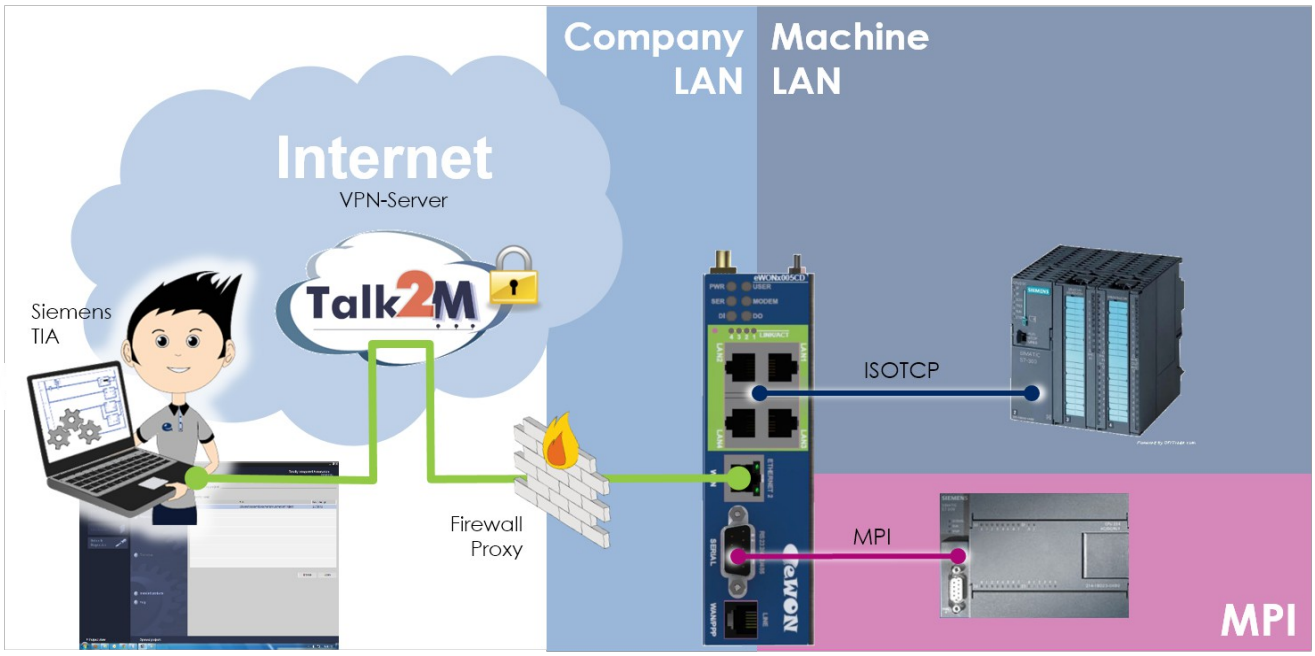
eWON Application Guide

AUG 047 / Rev 1.2

Remote Access for Siemens® S7-300 & 400 PLCs through TIA



Contents

This guide explains in a few steps how to configure your eWON, your Talk2M account and your PLC software to access your Siemens S7-300, S7-400 PLCs through TIA for remote diagnosis and programming.

1. Hard- and software requirements

1.1 Hardware requirements

In order to follow this guide you'll need:

- 1 eWON with VPN capabilities (for example eWON 2101CD with integrated modem or a 2005CD with second Ethernet interface)
- 1 Siemens PLC S7-300 or S7-400 Series
  both featuring MPI/Profibus and/or Ethernet ISOTCP interface
- PC suitable to configure the eWON and the PLC

1.2 Software requirements

1.2.1 eWON related software

- **Web browser** – Internet Explorer[i] or Firefox[ii]
  to configure the embedded eWON parameters.
- **eBuddy** – eWON detection and firmware maintenance utility
  http://support.ewon.biz/softwares.htm
- **eCatcher** – VPN tunneling utility
  http://support.ewon.biz/softwares.htm
  Note: this utility will be used to create the Talk2M account and to connect to your eWON remotely.

1.2.2 Siemens related software

- TIA V11[iii] software. The version of the TIA V11 software must allow the use of the TCP/IP interface (version 5.3 or higher).

1.3 eWON Firmware Version

Successfully following these guidelines requires an eWON firmware version 6.1s2 or higher. The eBuddy application will allow you to upgrade your eWON firmware if required.

2. Objective

The objective of this document is to guide you through the steps required to enable remote access of your Siemens PLCs.

The remote access setup is composed of 4 different parts:

- Communicating with your eWON through the Internet
- Connecting your eWON with your Siemens PLC
- Configuring your Siemens software to correctly communicate through the eWON.
- Accessing your PLC through the Internet

To configure the eWON, all you need is a Web Browser and to open the internal Web page of the eWON. (http://10.0.0.53 is the default IP factory setting)

If you are connecting to an eWON for the first time, you should read the "Quick Start Guide for eWON" shipped with your eWON. This document explains step by step how to change the IP address of the eWON LAN port in order to be able to connect to it.

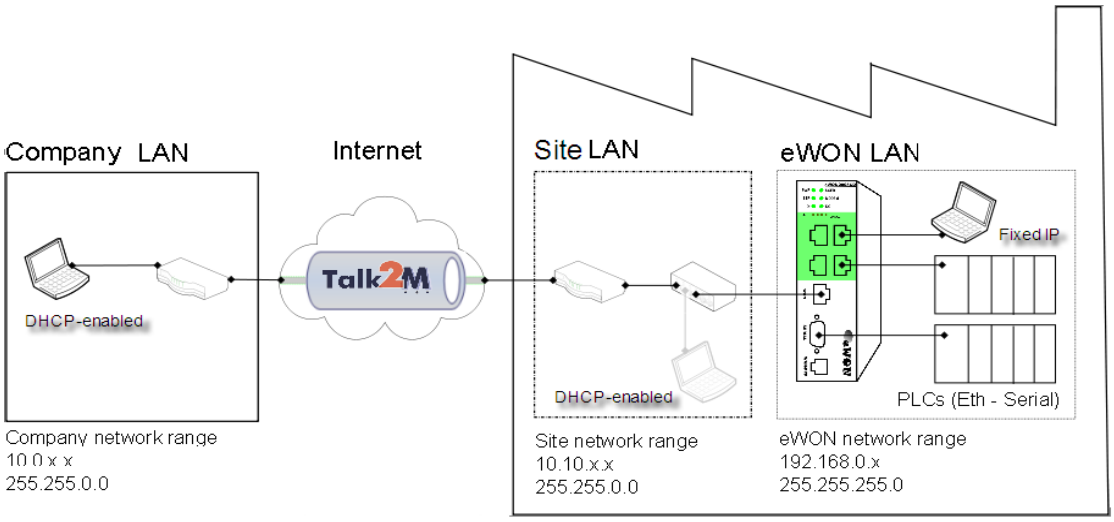
3. Typical configuration setup

Configuring remote access is simple. However, you will need to pay attention to the different IP ranges involved. The diagram below summarizes the different network ranges in use (IP numbers are examples).

When it is hooked on the Company LAN (or to the Site LAN) the configuration PC needs to be configured in DHCP-enabled mode for you to be able to go through the steps involving the general Ethernet/Internet infrastructure.

When it is hooked to the LAN-port of the eWON and the configuration PC needs to be configured with a fixed IP address - in the eWON LAN range - for you to be able to go through the steps involving the eWON (and the Ethernet ISOTCP connected PLCs).

Note 1: *Because iterations between IP ranges are necessary during the configuration process, you could consider using 2 different configuration PCs. It is no problem if you use only one single PC, the present guide mentions each change in IP configuration that will be required.*



Note 2: *As the picture above shows, under normal circumstances the PC you will use to remotely access your eWON and PLCs will be on a different network than the site network. However, during configuration and testing, connecting PC to the site LAN is fine. As long as the site LAN address range is different than the eWON LAN address range you will not have routing issues.*

4. Prerequisite: Determining suitable IP addresses

To avoid routing problems later, it is better to start to configure the eWON and the PLC with LAN IP addresses that will be suitable.

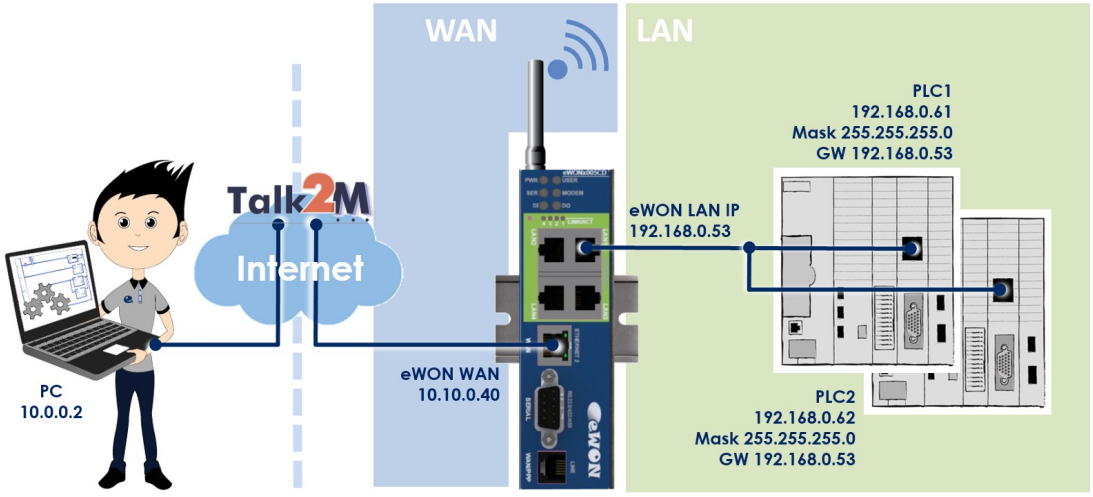
The type of physical carrier (GPRS or WAN/LAN) your eWON will use to connect to the Internet will have impact on your IP address selection.

Before starting actual configuration, please read the general principles below.

4.1 Internet connection using the WAN Interface

If you plan to connect to the Internet using the WAN interface, the eWON will work with a LAN IP address at the PLC side and a WAN IP address at the network side.

Example of IP ranges involved in a WAN/LAN configuration:



Important Note: The company network address ranges (Company LAN and Site LAN in the example above) are specified and managed by the respective network administrators. These ranges simply cannot be changed. So before configuring your eWON LAN IP address and your PLC IP addresses, please ask for:

1. The specified company LAN network range to be used by the PC that will initiate the remote connection (Company LAN).

   In our example this range is 10.0.0.#

2. The specified company LAN network (Site LAN) range (and gateway) which the eWON WAN port will use to get Internet connection.

   In our example this range is 10.10.0.#

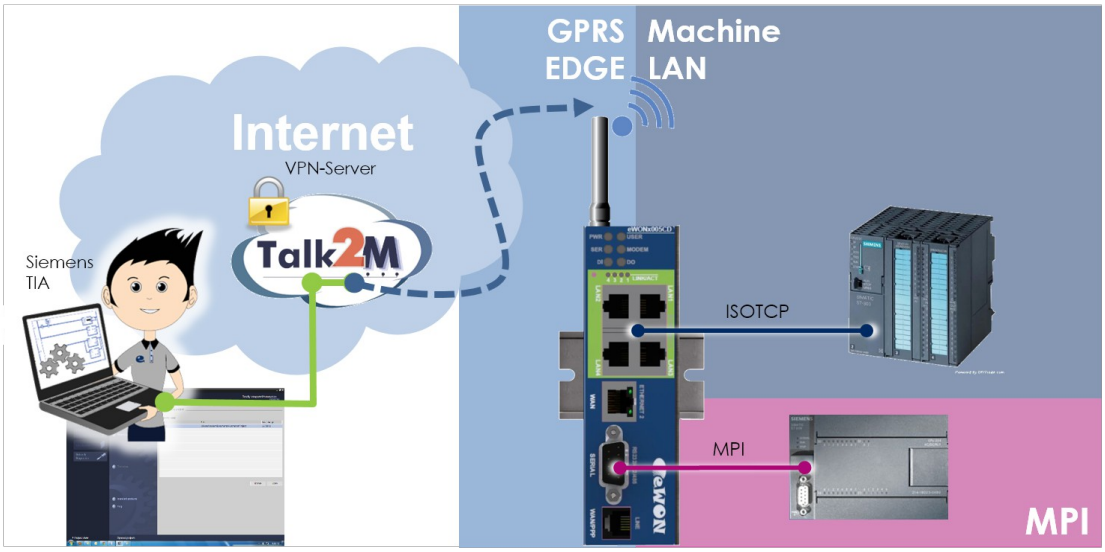
Knowing the ranges in use at the Company and Site side, you will be able to select a range **outside** these networks for the eWON LAN-port and the PLC.

In the above example, we could select addresses in the 192.168.0.# IP range for the eWON LAN and PLC since it does not overlap neither with the Company LAN range nor with the Site LAN range.

