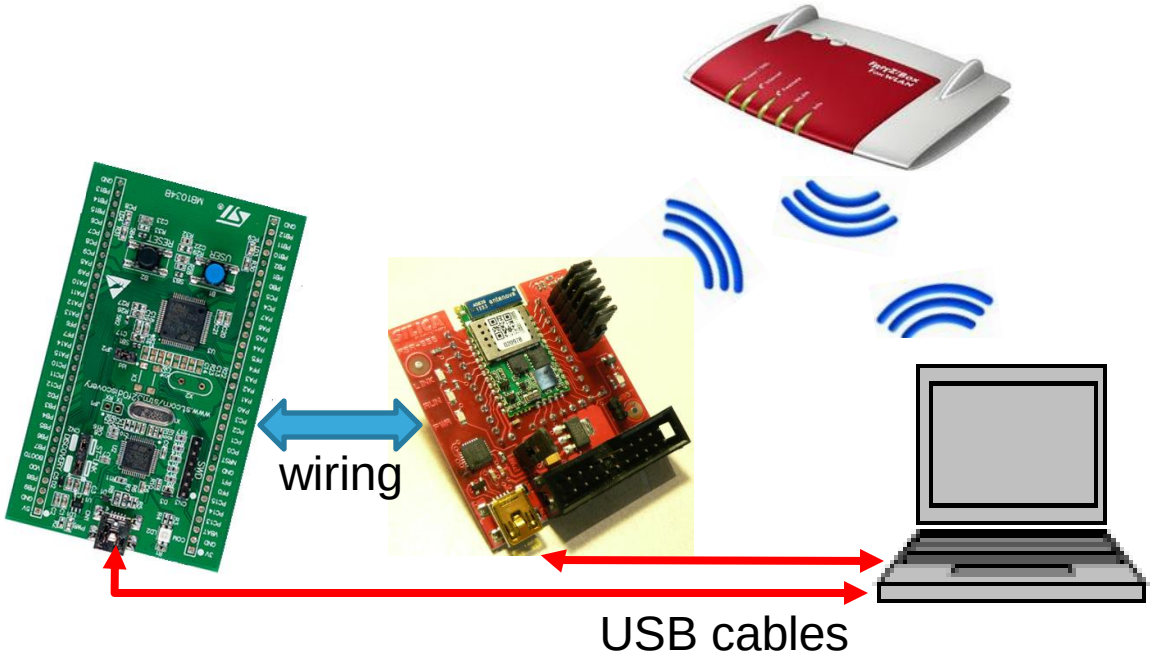
5V tollerant



RXD1	8	UART1 Receive data input	5V tolerant
TXD1	6	UART1 Transmit data output	5V Tolerant



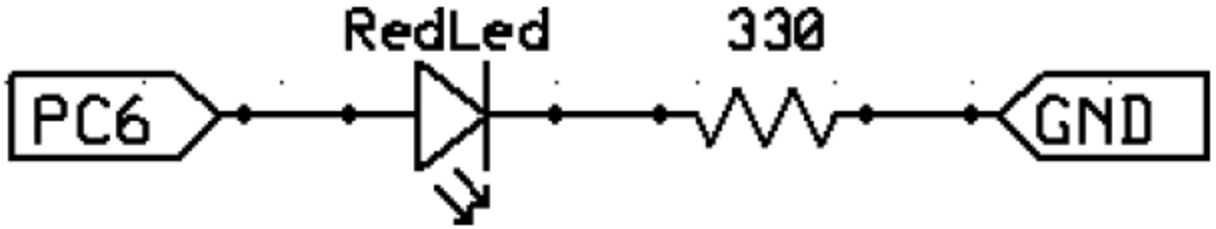
STM32F0 + STM_WiFi = Web Server



Remember:

- **Connect your PC WiFi to the classroom A.P./Router**
- **Connect Silica STM WiFi EvaBoard and STM32F0-Discovery to your PC**

Optionally: if you connect a led (see schematic below) on STM32F0-Discovery from **PC6** and **GND,** you have the possibility to monitor the waiting from the answer from STM WiFi module.



