![eWON - MACHINES CAN TALK]

Installation Guide

IG 020 / Rev. 1.4

eWON Flexy
WiFi Extension Card
FLB 3271

This installation guide explains how to install the eWON Flexy WiFi Extension Card FLB 3271.

support.ewon.biz

Table of Contents

1. Product Summary

This Installation Guide describes the hardware of the **Wifi Extension Card FLB 3271** of the eWON Flexy family.

The eWON Flexy family is a range of modular industrial gateway/routers.

As the name eWON Flexy suggests, it has been designed to enable numerous different combinations of **Extension Cards** and **Base Units**. This Installation Guide focuses on an extension card which needs to be inserted in one of the Base Units in order to work. The Base Units have their own Installation Guide IG-014-0-EN "eWON Flexy - Base Units". This guide addresses how the relevant Extension Card integrates with the Base Units and we give some recommendations for its proper installation (see § 3.6 Plugging the Extension Card into the Base Unit).

2. Safety, Environmental & Regulatory Information

2.1. Scope

This section addresses Safety, Environmental & Regulatory Information for the Wifi Extension Card FLB 3271. This Extension Card belongs to the same compliance frame as the Base Units. In the case of a telecommunication Extension Card, additional directives, standards and instructions apply.

2.2. ESD Damage Prevention

- Important -

Contains parts and assemblies susceptible to damage by electrostatic discharge (ESD). Always use ESD precautions when handling Extension Cards and the opened Base Unit.

The Extension Card is a module exposing both sides of an electronic printed circuit board. Therefore, it is packed in antistatic ESD bags. In order to avoid ESD damage, the product must be handled with the necessary precaution including:

• Grounded ESD protective work surface

• Personnel grounding

2.2.1. Applicable Directives, Standards and Compliance

The Extension Card complies with the R&TTE directive 1999/05/EC and the FCC regulations related to the wireless modems.

The Extension Card belongs to class A Information Technology Equipment (ITE). In a domestic environment this product may cause radio interference in which case the user may be required to take appropriate measures.

2.2.2. Applicable European Directives

The Extension Card is in conformity with the following EC directives:

• RoHS Directive 2011/65/EU

• EMC Directive 2004/108/EC

• R&TTE Directive 1999/5/EC
  The product conforms to the corresponding R&TTE articles: RF spectrum efficiency (Art 3.2); EMC (Art. 3.1b); Safety (Art. 3.1a)

2.2.3. Applicable Safety Standards

The Extension Card is in conformity with the following safety standards:

- IEC/EN 60950-1
- UL 60950-1
- CSA-C22.2 No 60950-1-07

2.2.4. FCC Compliance

The Extension Card complies with Part 15 of the FCC Rules. Operating is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

2.2.5. Certifications

The Extension Card has been certified by authorized bodies:

- Certificate Of Compliance (COC) # E350576
- CB certificate # DK-29479-A1-UL

These certificates can be downloaded as PDF files on the eWON Support web site: http://support.ewon.biz/flexy
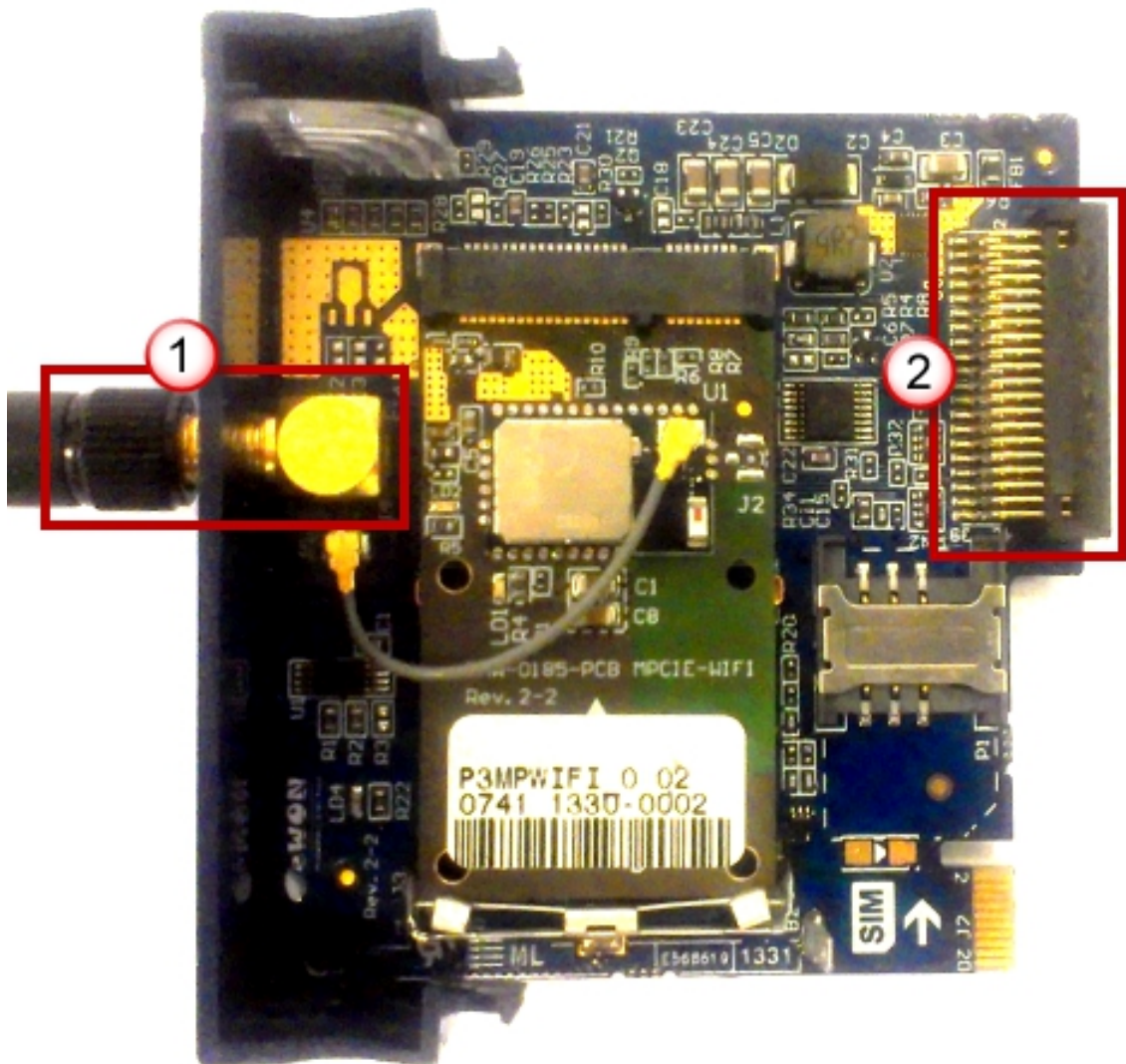
2.3. Official Modem Identification

This product contains part identified as follows by national authorities:

- FCC ID: QOQWF111
- IC ID: 5123A-BGTWF111
- RRA ID: KCC-CRM-BGT-WF111
- GITEKI (MIC) ID: 209-J00061

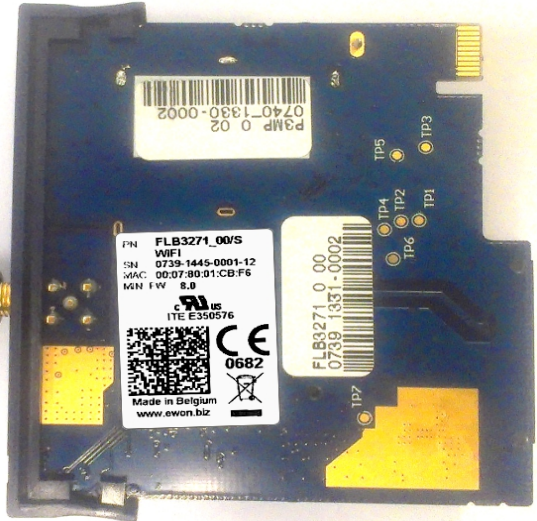# 3. Hardware Description

3.1. Mechanical Layout and Interfaces

①	SMA-F Male antenna connector
②	Backplane connector

3.2. Extension Card Label

3.2.1. Label Location and Information Included

The identification label of the extension cards is placed on the solder side of the PCB.