4.2 Internet connection by modem (GSM, PSTN, ADSL)

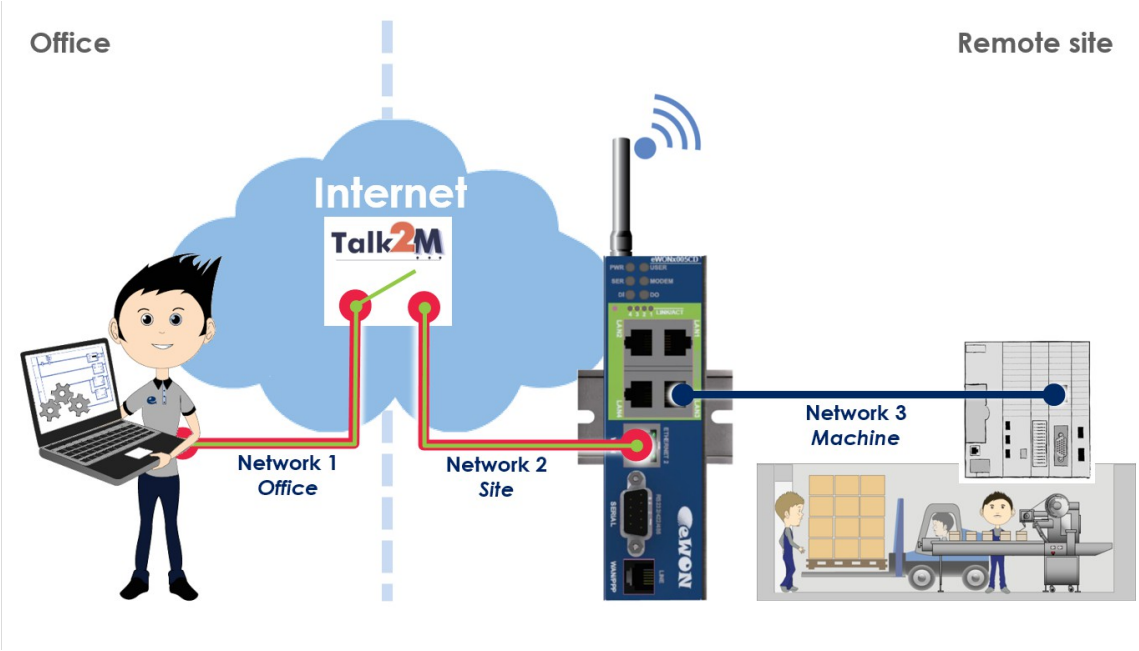
If you plan to connect to the Internet through a modem, you only need to select an IP address for the eWON LAN side. The IP address of the eWON LAN interface must be compatible with the IP address of the PLC, but be outside the network address space to which your PC is connected (Company LAN). If there is as an overlap between the IP range of your PC and the IP-range of the eWON and the PLC LAN, the setup will not route correctly.

Example of IP ranges involved in a GPRS/Edge modem configuration:



4.3 For proper routing, remember...

1. The eWON LAN IP address must be part of the same IP range as the PLC LAN.
2. The eWON WAN and LAN IP addresses must be in different IP ranges. The WAN port of the eWON is generally DHCP-enabled, which is a good way to make sure that it will be compatible with the company network.
3. The remote PLC network (eWON LAN) must be in a different IP range than the company network on which your PC is connected (Company LAN).



Network 3 = eWON LAN = PLC LAN (all in same range).
Network 3 ≠ Network 2
Network 3 ≠ Network 1

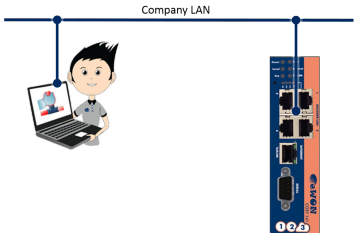
5. Reaching your eWON through the Internet

5.1 Step 1: Setting IP address of eWON LAN

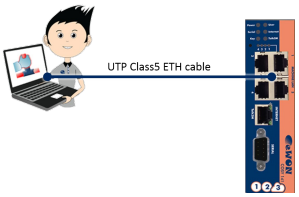
Once you have selected your IP addresses, you can start configuring your eWON.
In our example, we will change the default factory address 10.0.0.53 to 192.168.0.53.

To configure your eWON LAN IP:

1. This connection will usually be made through the Company network. It can also be made with a point-to-point link. At this stage there is no constraint on the IP range of your PC. For this step, eBuddy can access the eWON even if your PC and the eWON have different network address ranges. eBuddy – *eWON detection and firmware maintenance utility*
   http://support.ewon.biz/softwares.htm



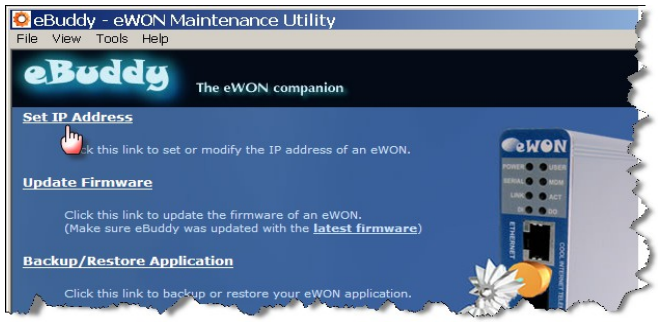
Connection through company LAN



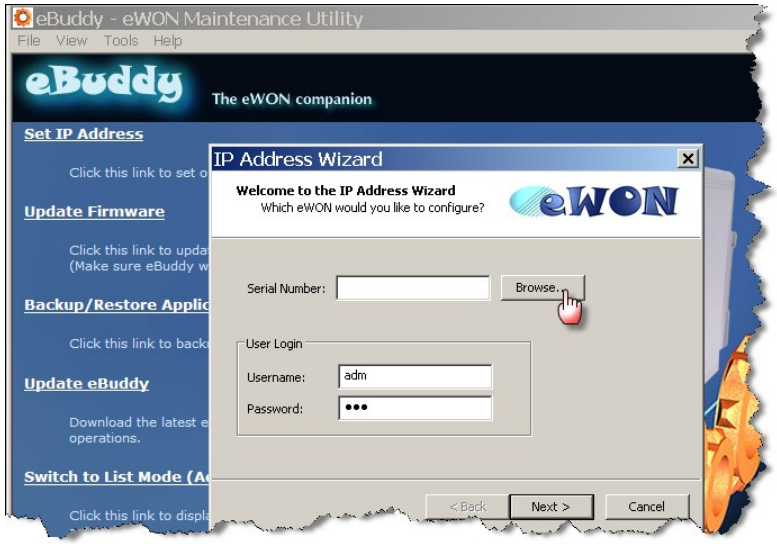
Point-to-point connection
(if eWON model has only 1 LAN port use ***crossed*** cable).

2. Start the ***eBuddy*** utility on your PC

3. In the home page, select ***Set IP Address***

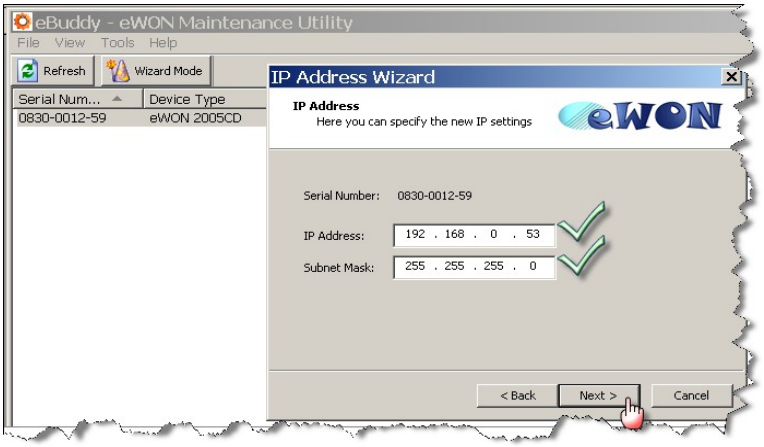


4. You don't need to fill out the ***Serial Number***, just click on ***Browse***

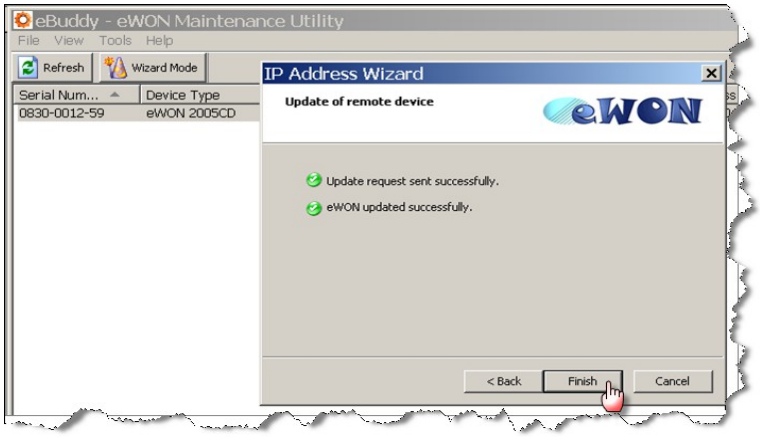


eBuddy finds your eWON. Select it by double-clicking on it and the IP Address window opens.

5. Enter new LAN IP address and Subnet Mask. Click ***Next***



6. Wait until address update and device reboot are completed. Click ***Finish***.



In our example the eWON was set to LAN IP address 192.168.0.53.
As shown in § 4.1 Internet connection using the WAN Interface, this address fits into the PLC-range and does not interfere with the Company LAN.

7. End of step 1

5.2 Step 2: Configure eWON for Internet connection

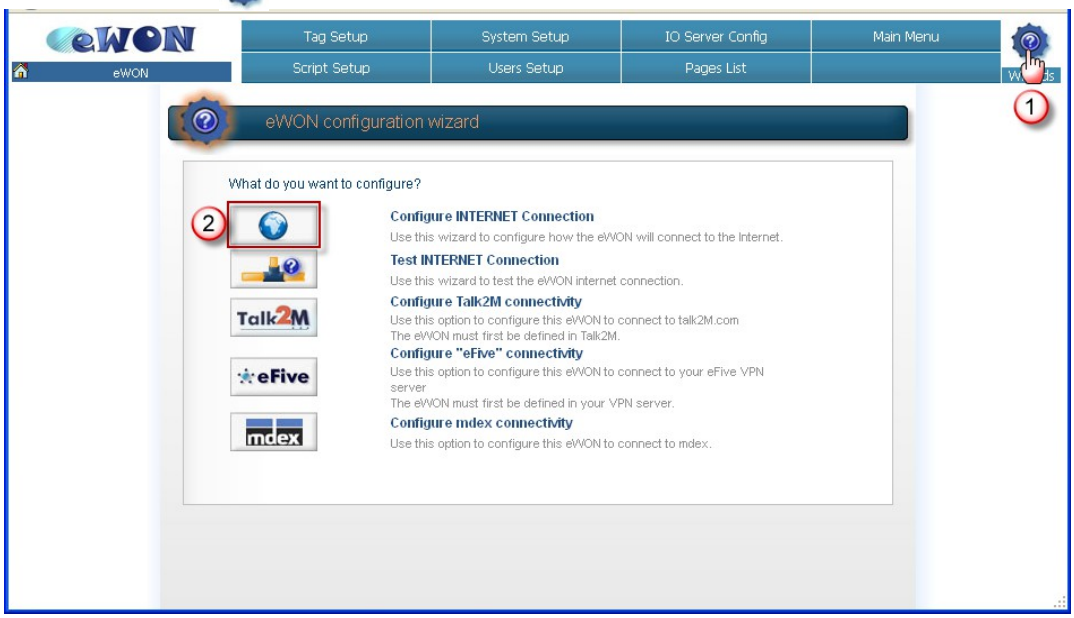
To configure your eWON's Internet connection :

1. Configure the network parameters of your configuration PC to encompass the IP range of the eWON LAN. To do this, go to START, Settings, Network Connections. Open the currently used connection, select the TCP/IP parameter row and select a fixed IP address within the range of the eWON LAN. Click OK to close the wizard.