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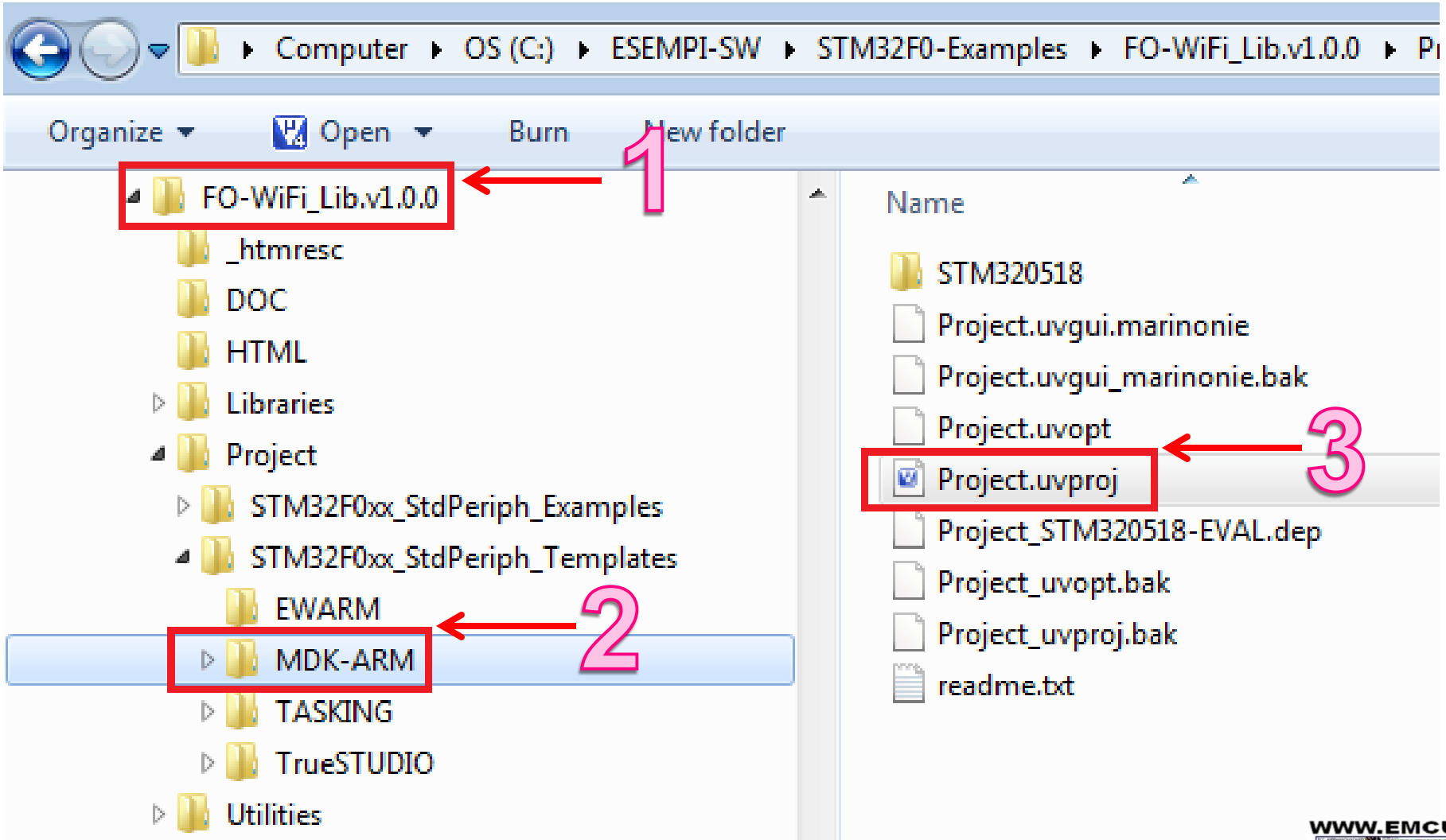
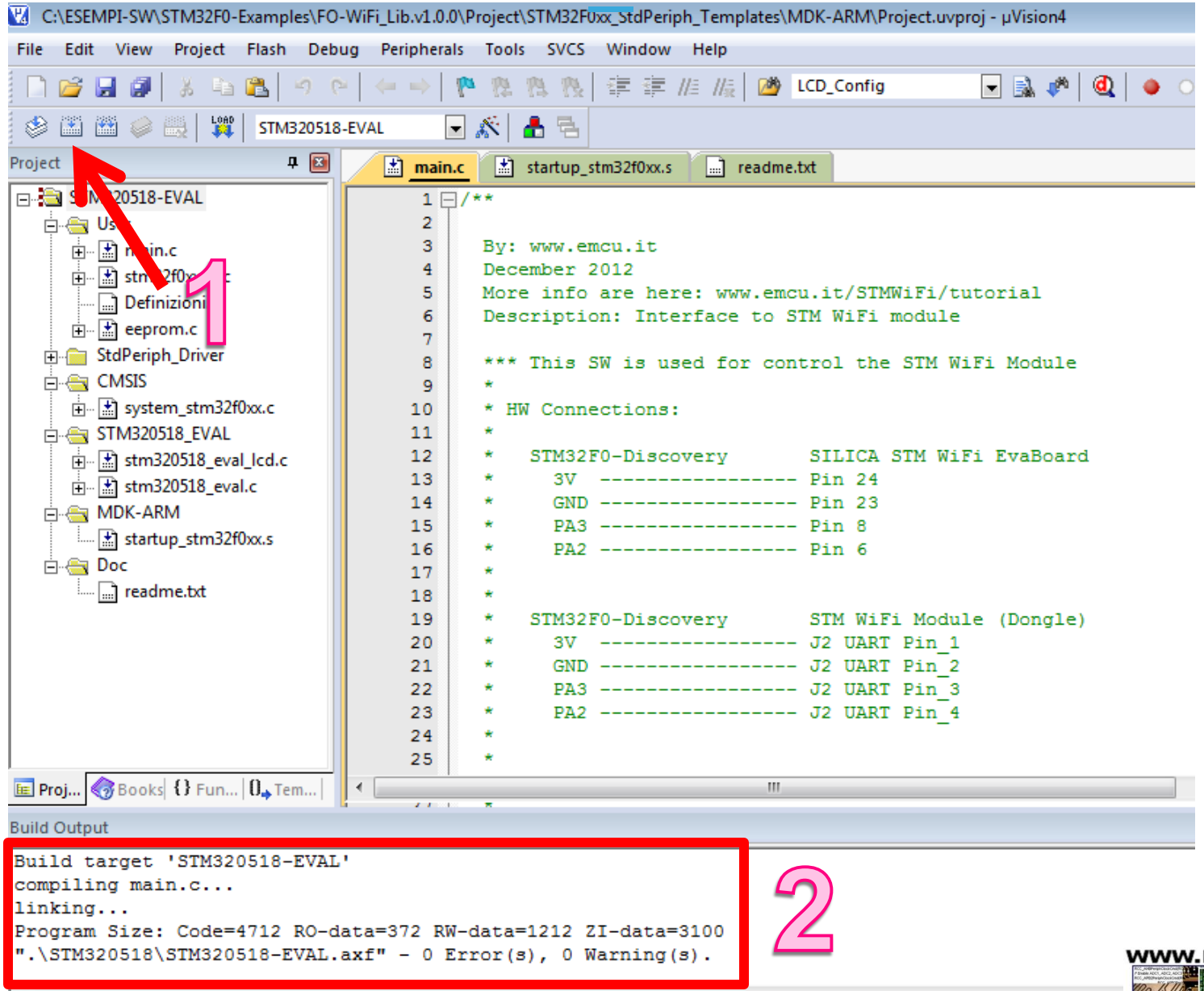
STM32F0 + STM_WiFi = Web Server