The different parts of the label are described below:

PN	**Part Number:** identifies the type of the card. Description see 3.2.2 Part Number Structure for Extension Cards
SN	Serial Number Structure of the Serial Number 1111-2233-0001-44 1111 = MTID (product related) 2233 = Year Week 0001 = sequential mfg order 44 = product type
MAC	**MAC Address** of the Wifi Card
MIN. FW.:	**Minimum firmware required** on the eWON
Marks	CE, UL,... certificate number and logos if applicable.
0682	Notified Body Number warrantor of the CE Mark validation

3.2.2. Part Number Structure for Extension Cards

FLB3271_00/S				
FL	FL is the prefix for the extensions of the eWON Flexy family	Only FL (constant)		
B	1 alphabetic sign (CAP) Defines the slots of the base module in which the extension can be inserted. See also § 3.6.2 Base Unit Slot Compatibility	A	2 first slots only	●●○○
		B	2 last slots only	○○●●
		X	In any slot	●●●●
3271_00	Wifi Extension Card. The suffix _00 is used for software options.			
/S	The suffix might have an optional "/" character It might also be blank or include "S" character => Indicates compliance with the UL/IEC/EN 60950 standard.			

3.3. Front Panel LEDs

Item	Mark	Function	Picture
①	**STAT**	Green ON = Interface is online	
②	■	Reception Signal level Yellow ON = level > -80 dBm Poor signal	
③	▉	Reception Signal level Yellow ON = level > -70 dBm Signal is OK	
④	▊	Reception Signal level Yellow ON = level >-50 dBm Good signal	

- Note -

If all signal level LED's are off, it may mean either that:

> *the WIFI interface is not activated in the eWON configuration*

> *there is no signal at all (level 0)*

> *there is a reception error (level XX)*

3.4. Specifications of the Wifi Extension Card

Item	Value(s)	
Protocols and Frequencies	IEEE802.11b/g/n, 2.4-2.5GHz	
Antenna Connector	Type SMA-F Male (SMA reverse polarity)	
Antenna (included in the delivery)	**Charact.**	**Value(s)**
	Impedance	50 Ohms
	Input Power	> 17 dBm, IEEE 802.11b > 15 dBm, IEEE 802.11g/n
	Tightening Torque	0.5 Nm. In the absence of a torque wrench, a soft manual tightening is sufficient.

Device conformity has been tested with the reference antenna: Pulse W1030.

Absolute maximum antenna gain as per FCC's rules and regulations, 47CFR:

- Part 15C : 2.14dBi.

- Important -

This device is to be used only in fixed applications. The antenna used for this transmitter has to be installed to provide a distance of at least 20 cm from any person and may not be co-located or operating in conjunction with any other antenna or transmitter.

3.5. eWON Flexy Extension Cards Environmental Conditions

Characteristic	Value
Operating temperature	-25 to +70 °C
Storage temperature	-40 to +70 °C
Relative humidity	10 to 95% non-condensing
Operating altitude	Up to maximum 2000m
Storage altitude	Up to maximum 3000m

3.6. Plugging the Extension Card into the Base Unit

3.6.1. eWON Firmware compatibility

Before inserting the Extension Card into the Base Unit, verify if your eWON Flexy is running the required firmware supporting the new extension card. The required firmware version is indicated on the label of the extension card. For example: Min. FW.: 8.0 (see § 3.2.1 Label Location and Information Included)

3.6.2. Base Unit Slot Compatibility

The Wifi Extension Card (FLB 3271) must be inserted in one of the "B" slots of the Base Unit.

Explanation:

The Flexy Base Units feature two types of slot. The A slots are the two first slots starting from the left. The B slots are the two last slots. Some cards fit in A and B slots. Some do not. Cards that fit only one type of slot have a mechanical mistake-proof security.

The reference code of the Extension Cards includes a letter that defines their compatibility either with "A" slots, "B" slots or both:

- FL**A** xxxx - designates cards that fit into "A" slots

- FL**B** xxxx - designates cards that fit into "B" slots

- FL**X** xxxx - designates cards that fit into both "A" and "B" slots

In addition to the card reference, each type of extension card bears a visual compatibility symbol on its front panel. The visual symbols are shown in the table below:

●●○○	2 first slots only (A)
●●●●	In any slot (X)
○○●●	2 last slots only (B)

3.6.3. Extension Card Insertion

Please wait 30 seconds after powering off the equipment before inserting (or removing) an extension card. This is to avoid possible damage to the Base Unit and Extension Card.