2. Connect the PC to one of the LAN ports of the eWON.

3. Open your Internet browser and access the eWON internal Web page by typing the LAN address you just configured (in our example http://192.168.0.53)

4. To open the eWON wizard page, click on ***Configuration*** in the toolbar and then on the wizard icon. The following page will be displayed:

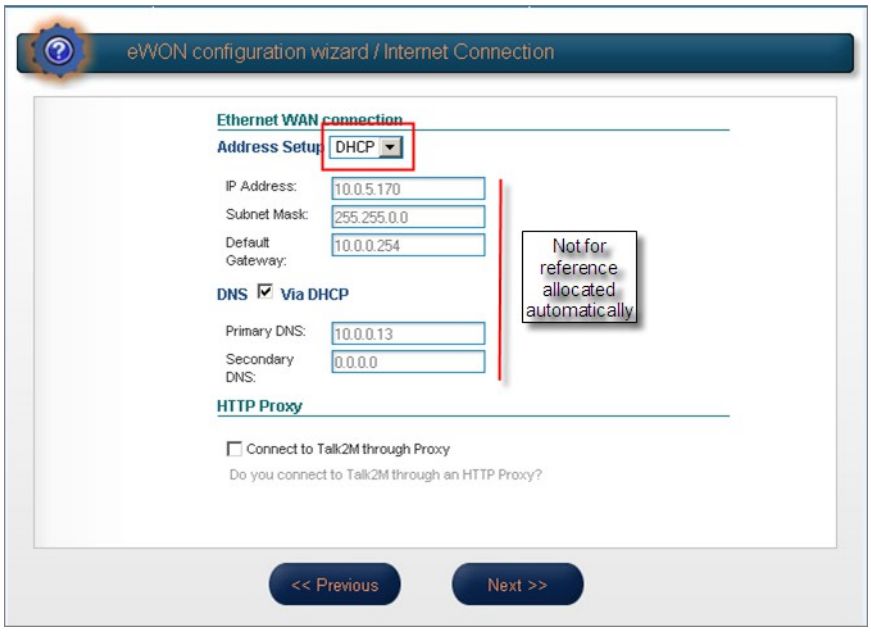


5. Click on the icon next to ***Configure INTERNET Connection*** to launch the wizard. Following window will be displayed (options in drop down are depending on hardware configuration) :

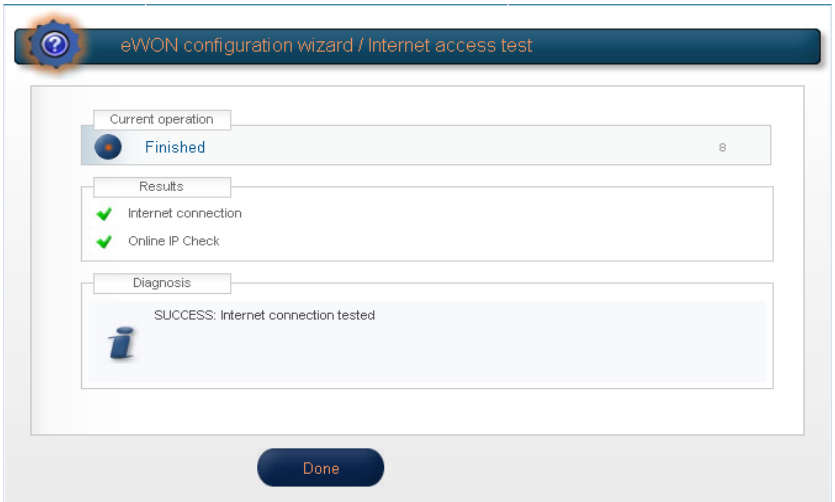
6. According to your eWON type (with a modem or a second Ethernet interface), you will have the possibility to choose between different connections:
   - *Modem Connection*
   - *Ethernet WAN* connection*
   - *ADSL*

   WAN refers to **wide area network , which is network that covers a broad external area using the Internet infrastructure, as opposed to LAN referring to **local area network** that is restricted to internal networks.*

   From the next step onwards, we will address the most current access which is ***Ethernet WAN connection*** (for modem connection refer to Appendix 1 – Specifics for Modem connections).
7. Make sure the WAN port of the eWON is physically connected with the company network. **Traffic LED do not lit yet as the connection is not yet defined.**
8. Select ***Ethernet WAN connection***. The usual configuration for Ethernet is DHCP enabled (device obtains IP address and Internet access automatically from host). Use a fixed IP address, Gateway and DNS only if this is clearly required by the network admin.



9. Click ***Next*** and go to step 10 ***Internet Connection Test.***
10. The last step of the Internet configuration consist in a communication test. This test should end up successfully as shown in the snapshot below:



The Internet Connection means that the eWON is correctly configured for an Internet connection. If this test is not successful, then go back to the previous configuration steps and recheck all settings for compatibility and accuracy.

The ***Online IP Check*** means that the eWON was actually able to reach an IP address on Internet. ***It might not be so critical if this particular test fails***. Go ahead with the procedure without being too much concerned.

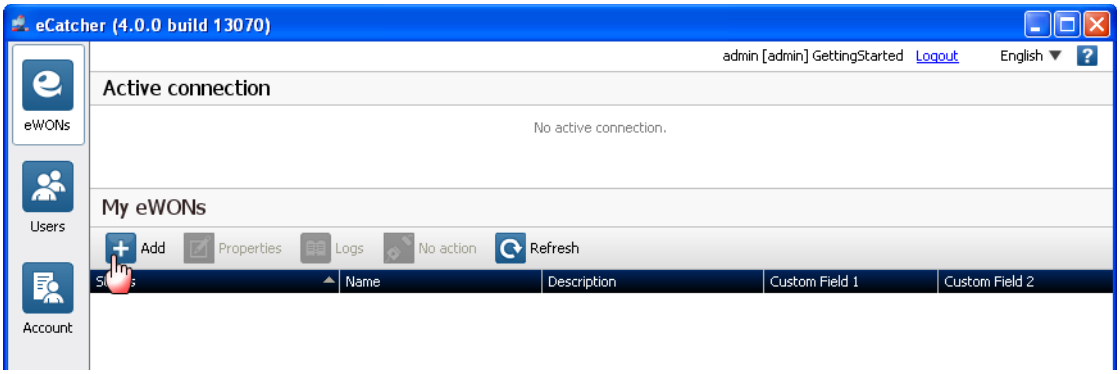
You normally do not need to read this manual to complete the present procedure, but we mention for reference the detailed document describing the use of the wizard: AUG-019-0-EN-(eWON Configuration for Internet Access Using the Wizard). http://support.ewon.biz/docs/Talk2M_Free.htm

11. End of step 2.

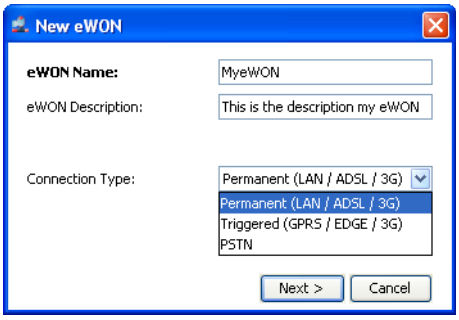
5.3 Step 3: Creating the eWON in your Talk2M account

To connect to your eWON remotely, we will use eCatcher and Talk2M.

1. You can skip the present point if you already created a Talk2M account. If you haven't created your Talk2M account yet, install eCatcher and create your Talk2M account as per § 3 of the guide "Talk2M – Getting started on Service Free+" available at http://support.ewon.biz/docs/Talk2M_Free.htm. You can download eCatcher from this link as well.
2. Connect your configuration PC to the company LAN and configure its network parameters to DHCP enabled (acquiring an IP address automatically).
3. On the menu on the left side of the eCatcher interface click on the eWONs button (default view).



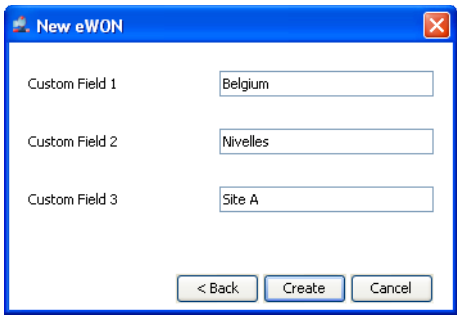
4. On the menu on the left side of the eCatcher interface click on the "**+**" (New eWON) icon in the eWON list section. The following window appears:



5. Enter the ***eWON name*** you want to use on the Talk2M server to identify the remote connection to your eWON.
6. The ***eWON Description*** can be left empty.
7. Select the ***Connection Type*** to specify how your eWON will be connected to the Talk2M server using:
   - a permanent **LAN / ADSL / 3G** connection
   - a triggered **GPRS / EDGE /3G** connection
   - an Internet connection over a **PSTN** connection (analog modem).

If you specify a triggered GPRS / EDGE / 3G connection, then you will be asked to specify the phone number. This will allow Talk2M to **wake up your eWON remotely** using a Wake-Up SMS as described in Appendix 1 – Specifics for Modem connections.

8. Click on ***Next***.

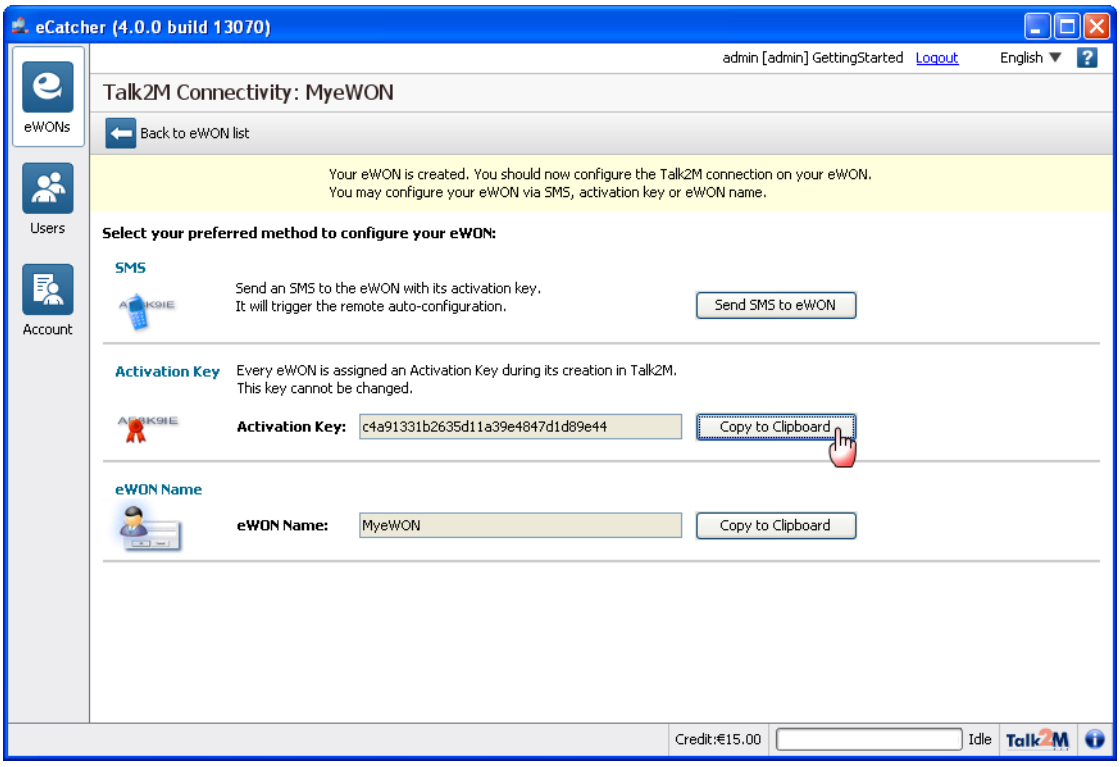


Here you can enter additional information concerning your remote connection. The ***Custom Fields*** can be used to classify or filter your different remote connections. This will allow you to find easily the eWON you need to connect to.

In this example, we entered Belgium, Nivelles and Site A to localize where the eWON is placed. The Custom Field names can be modified as explained later in this document.

9. Click on ***Create*** to add the eWON to the eWON list of your Talk2M account.

10. The Talk2M Connectivity page opens:



11. During the Talk2M connection wizard of your eWON you will need an activation key which will allow the eWON to get back the VPN keys and certificates needed for the VPN connection.

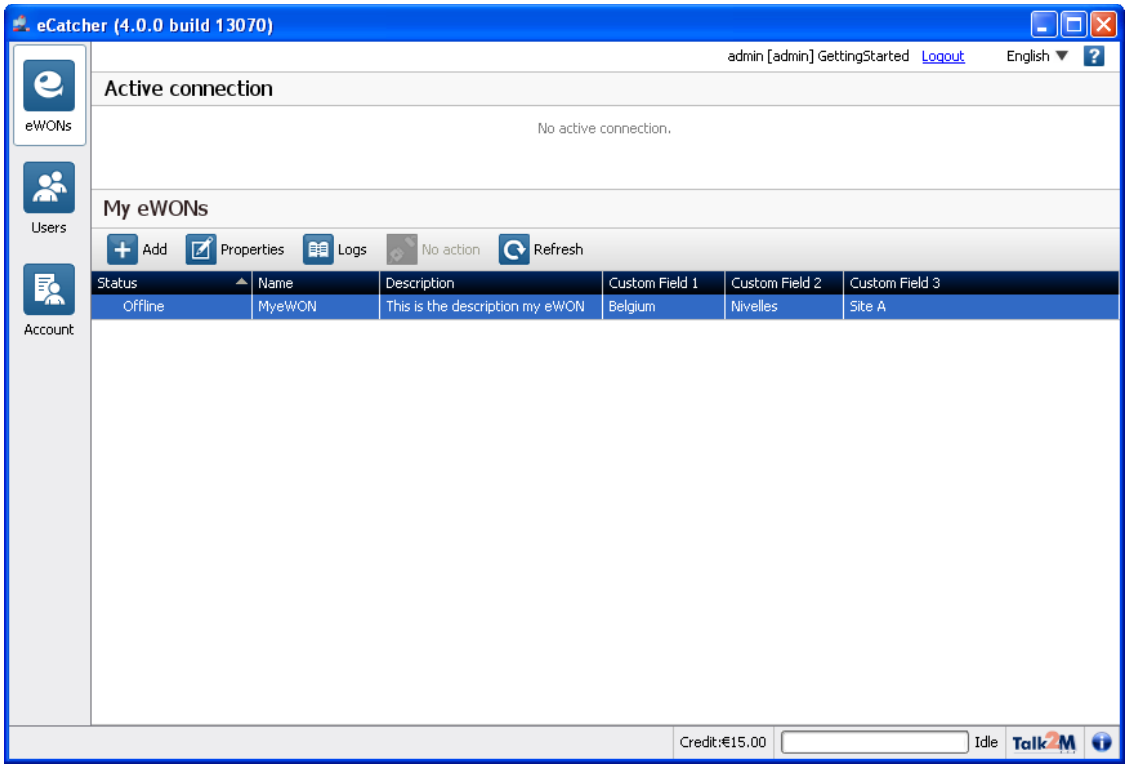
    Under the ***Configure via Activation Key*** section you will find the Activation Key needed for the eWON configuration. Click on the ***Copy*** icon to copy the activation key into the clipboard of your PC.