Run KEIL and open the file shown below (n.3)



STM32F0 + STM WiFi = Web Server

Compile the example



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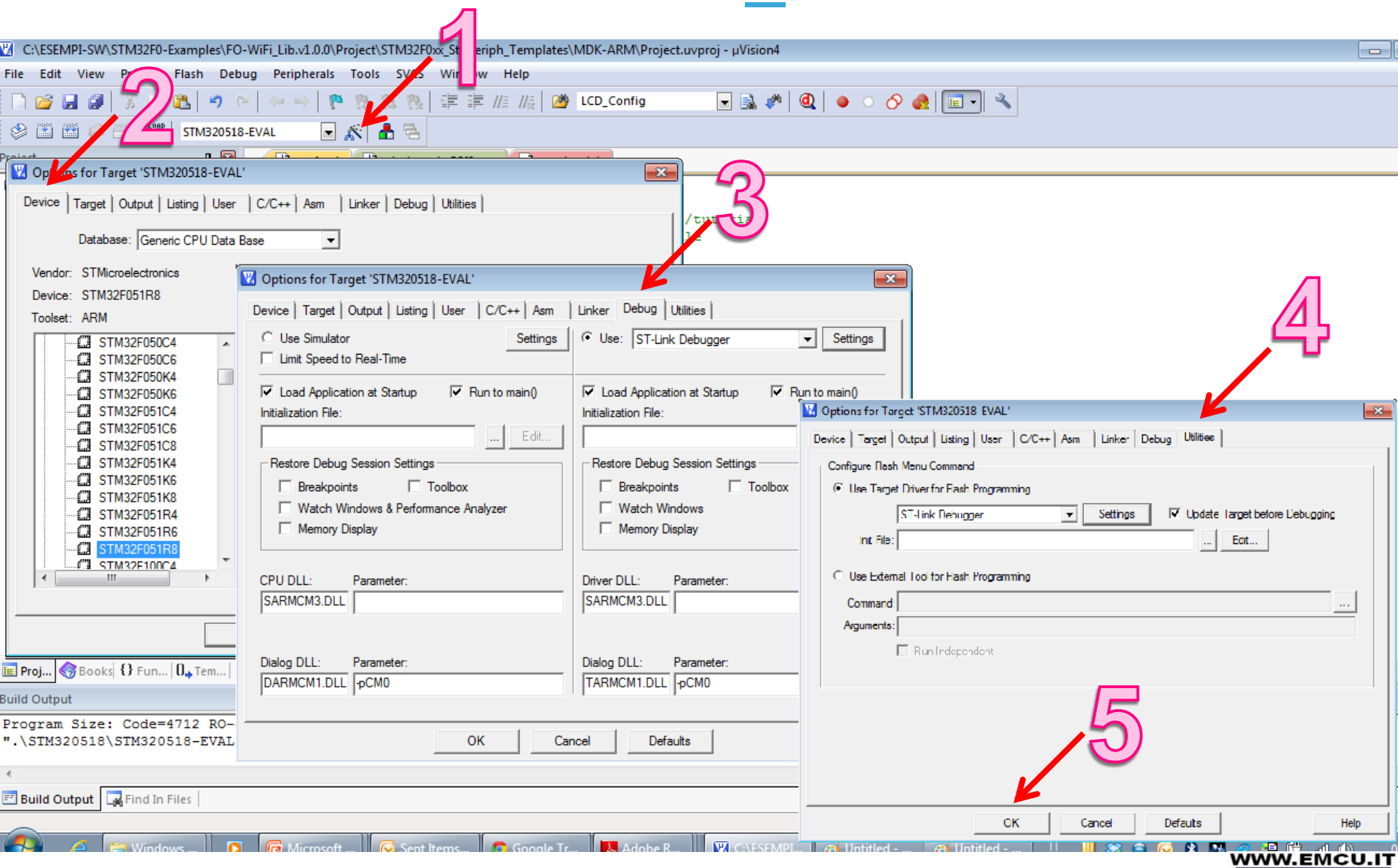
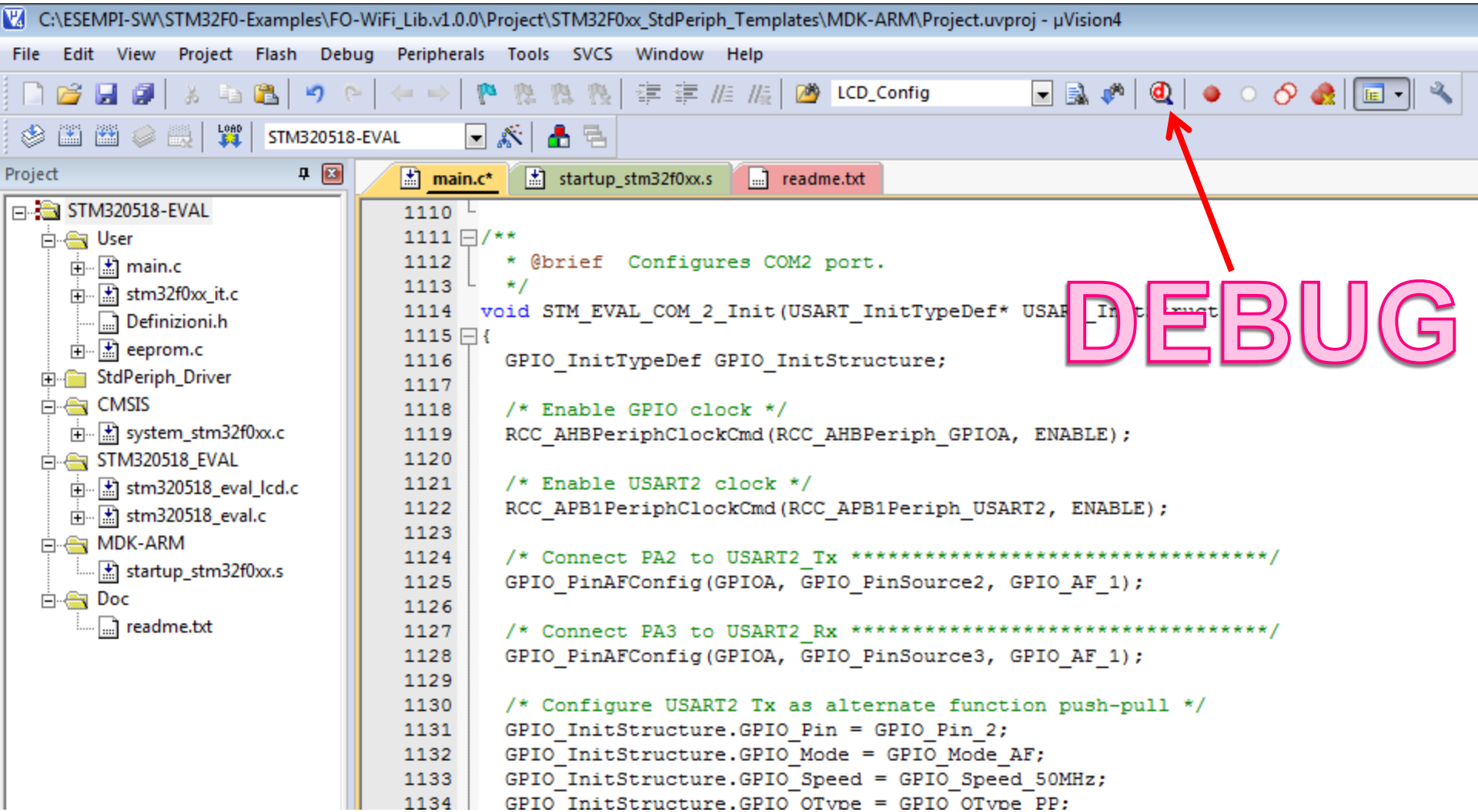
STM32F0 + STM_WiFi = Web Server