Remove the slot filler of the location where you want to insert the new card. To do this, press on both ends of the cover, note that the hooks are off-centered like shown on the pictures.
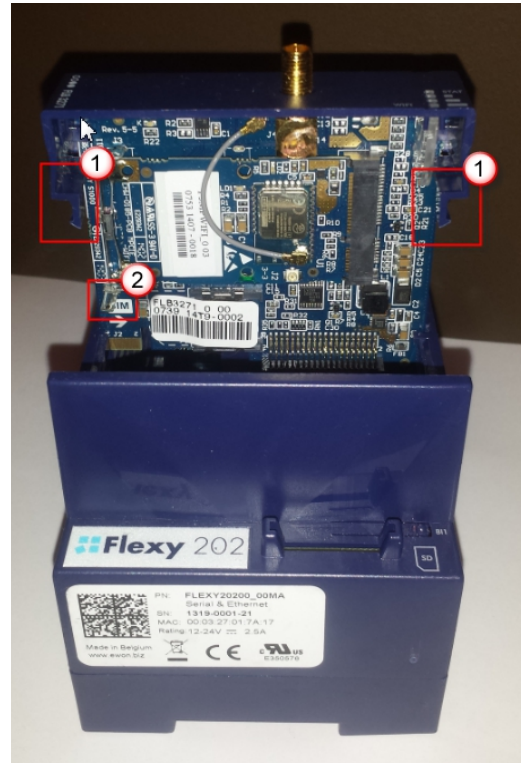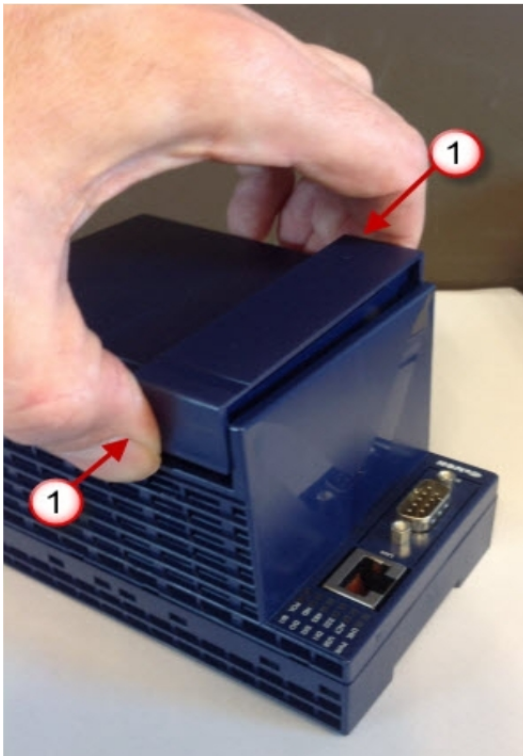
①	Hooks to be pressed are off-centered – press while pulling upwards
②	This metal tag soldered on the PCB acts as mistake-proof security (mating stop in housing)

Insert the Extension Card carefully and slide it down until the hooks are **_clicking_**. Make sure the card is completely inserted. **DO NOT insist** if you feel some resistance when trying to insert the card. It probably means you are trying to insert the card in a wrong slot. In such case, check slot compatibility of the relevant Extension Card.

- Note -

If an extension card is inadvertently forced in a wrong slot, the Base Unit will detect it and will NOT complete its BOOT process. Therefore, the unit will not be accessible through its LAN interface. The slot error is returned by the USR LED. (red ON 1sec, OFF 0.5 sec).

3.6.4. Multiple Wifi Extension Cards

The eWON Flexy firmware currently supports up to **one** Wifi Extension Card of type FLB3271.

The boot process of the Base Unit includes an automated detection of the inserted Extension Cards. This detection is done sequentially, slot per slot starting from the left to right.

Only the first detected Wifi card (the most left one) will be taken into account by the Flexy firmware. An additional card of the same type will be ignored. Contrary to what happens when it is inserted in a wrong slot, a Wifi card in excess will not alter proper operation of the Base Unit and other Extension Cards.

3.6.5. Power Requirements

The internal power converter of the eWON Flexy Base units has been dimensioned to cover a broad range of different combinations of Extension Cards. Users should make sure the total power demand of the Extension Cards does not exceed the capabilities of the Base Unit. That is why the notion of "Energy Points" has been introduced.