    Note: Next to the eWON configuration using the Activation Key there are also 2 other configuration methods:

    Configure via eWON Name: During the eWON Talk2M wizard, instead of using the Activation Key you can also specify the ***eWON Name*** and use the user name and password of your Free+ account.

    Configure via SMS: If your eWON has a GSM modem and if the eWON is already configured for Internet connection, then you can also send an SMS to the eWON containing the activation key. When eWON receives the SMS, it will then trigger automatically the Talk2M connection wizard and will configure itself to connect to the Talk2M server.

12. Click ***Back to eWON list***. The new eWON is now be displayed in ***My eWONs*** list section in the central part of the window.



13. End of step 3.

5.4 Step 4: Configuring your eWON to connect to Talk2M

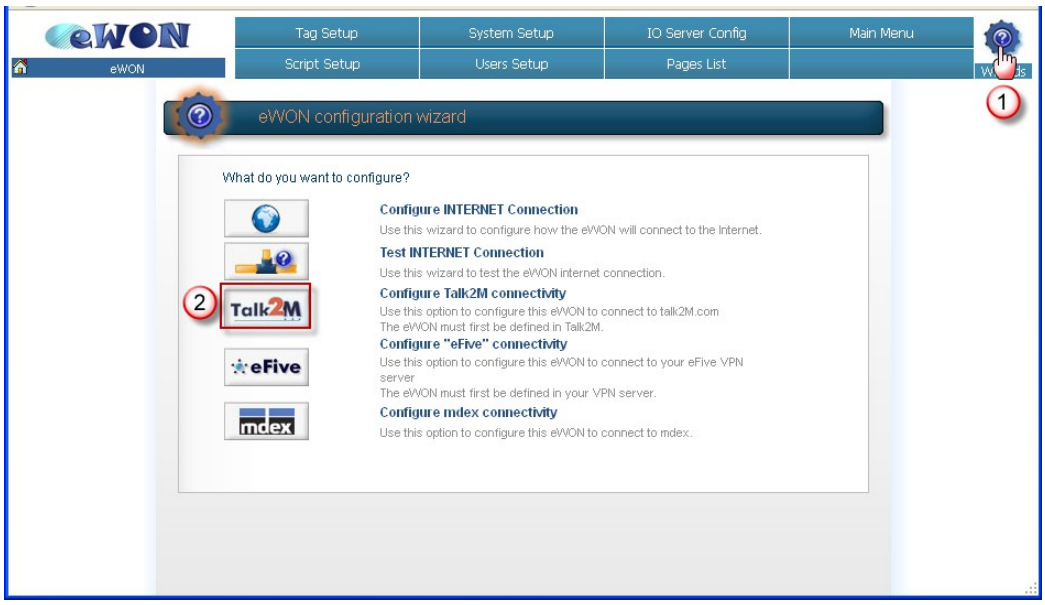
1. Configure the network parameters of your configuration PC to encompass the IP range you used to allocate the LAN IP address to the eWON.

2. Connect the PC to one of the LAN ports of the eWON.

3. Open your Internet browser and access it's internal Web page by typing the LAN address you just configured (in our example http://192.168.0.53)

4. To open the eWON wizard page, click on ***Configuration*** in the toolbar and then on the ***Wizard***  icon.

   The wizard window will open:



5. Click on the ***Talk2M*** wizard.

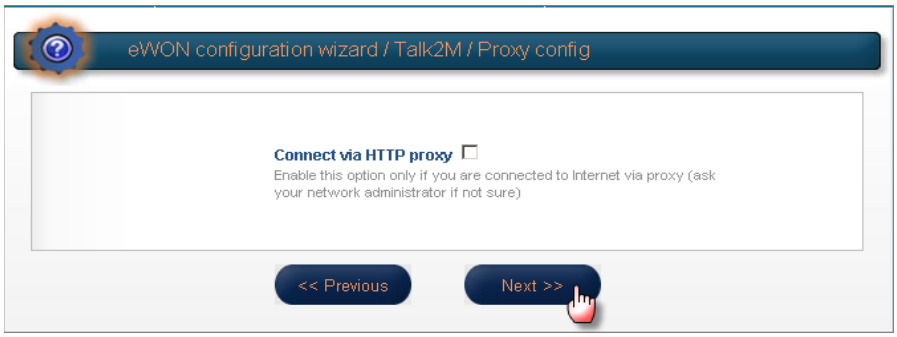
   The following window will be displayed:

6. Click on ***Next*** to register the eWON on the Talk2M server.
7. Click on ***Register with ACTIVATION KEY***, as in the previous step, we copied the Activation Key to the clipboard of your PC. Paste the Activation Key (Ctrl+V).

8. Click ***Next***

Note: If you choose the ***Registration with eWON NAME*** method, then you will be asked to enter the Name you specified for the remote connection in your Talk2M account. You will also need to specify your Talk2M account name and enter the user name and the password which you use to connect to your Talk2M account.

The next window of the wizard will ask you if you need to connect through a Proxy server.

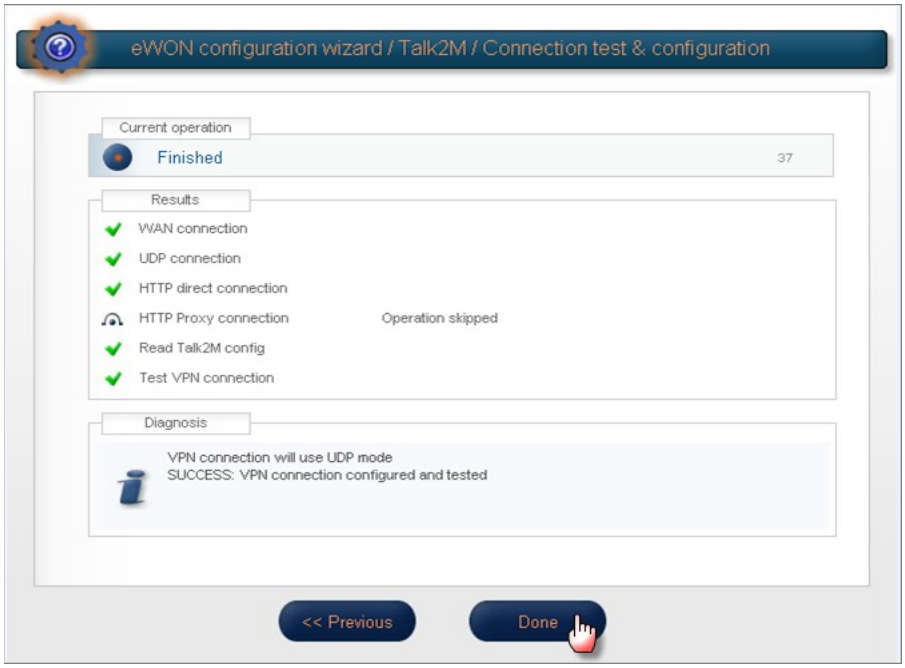


9. Check this option only if you need to specify a Proxy server for the Internet connection. Otherwise leave this option unchecked and click ***Next.***

10. The Talk2M registration will now start and the result will be displayed on the wizard page:

The eWON will first test the different connections needed to connect to the Talk2M server (UDP and HTTP or HTTP using a Proxy). Then the eWON will connect to the Talk2M server and retrieve the VPN keys. At the end, the eWON will establish the VPN connection to the Talk2M server.

Once the registration and configuration of the eWON are completed, the result will be displayed on the Wizard page as shown in the following picture:

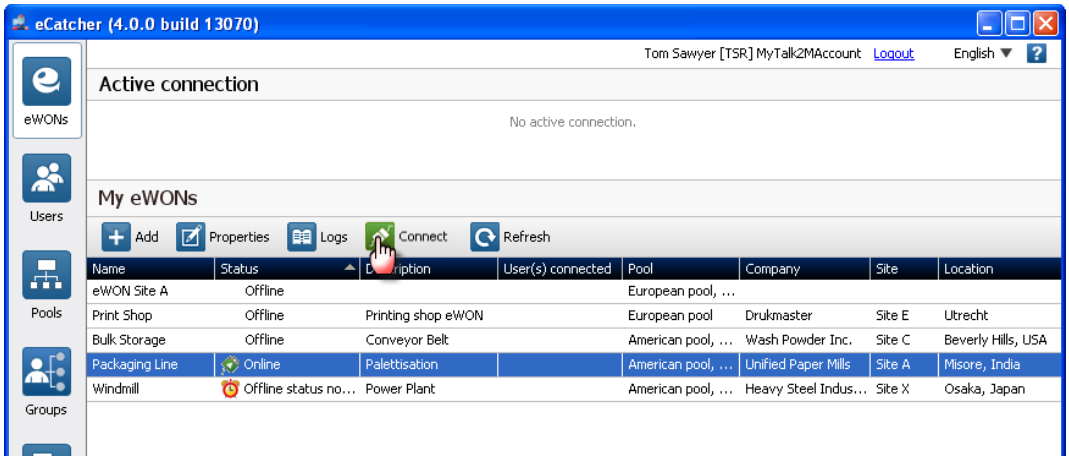


11. Click on the ***Done*** button to close the wizard.
    Your eWON is now configured to connect to the Talk2M server.
12. End of step 4.

5.5 Step 5: Connecting the eWON remotely

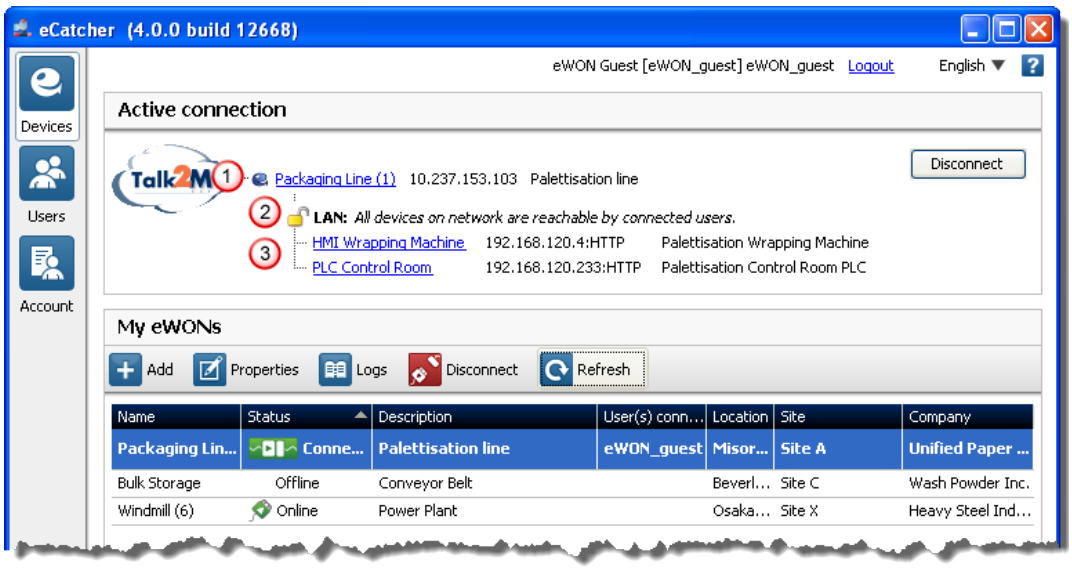
Now that the eWON is configured to connect to Talk2M, we can establish the remote connection to the eWON.

1. Connect your configuration PC to the company LAN and configure its network parameters to DHCP enabled (acquiring an IP address automatically).
2. Launch eCatcher and open your Talk2M account.
3. In the eWON list section select the eWON you want to use for the remote connection.