Control the configuration

STM32F0 + STM_WiFi = Web Server



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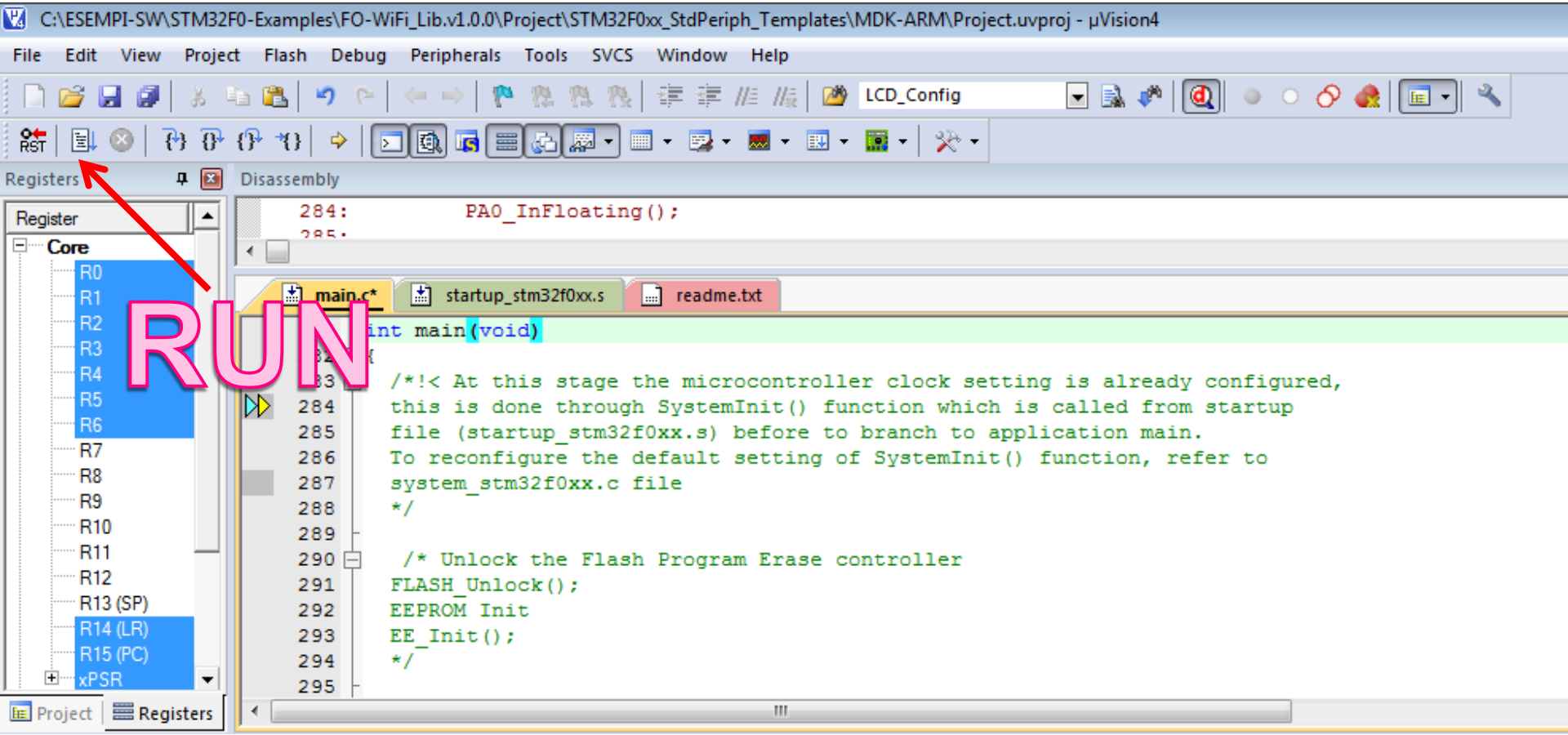
STM32F0 + STM_WiFi = Web Server



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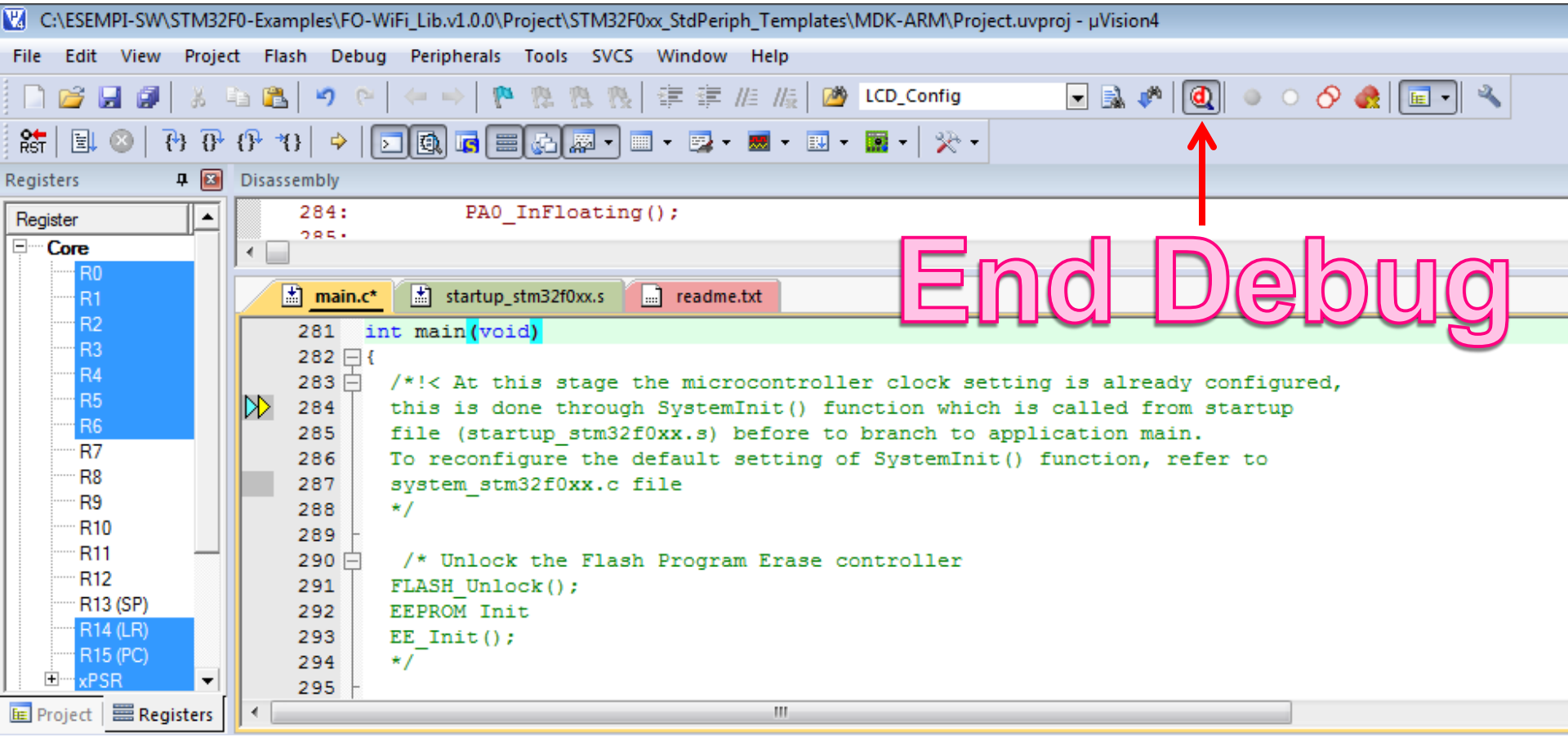
STM32F0 + STM_WiFi = Web Server