The Installation Guide IG-014-0-EN "eWON Flexy - Base Units" includes a section giving the Available Energy Points of each type of Base Unit.

The power requirements of each Extension Card is expressed in Energy Demand Points. This number is meant to check whether the balance with the Available Energy Points of a given Base Unit with Extension Cards is OK or not.

	Wifi Extension Card FLB 3271
Energy Demand Points	4

The Installation Guide IG-014-0-EN "eWON Flexy - Base Units" includes examples of practical power balance calculations.

4. Powering On the Base Unit with its Extension Cards

When the Base Unit is powered on, it takes approximately 25 seconds for the unit to go through its self-test procedure. The slots in which the extension cards have been inserted and their type are detected during this process.

If the boot process completes normally, you should observe the following LED status

- Base Unit **USR** flashing green slowly

- Extension Card None

- Note -

If the USR LED of the Base Unit flashes RED, it might be because the Extension Card was improperly inserted (for example in a wrong slot).

5. Check Card Detection on the Embedded Web Page

The eWON Flexy Extension Card requires no software configuration. It is automatically detected by the Base Unit when it boots.

5.1. Connecting to the Embedded Web Server

Configure the network parameters of your configuration PC to encompass the IP range of the eWON LAN.

Connect the PC to one of the LAN port of the eWON Flexy.

Open your Internet browser and access the eWON Flexy internal Web page by entering the LAN IP address in the URL field (the default address is http://10.0.0.53).

The default

- login is adm
- password is adm

- Important -

*For security reasons, changing the default password **adm** is absolutely required.*

*To change the **adm** password, from the menu bar, click on **Configuration**, **Users Setup** and double click on the **adm** entry to edit its parameters. Enter the new password twice and click **Save**.*

5.2. Detected Cards displayed in the System Page

The **System** page allows to check the status of the system including detected Extension Cards. To access the system status summary, click on **Diagnostic (1) > Status (2) > System Info (3) > System (4).** The screen capture below gives an example of an FLB 3271 extension card that has been detected in slot 3 (5).
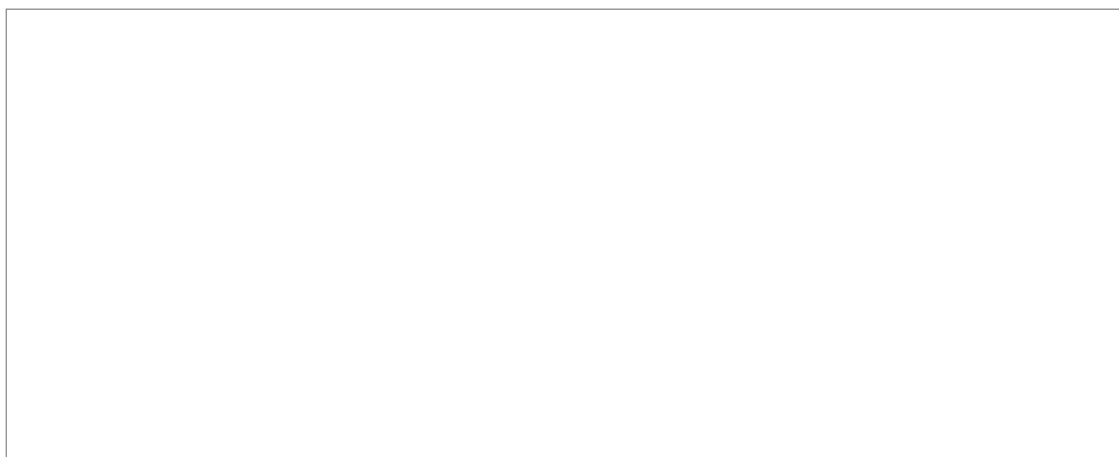
6. eWON Configuration to work with a Wifi-card

Preliminary note: The initial configuration of the Internet access of the eWON is usually done using the configuration wizard. Since firmware 8.0, this wizard includes the Wifi option and specific settings. In this chapter, we show the manual configuration using the standard Web interface.