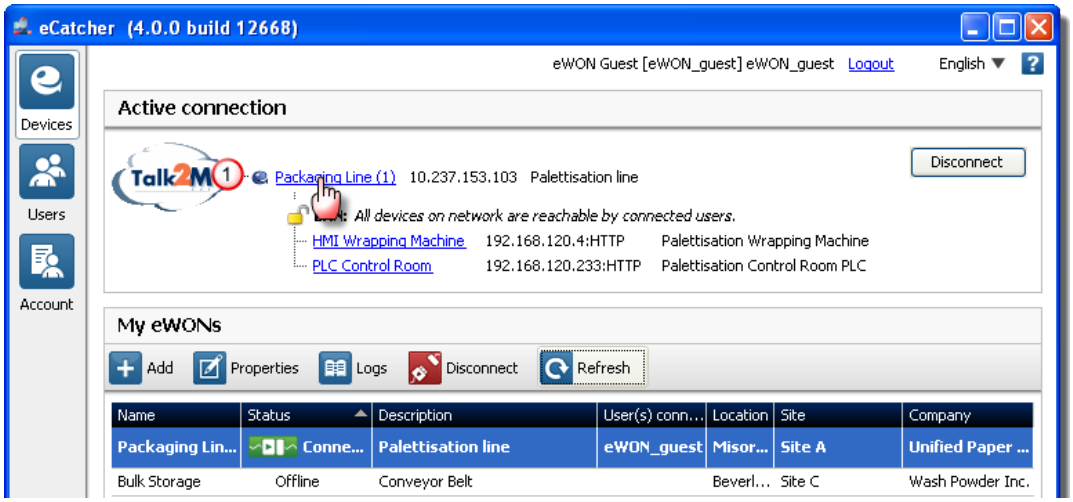


The eWON which you just configured should now be displayed as on line (green tick in the action column). This means that the eWON has established its VPN connection to the Talk2M server.

4. Double-click the ***online icon*** or click on the ***Connect*** button displayed in the eWON list menu to establish the remote connection to this eWON. eCatcher will now establish the VPN connection to the Talk2M server.
5. Once the VPN connection to the eWON is established, the eWON will be displayed in the ***Active connection*** section on the top of the window.



6. The PC is now connected to the eWON using the VPN tunnel and you can start to use the remote connection.
7. If you want/need to connect to the eWON itself, you can click on the ***eWON Name*** link in the ***Active Connection*** section, as displayed in the following picture. Once the home page of the eWON web interface is displayed, you know for sure that your connection is effective.



Note: For specifics related to modem connection (including GPRS/Edge) please go to § 10 Appendix 1 – Specifics for Modem connections at the end of this guide.

8. End of step 5.

5.6 Step 6: Terminating the remote connection

1. Click on the disconnect button in the Active connection section. This will close the VPN connection with the eWON.

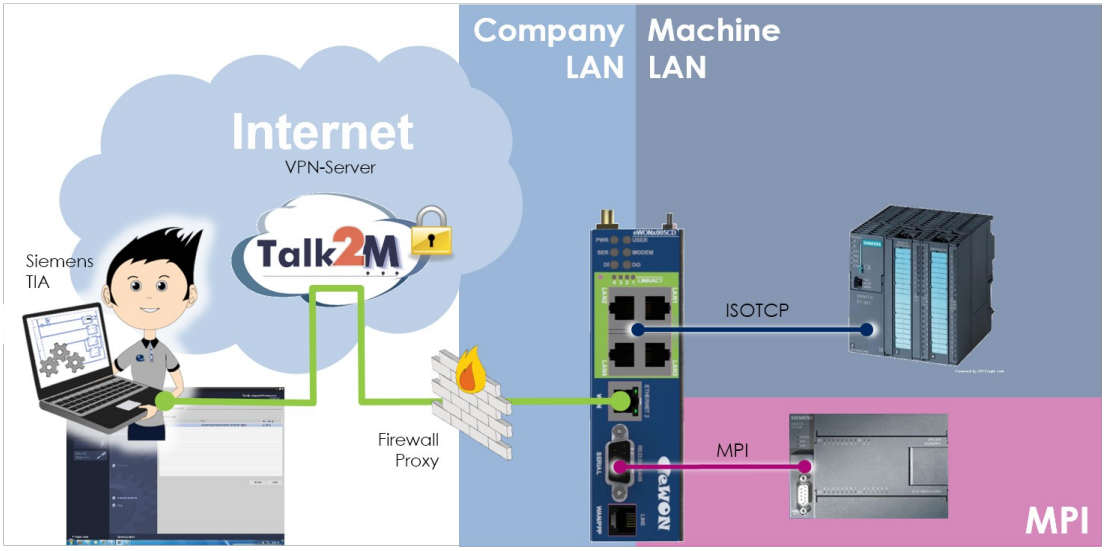
2. **Note**: For specifics related to modem connection (including GPRS/Edge) please go to § 10 Appendix 1 – Specifics for Modem connections at the end of this guide.
3. End of step 6.

6. Linking eWON and PLC

6.1 Local link capabilities

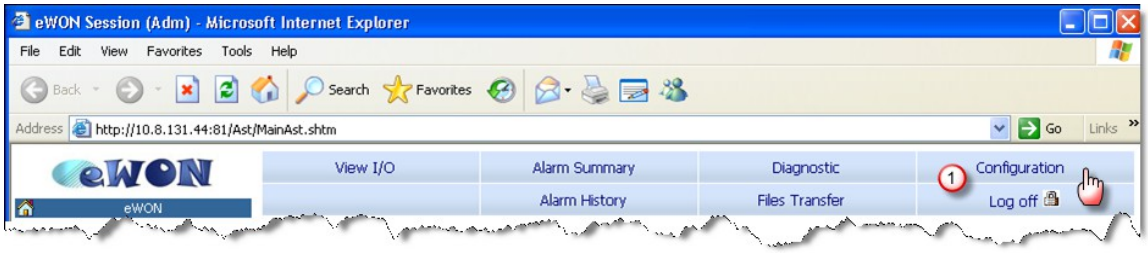
Depending on whether the PLC will be connected to the eWON with a **MPI/Profibus** or **Ethernet ISOTCP** link, the eWON configuration and the connection to the PLC will be different. Both types of connections will be explained.

Keep in mind that you can combine both connection types without any problem. For example, you can connect at the same time to one or more S7-300&400 using the MPI/Profibus port of the eWON and connect to one or more S7-300&400 PLC(s) using the Ethernet ISOTCP connection between the eWON and the PLC.

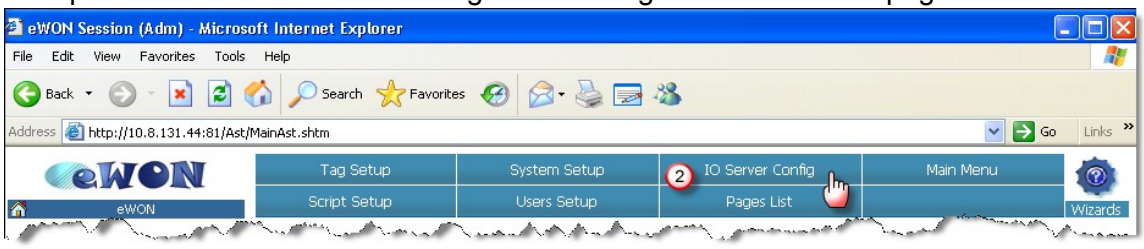


6.2 MPI/Profibus link configuration

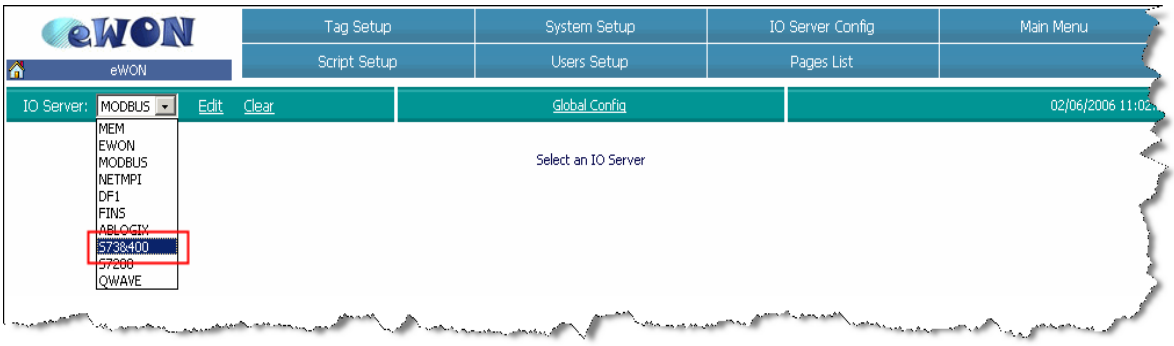
1. Go to the eWON Web page either using the just configured VPN tunnel or a point-to-point connection to the eWON LAN port.



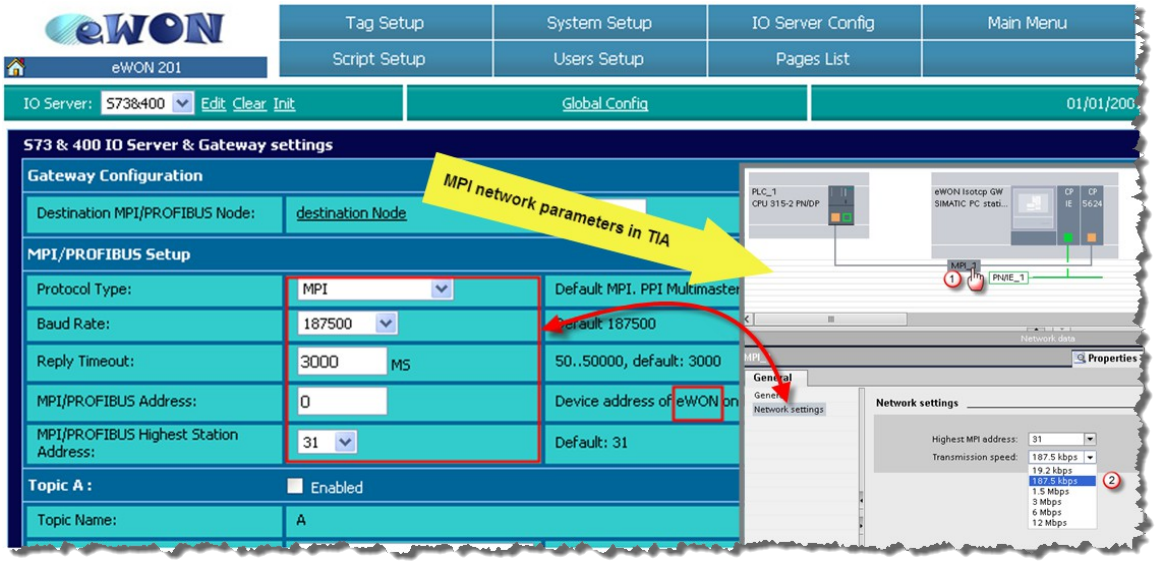
2. Open the eWON IO Server configuration and go to the IOServer page



3. In the drop down field select the "**S73&400**" IO Server

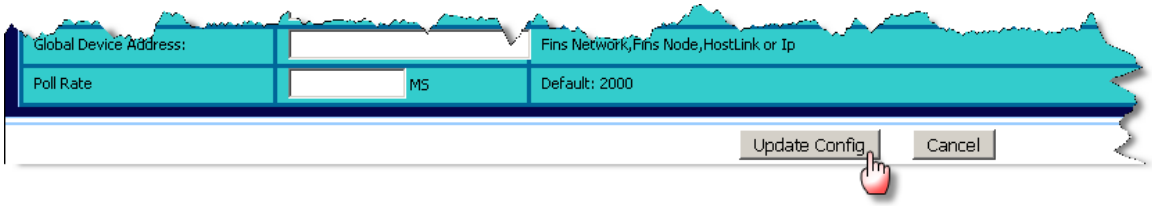


4. Set the ***Protocol Type***, ***Baud Rate***, ***Reply Timeout***, and ***MPI/Profibus Highest Station Address*** corresponding to those actually configured in the PLC you want to communicate with (shown values are eWONs default values):



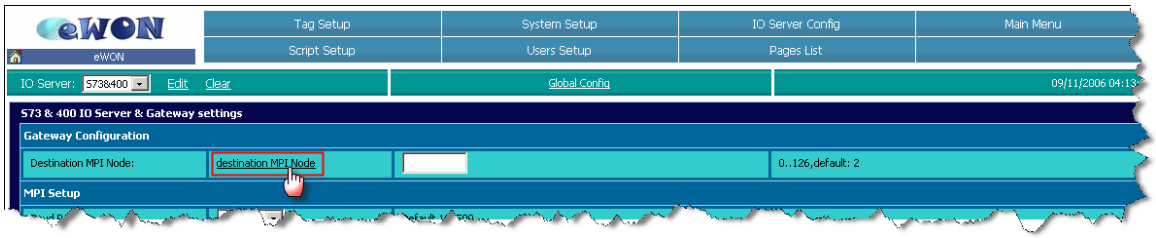
Note: The ***MPI/Profibus Address*** is the MPI address of the eWON <u>not the one of the PLC!</u> The address configured here has to be an MPI Address that is not yet used on the MPI network. In most cases the default value 0 will work fine.