End debug and close KEIL

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STM32F0 + STM_WiFi = Web Server

- Now run **Tera Term** or **Hyper Terminal** and **press and release** the **black button** on the STM32F0-Discovery
- For doing the connection just **press and release the blue button** on the STM32F0-Discovery.

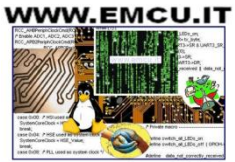
  At this point you see the **Blue led that flashing** and the **Red led that changes from OFF to ON**.

  After some seconds, **Blue** and **Green** leds are **flashing** and **this means that the STM WiFi module is trying to connect to the WiFi Router**.

  After 20/60 sec, Blue and Green leds go **OFF** and **this means that the connection is done**.
- Also, the led LED2 must be ON (LED2 is on the SILICA STM WiFi EvaBoard), this means that the WiFi connection is active.
- At this point, it is also loaded on the STM WiFi module, the html page named:

  led.hmtl

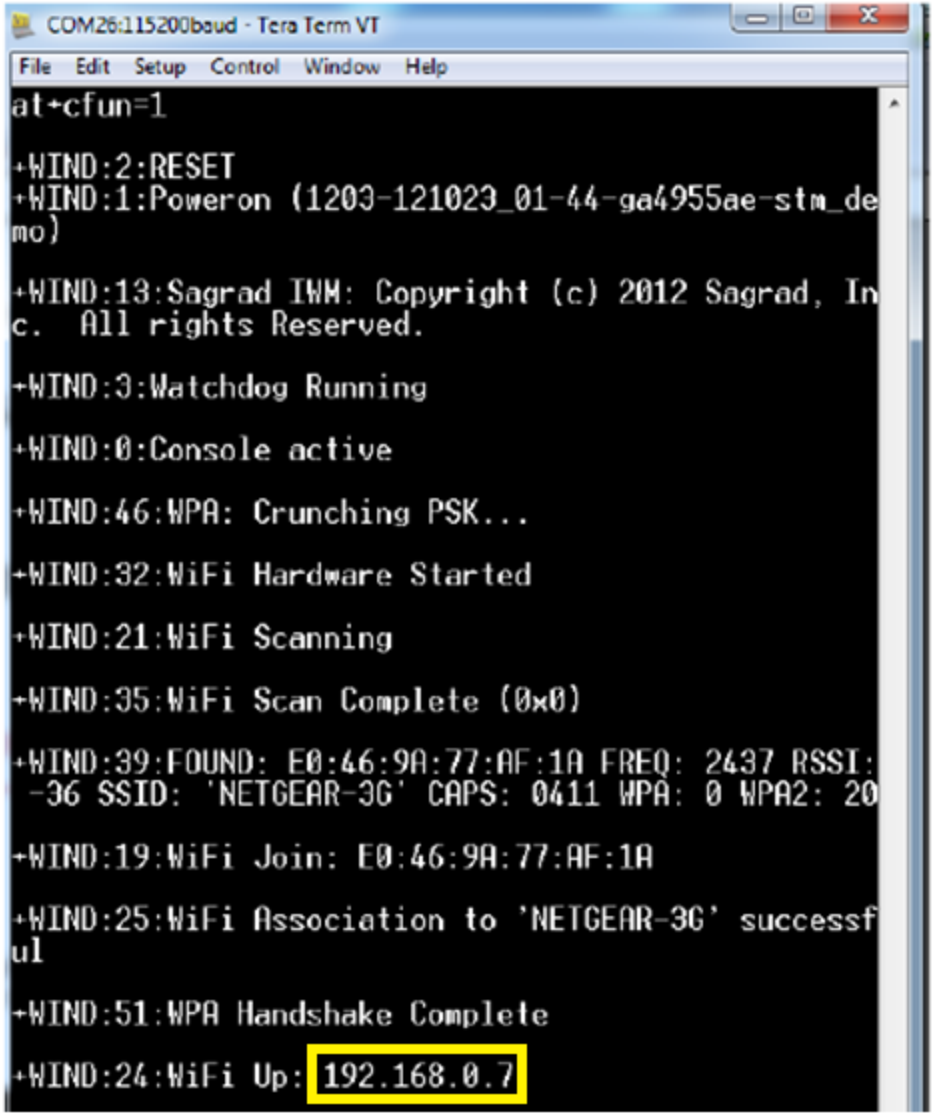
  This page shows the status of the LEDs mounted on the STM32F0-Discovery.