6.1. Wifi Network Selection

Follow *Configuration > System Setup (1) > Communication (2) > Networking > Internet Connection > WIFI – WAN (3)* to select the Wifi network you are going to use in *WIFI WAN Connection* configuration page shown below:

If the Wifi-card is present and correctly detected, the available networks in the range are shown in the drop-down field next to *Network Name*.

Select the network you want to connect to and enter the *Network Passphrase*.

Click *Update*.

Note

> *In the drop-down list, 2 symbols may appear next to the Network name. If present, the padlock indicates that the network is protected by a passphrase while the symbol on the right reflects the signal strength.*

6.2. Internet Interface Selection

Follow *Configuration> System Setup > Communication > Networking > Internet Connection* to define that the Internet connection of the eWON will be done by using the Wifi network interface as shown below:
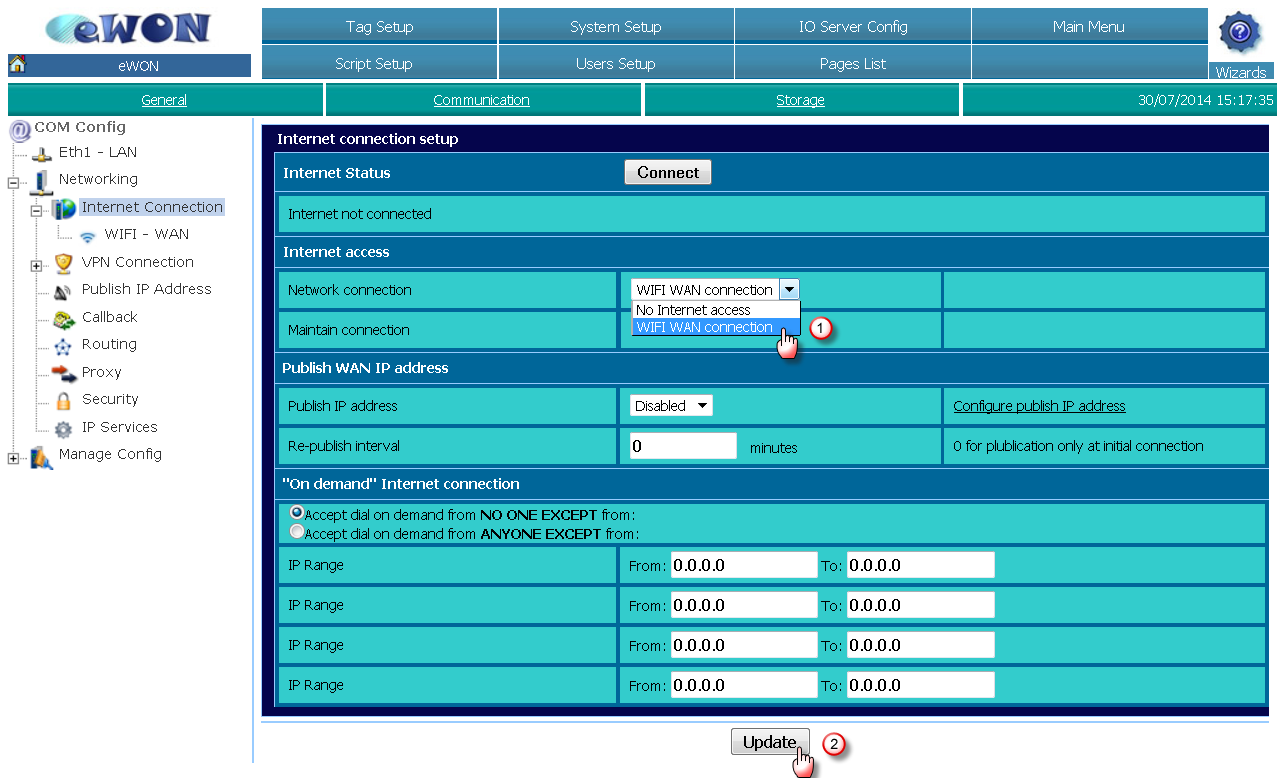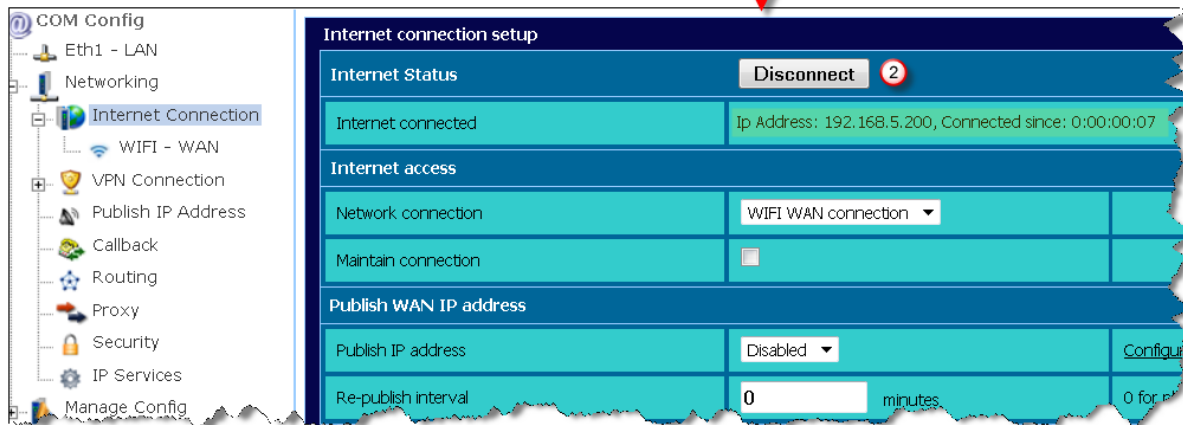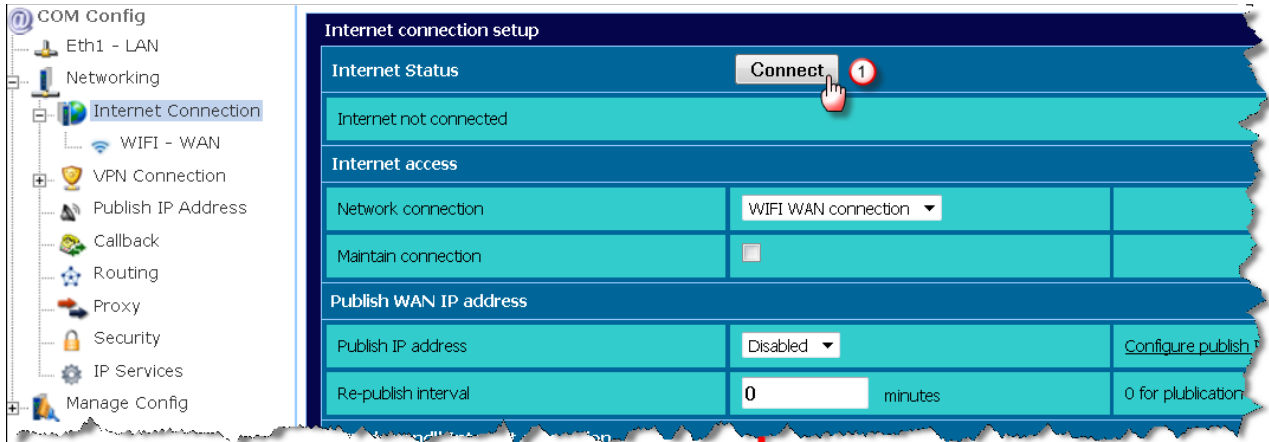

Select *WIFI WAN connection* (1) from the drop-down list

Click *Update* (2)

6.3. WiFi Connection

Unless the "Maintain Connection" option is checked, you will now need to ask the eWON to connect the Wifi network.

Click *Connect* (1)

After a short while and if everything has been correctly configured, the "Connect" button is changed in a "Disconnect" button and the WIFI IP address as well as the connection time are displayed.

Click "Disconnect" when you want to ask eWON to disconnect from the Wifi network.

Your eWON is now configured to use the Wifi network interface to connect to the Internet.

Revision

Revision History

Revision Level	Date	Description
1.0	15/05/2014	First released version
1.1	20/06/2014	Minor updates + add § 6 eWON Configuration to Work with a Wifi-card
1.2	12/11/2014	Added chapter 2.4 "Official Modem Identification"
1.3	17/11/2014	Changed: chapter 3.2 "Extension Card Label": WiFi Sticker reference adapted, CE Mark Notified Body Number added
1.4	17/11/2015	Changed specifications of WiFi extension card

Document build number: 17