5. Save your settings by clicking on ***Update Config*** and leave the Web configuration interface open.

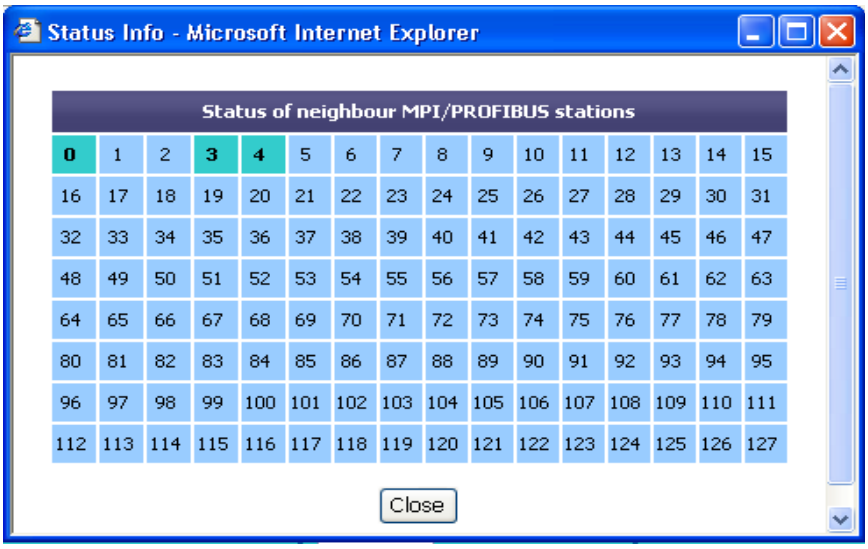


6. Interconnect the MPI port of the eWON with your PLC

7. Go back to IOServer settings page (***Edit*** menu) and click on the ***Destination MPI Node link*** to check if the eWON MPI interface is correctly configured and connected to your MPI network.



8. The ***MPI Status Info*** popup opens:



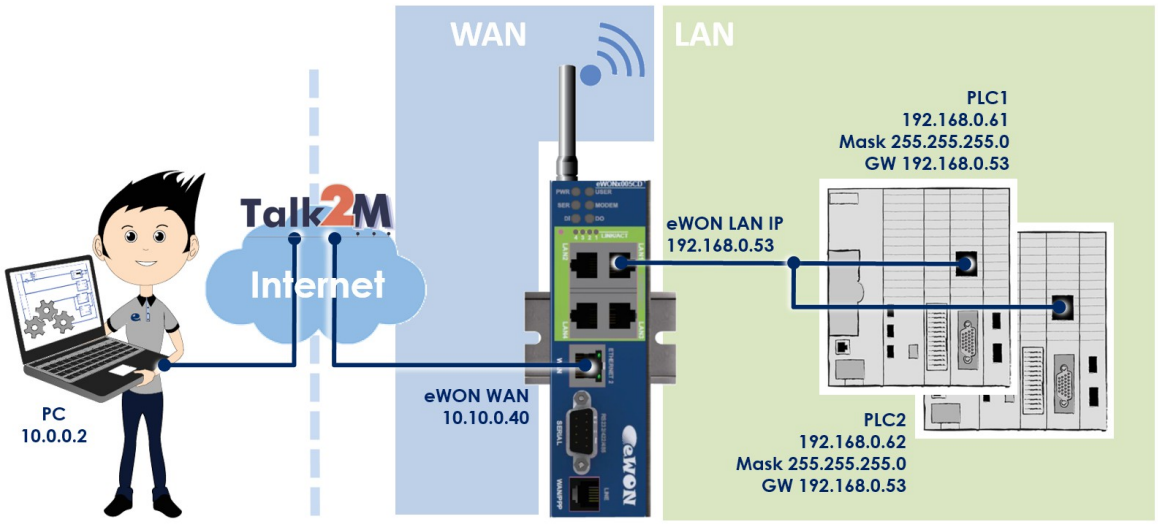
This window will show you the different MPI devices detected by the MPI chip of the eWON. The ID numbers of the detected MPI/Profibus master devices are highlighted.

If the status table does not display any MPI address, then the MPI IOServer setup parameters for your eWON are not correct (or have not been saved using the ***Update Config*** button). Please check the baud rate settings, verify that the eWON is not using an already used MPI address and make sure you end-up with ***Update Config***.

If the status table displays only one MPI address (actually the one of your eWON), it is likely that the Baud Rate settings are not correct or that the eWON is not properly connected to the MPI network (or that the cable used is not OK).

9. End of serial link configuration.

6.3 Ethernet ISOTCP link configuration



- Tips -
As of firmware v12, there is a PLC Discovery feature inside the eWON. This allows the automatic discovery of PLC (linked to the eWON) on the network while you are connected through Talk2M. No need to set the IP of the PLC in the same range than the IP of the eWON.

For more information, please refer to AUG-070: PLC Discovery through Talk2M

1. If your eWON runs a firmware 6.2s1 or greater (see note) AND your application is straight forward, there is nothing to do but making sure that the PLC IP address is in the same range than the LAN IP of the eWON.

   Note 1: From eWON firmware version 6.2s1 onwards, the **Plug'nRoute** function automatically configures the Ethernet routing. With this configuration, it is - *in most cases* - no longer necessary to set the eWON address as Gateway into the PLC.

   If, for any reason, you are using an earlier firmware version (not recommended) OR would the Plugn'Route function not work in your specific application , then you should refer to Error: Reference source not found.

   Note 2: The eWON types with 4 LAN ports (2005CD or 4005CD) can be connected to the Ethernet port of the PLC directly. Whereas the eWON types with a single LAN port (2101CD or 4101CD) need to be connected with a **crossed cable** (single PLC) or an **external switch** (multiple PLC).

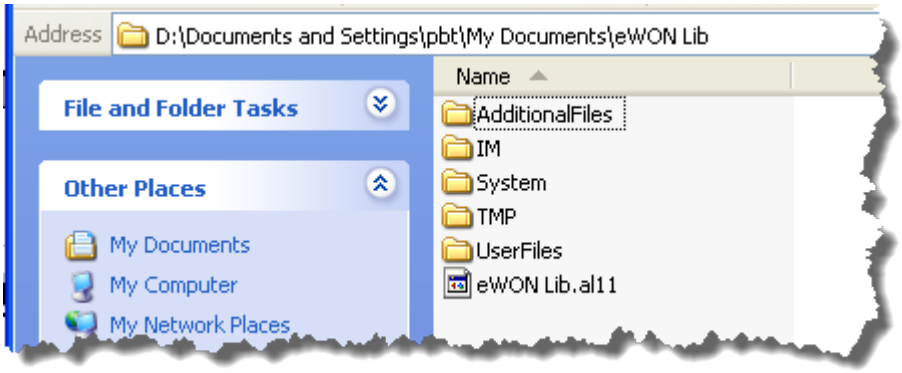
2. End of Ethernet link configuration.

7. PLC software mapping configuration

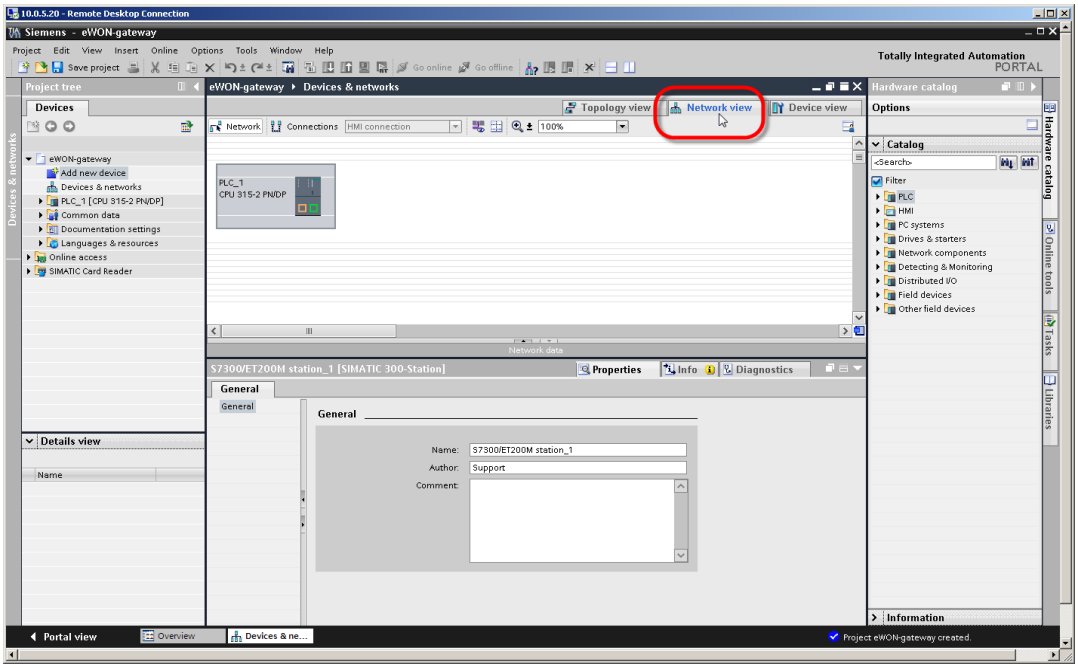
7.1 MPI local link

If you connect to the PLC using the MPI or Profibus link, then follow the steps explained hereunder:

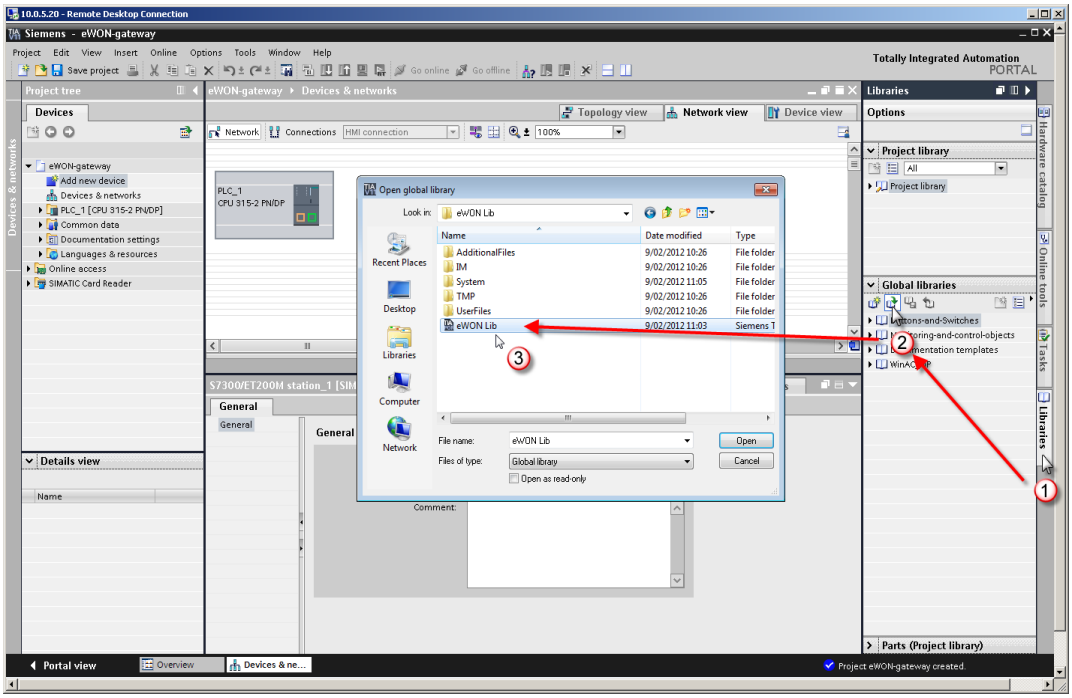
1. Download the eWON Gateway station library for TIA from our support web page http://support.ewon.biz/ewon_cfg.htm.
2. Unzip the contents to a location of your choice on your PC. You should obtain a directory named ***eWON Lib*** containing 4 directories and an eWON Lib.al11 file.



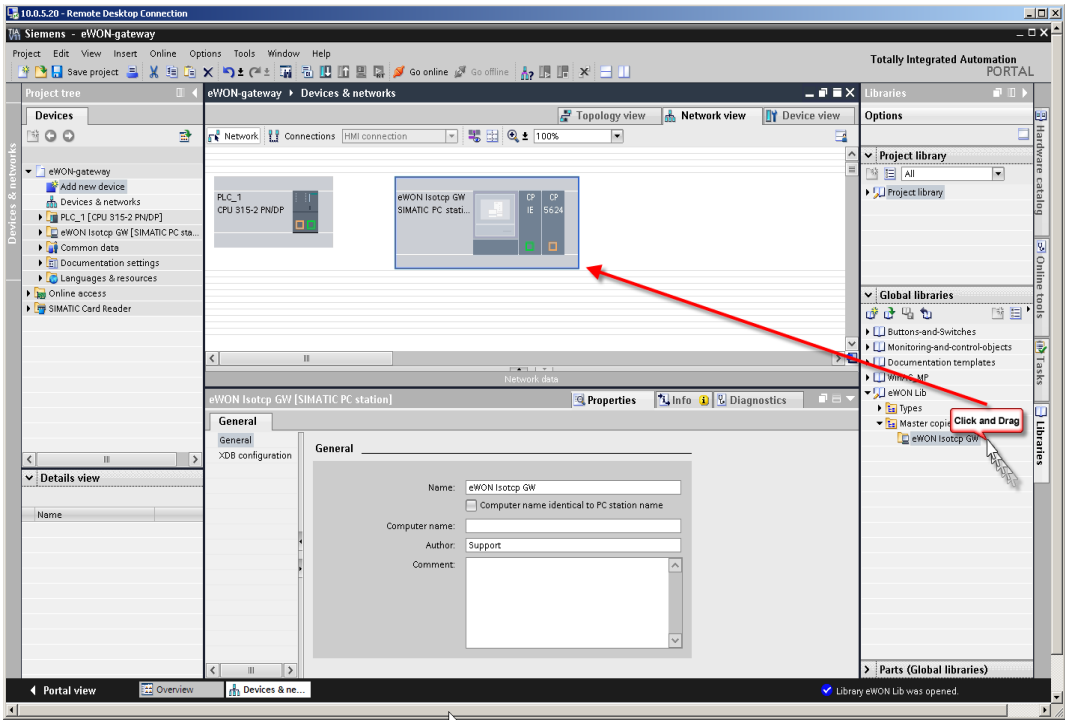
3. Open the your TIA software. Open your project. We assume there is at least one PLC CPU included in this project. In the central work pane, select the ***Network view*** tab like shown below.