STM32F0 + STM_WiFi = Web Server

WiFi Sniffing

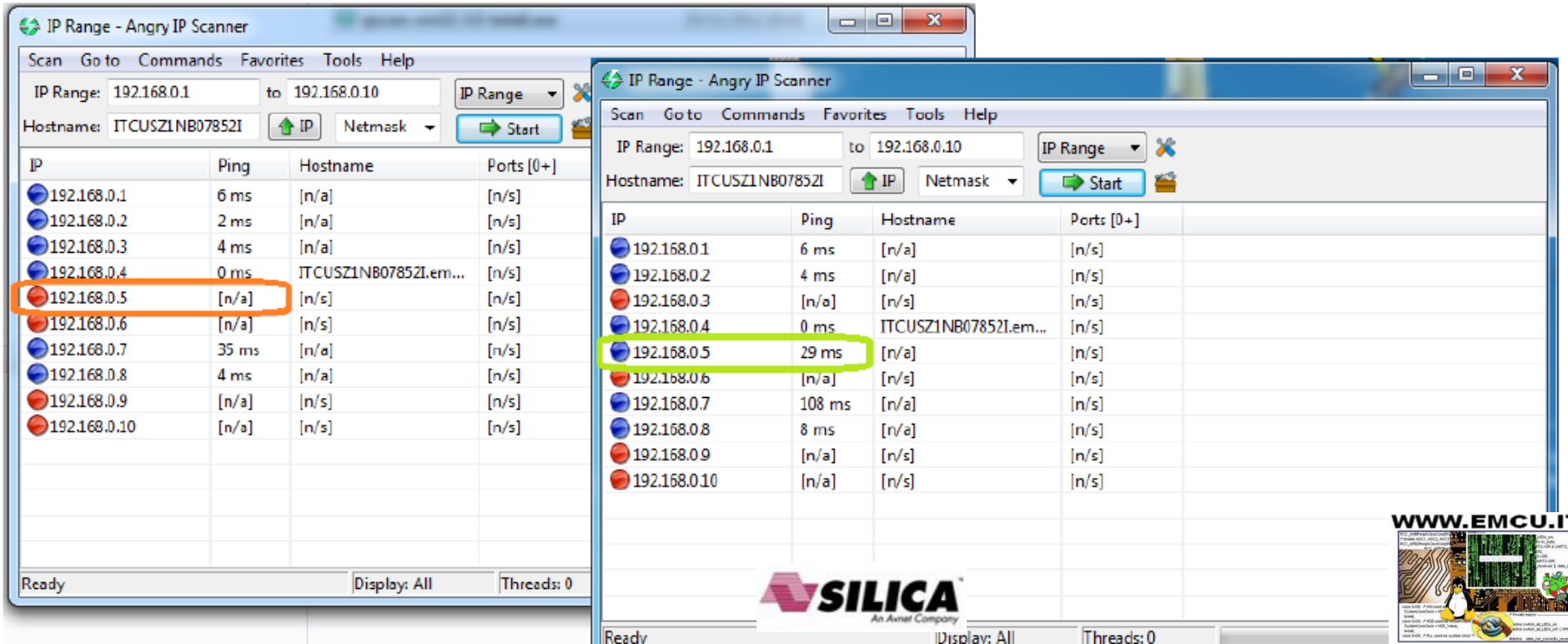
In the terminal **Tera Term** or **Hyper Terminal** you will see something similar to the image showed here. In the yellow box there is the address that the access point and/or router have assigned to our WiFi card.



STM32F0 + STM_WiFi = Web Server

Scan your local network to find the IP of the SILICA STM WiFi EveBoard

To scan your local network I suggest to use: **Angry IP Scanner**
that is here: http://sourceforge.net/projects/ipscan/?source=dlp
Below there are two scans.
In the left window, the STM WiFi module is not connected to the WiFi network.
In the right window, the STM WiFi module is connected to the WiFi network.