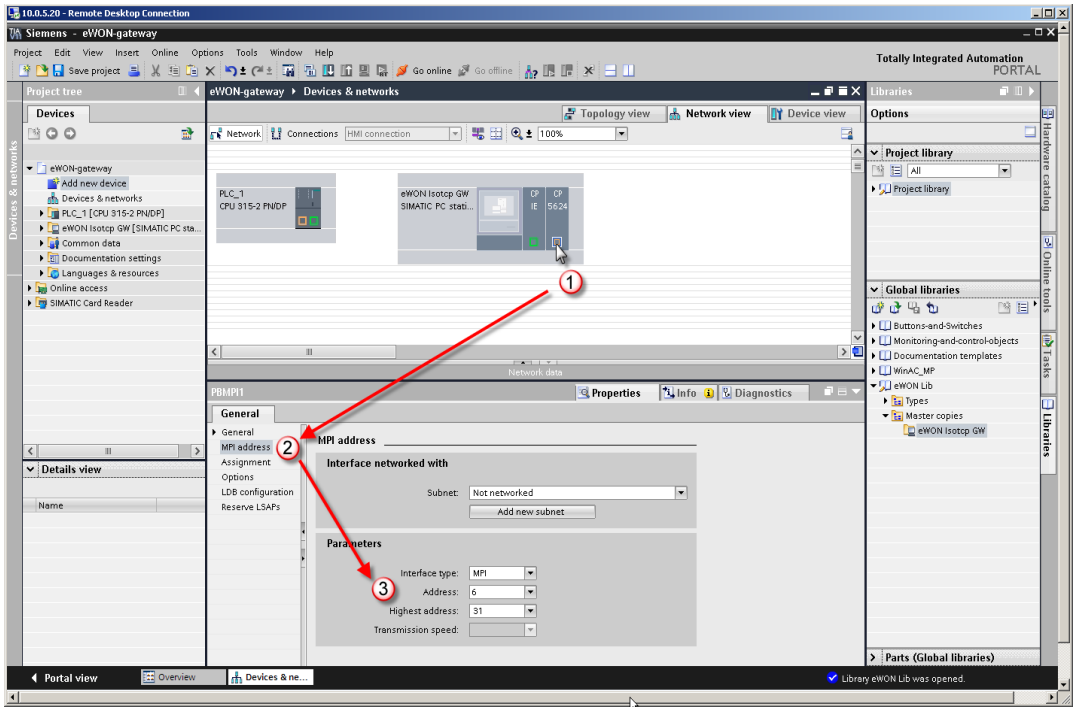
4. To import the eWON gateway station file you downloaded, click on the Libraries tab on the left (1), then click on the ***Import*** button (2) in the ***Global libraries*** section. Browse to the eWON Lib directory you unzipped earlier and select the eWON Lib.al11 file (3) and click ***Open***.



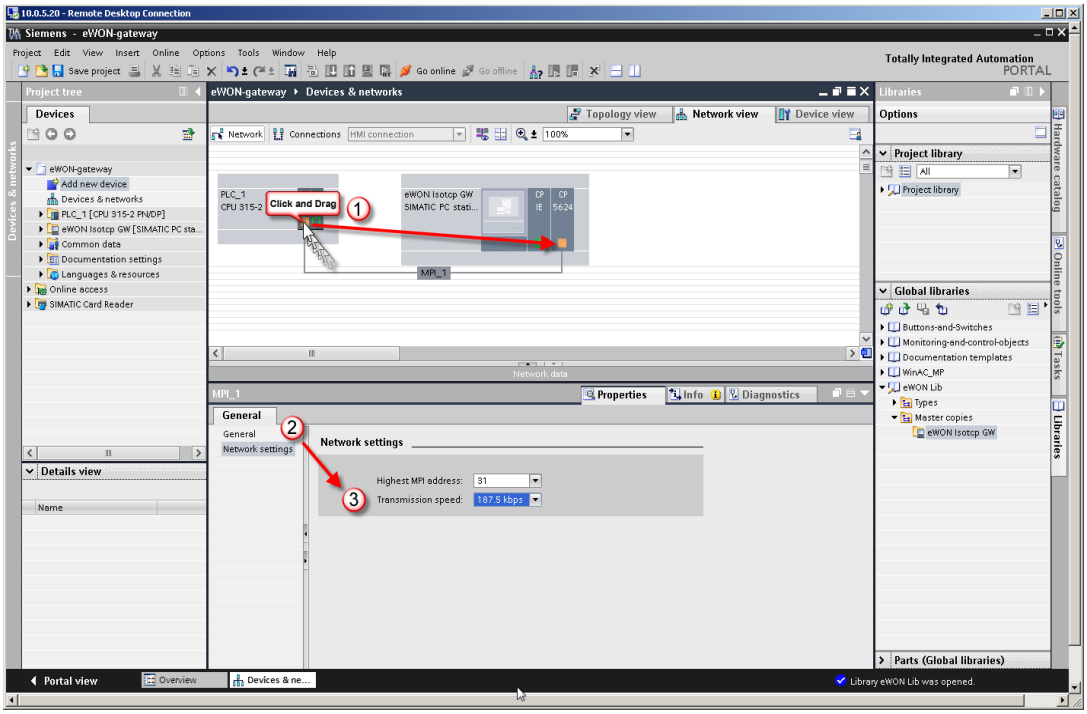
5. Deploy ***Master Copies*** under the newly create entry eWON Lib in ***Global Libraries,*** click and drag the ***eWON Isotcp GW*** object in the ***Network view*** pane like shown below.



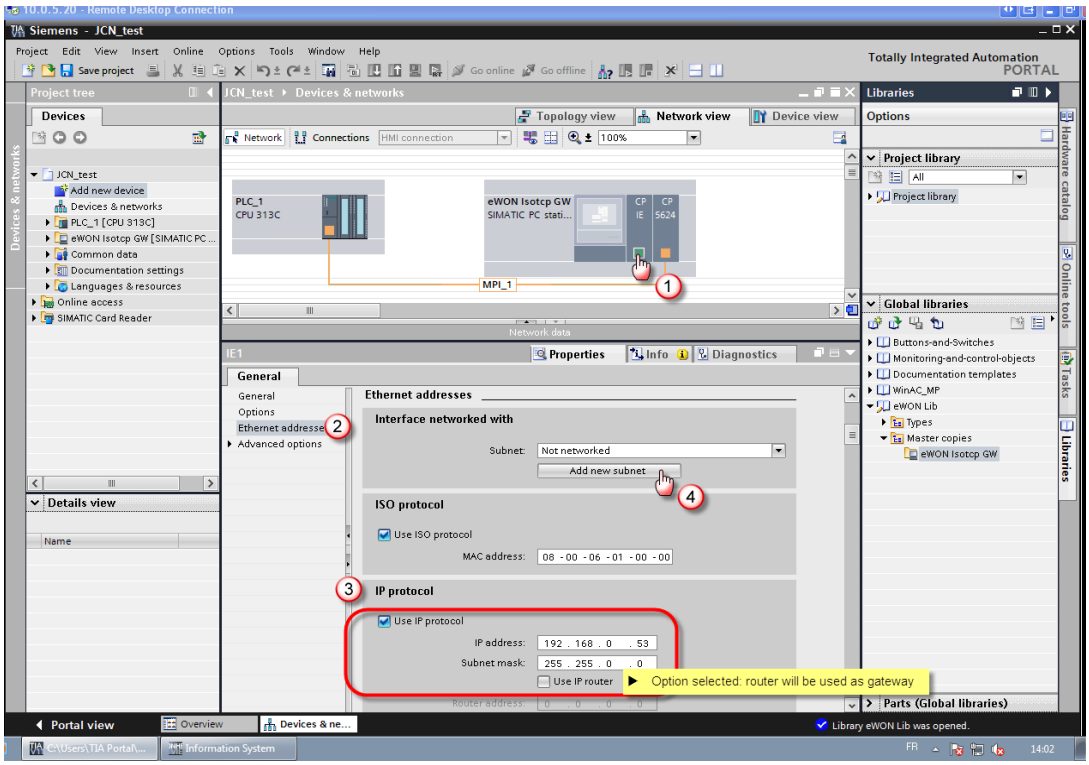
6. The eWON gateway is now displayed in your network view.
7. Click on the red square (1) of the eWON object to open the properties of the MPI interface of the eWON. In the ***Properties*** tab below select ***MPI address*** (2)in the ***General*** tab and configure (3) the MPI address of the eWON (here the chose address is 6).



8. Click on the red square (1) of the PLC hold and drag to the MPI interface of the eWON to create the MPI network between the two devices. Once the link is create, edit the ***Network settings*** from the ***General*** (2) tab and select the baud rate that the MPI link will use (3). Note: *the baud rate selected has to be the same than configured in the eWON IO Server*



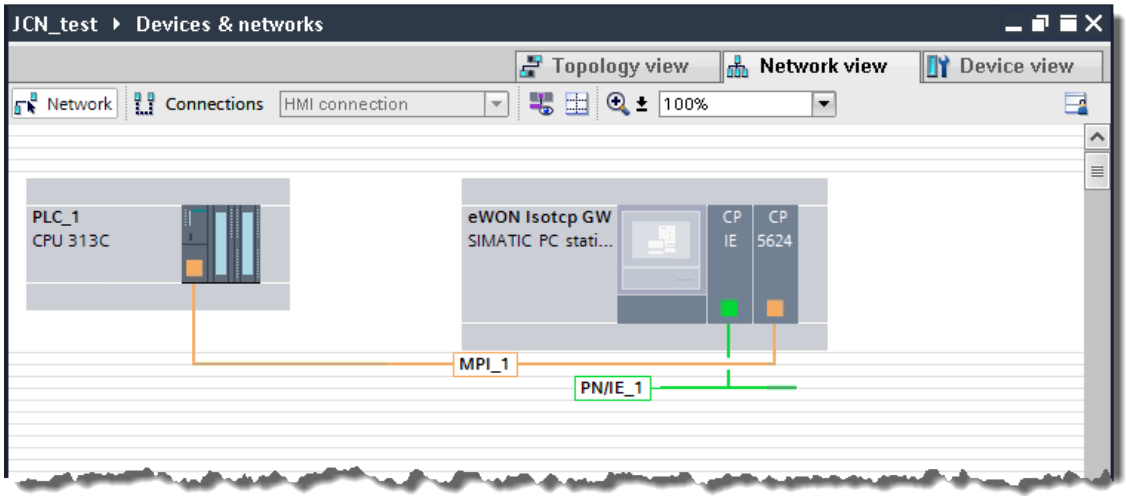
9. Double-click on the green square (1) of the eWON to configure the Ethernet Interface of the Gateway. Select the ***Ethernet address*** option from the ***General*** tab in ***Properties*** (2).



In the **IP protocol** area (3), enter the IP address and Subnet mask of the eWON (in our example 192.168.0.53 and 255.255.0.0).

Save your settings by clicking on the ***Add new subnet*** button (4).