STM32F0 + STM_WiFi = Web Server

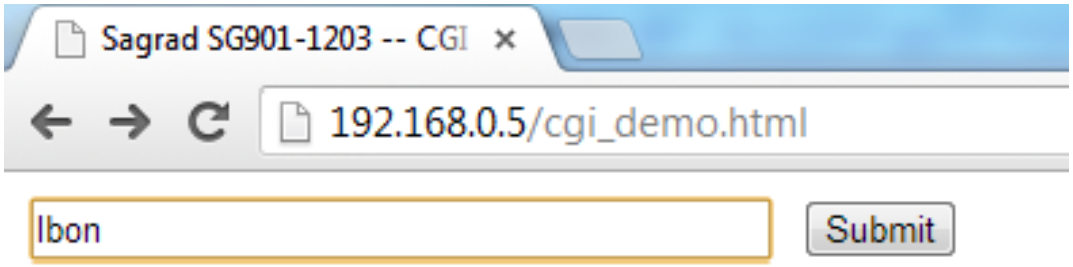
Now open the html page (use Windows Internet Explorer):
led.html
this page show the status of the Green and Blue LEDs mounted on your STM32F0-Discovery.

- **Suppose that the STM WiFI IP is: 168.169.0.5**
- Open your browser and type:
  192.168.0.5/led.html

STM32F0 + STM_WiFi = Web Server

Now open the html page (use Windows Internet Explorer):
cgi_demo.html
this page is used to send commands to STM WiFi Module.

- **Suppose that the STM WiFI IP is: 168.169.0.5**
- Open your browser and type:
  192.168.0.5/cgi_demo.html



STM32F0 + STM_WiFi = Web Server

The custom commands (implemented on STM32F0-Discovery) to control the SILICA STM WiFi EvaBoard are:

- **lgon** – TurnON the green LED
- **lgoff** – TurnOFF the green LED
- **lbon** – TurnON the blue LED
- **lboff** – TurnOFF the blue LED
- **X** – Clear RxBuffer
- **reset** – reset the STM WiFi module, it reloads the WiFi configuration received from STM32F0-Discovery.
  During the reset the Blue and Green Leds are flashing.

You have the possibility to **see the LEDs status** in the page: **led.html**
Remember: you must reload the **led.html** page after every command sent by using the **cgi_demo.html** page.

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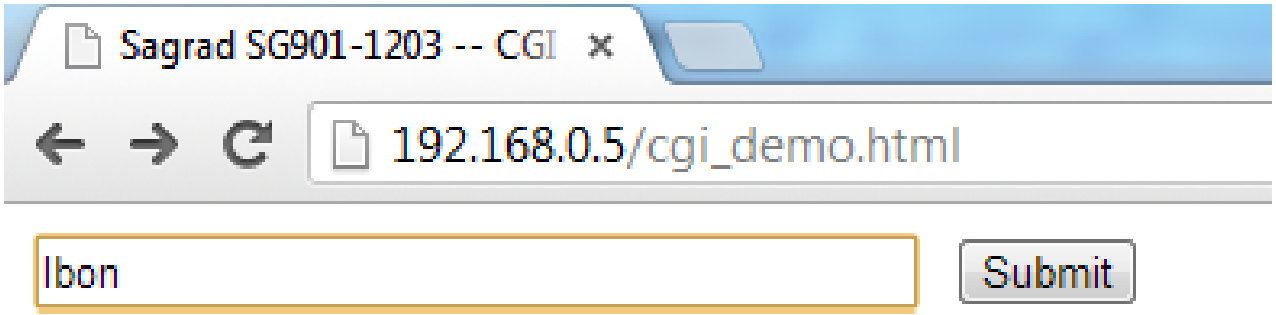
STM32F0 + STM_WiFi = Web Server



Try the commands:

- **lgon** – TurnON the green LED
- **lgoff** – TurnOFF the green LED
- **lbon** – TurnON the blue LED
- **lboff** – TurnOFF the blue LED

and see the results, **remember to reload the page after any command.**

End second section

Close Tera Term or Hyper Terminal and disconnect the boards from the PC.

Please give me back the:

SILICA STM WiFi EvaBoard

The TWO USB cables

What we offer

- **A complete source code for STM32F0xx** family that is very easy to transfer on other STM32 families (Cortex Mx).
- **A complete manual that covers the topics below.**
  - Resource, available via STM WiFi pins
  - Firmware update
  - HTML pages
  - How to use the SILICA STM WiFi EvaBoard
  - AT Commands
  - AT SetUp commands (for connect STM WiFi module to WiFi network)
  - AT GPIO commands
  - AT General Commands
  - Create a filename.html (a complete HTML example)
  - NotePad++
  - How to use Tera Term
  - How to connect STM WiFi module to STM32F0-Discovery (Web Server), **C source code**
  - How to scan your local network
  - How to use **PYTHON** on **LINUX** to drive STM WiFi module
  - How to use **PYTHON** on **Windows 7** to drive STM WiFi module

What we offer

- **A complete manual that explains the SW implementation and that covers the topics below**
  - How to connect STM WiFi module to STM32F0-Discovery
  - The Web pages
  - The definitions
  - The variables
  - The principal functions

END

More info are available here:
www.emcu.it/wifi

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