10. Your network view is configured and should look like this (names are examples):



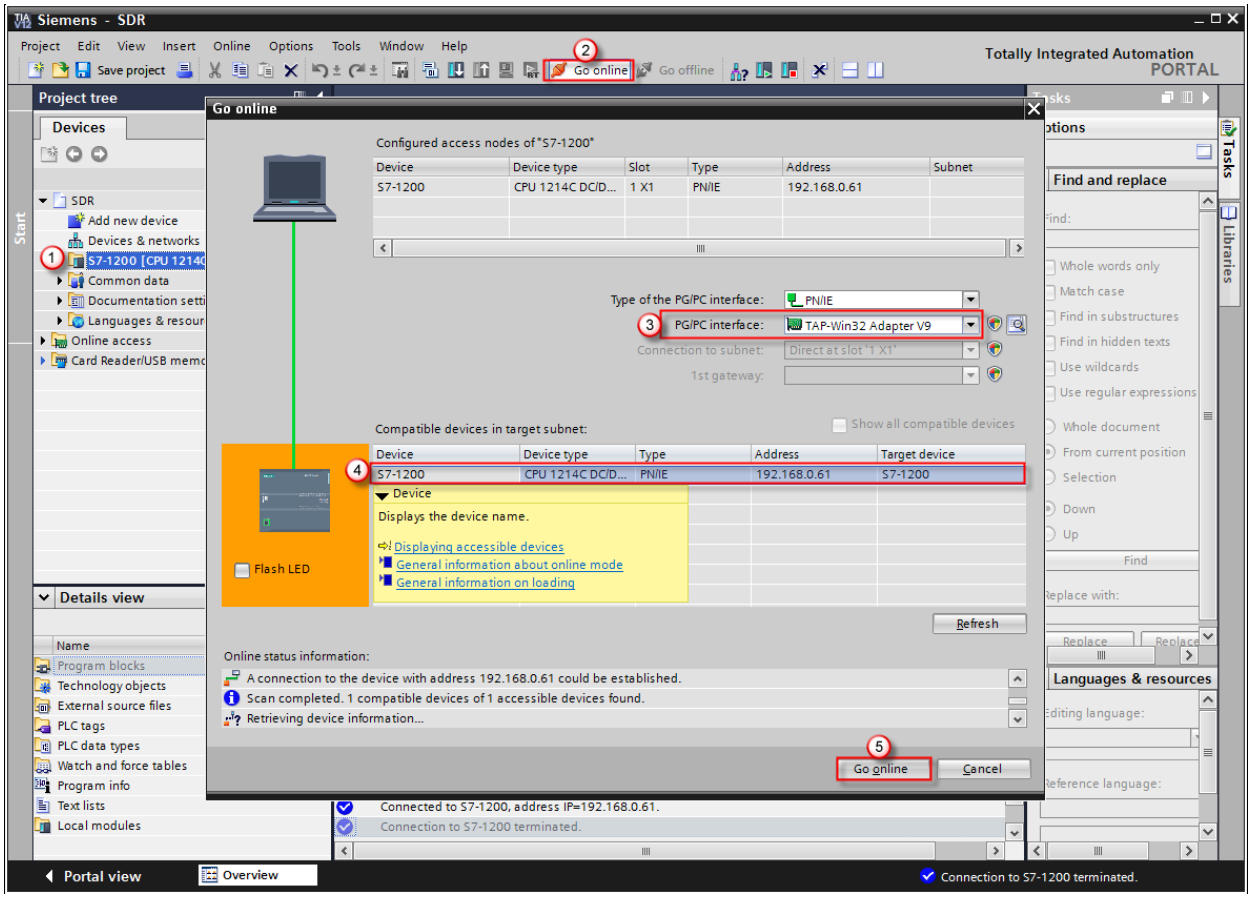
11. End of MPI PLC software mapping configuration

7.2 Ethernet ISOTCP link

Actually there is no software mapping to be configured in ISOTCP link. The mapping is managed automatically by TIA.

Open your TIA Portal, open your project and click on ***Project View*** at the bottom left of your screen.

1. Select your CPU in the device tree
2. Click on the ***Go Online*** icon of the toolbar
3. Select TAP-Win32 Adapter V9 as PG/PC interface
4. The device is automatically found and appears in the device list
5. Click the ***Go Online*** button to communicate with the detected device

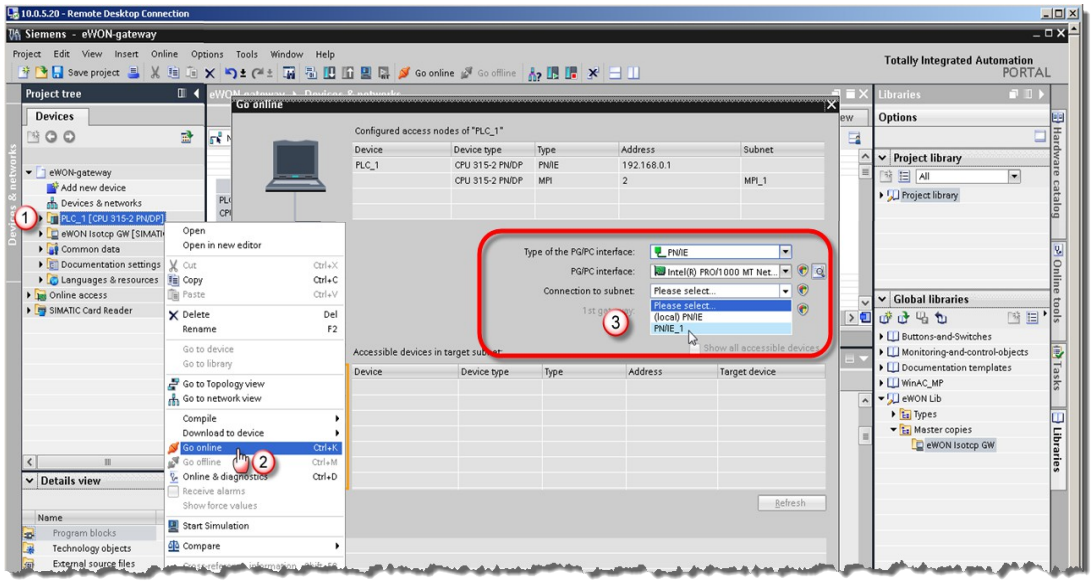


6. Click ***Go Offline*** from the toolbar to disconnect from the device.
7. End of ISOTCP PLC software mapping configuration

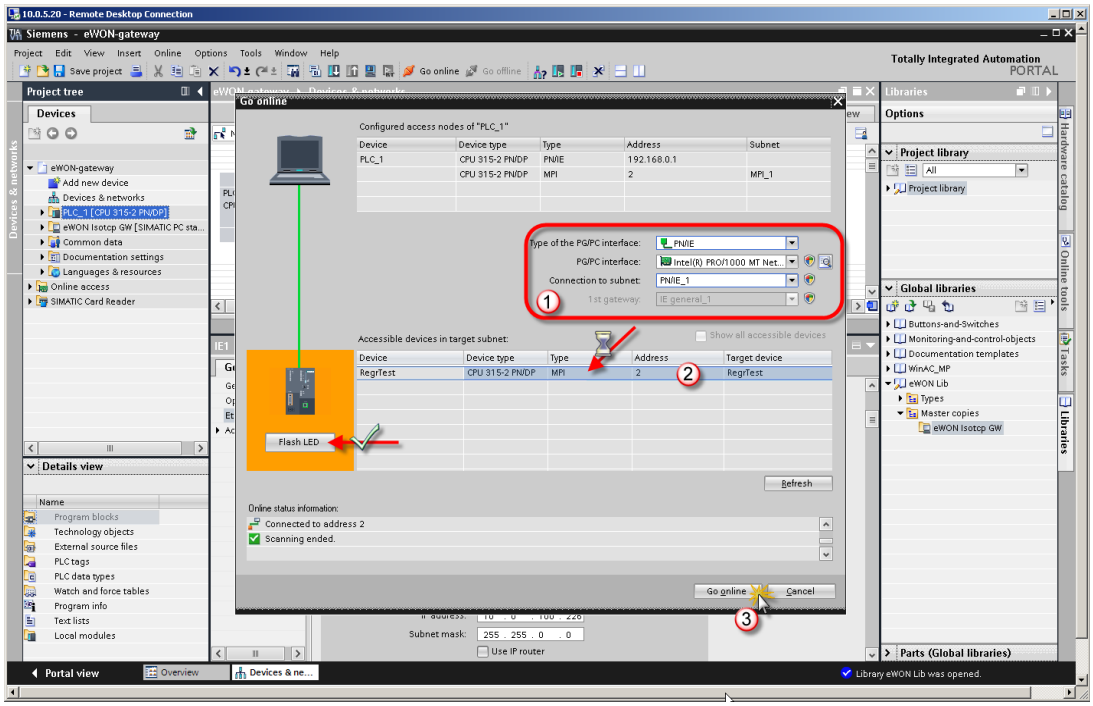
8. Establishing the remote connection

It is supposed you have been going through the previous steps. Hence, your PLC and the eWON are physically connected either by MPI or by Ethernet ISOTCP connection. The steps below are the same for both connection type.

1. First establish the remote connection to the eWON as explained in Step 6 of the eWON configuration part.
2. Once the Talk2M VPN tunnel towards the eWON is established by eCatcher, start TIA V11 and open your project.
3. Right-click on your PLC in the ***Devices*** area (1), and select ***Go online*** from the sub menu (2). Set your type of PG/PC and PG/PC parameters like shown below (3):

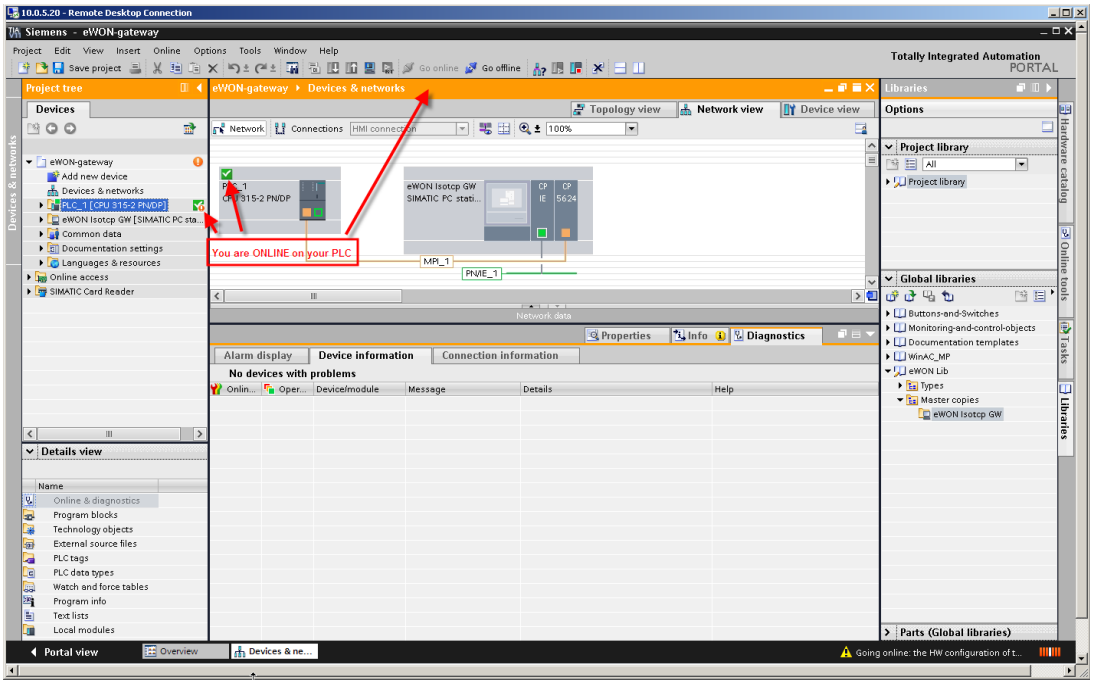


4. As soon as the PG/PC parameters are set (1), the TIA performs a communication test with the PLC and, and shows a green line between the devices and if successful. The PLC appears in the list of ***Accessible devices in target subnet*** like shown below (2).



You can send a test instruction to the PLC by pressing the Flash LED button. Check the error message area to identify the cause if the test was not successful. Click on the ***Go online*** button (3) to actually communicate with the PLC.

5. Your setup is now connected and ready to work in remote programming mode.



6. Once you finished your work with TIA V11:
   - … terminate the TIA V11 connection through the ***Go offline*** function (in toolbar or right click on the PLC in the Devices area).
   - ...terminate the Talk2M connection of the eWON explained in Step 6: Terminating the remote connection of the eWON configuration part.
7. End of PLC remote access.

9. Troubleshooting

9.1 Cannot reach the PLC on its MPI/Profibus port?

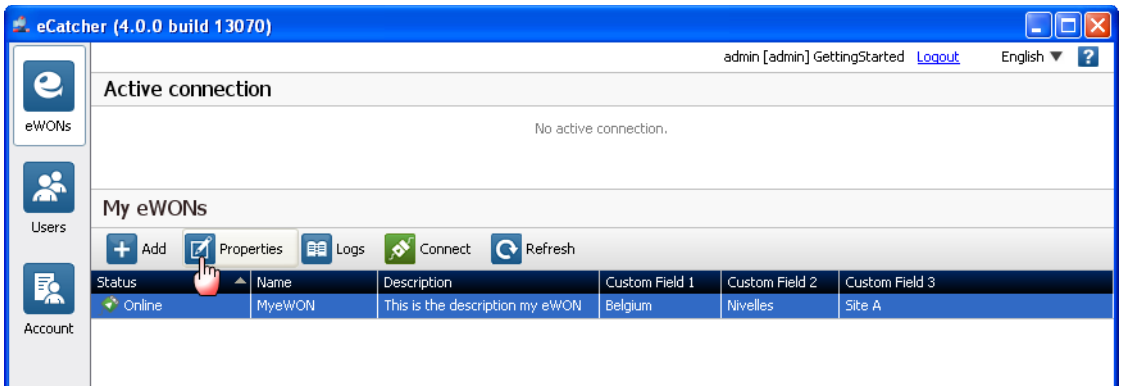
If you cannot reach the serial PLC connected to the eWON then verify the following:

- Check IOServer configuration in eWON page (S73&400 and protocol settings)
- Open the eWON Event Log ***[Main Menu, Diagnostic***, ***Event Log]*** to check for error messages.
- In TIA V11 check in the Netpro network layout if the correct IP address has been configured: You must use either the eWON LAN IP address or the eWON VPN IP address.

9.2 Cannot reach PLC by Ethernet ISOTCP ?

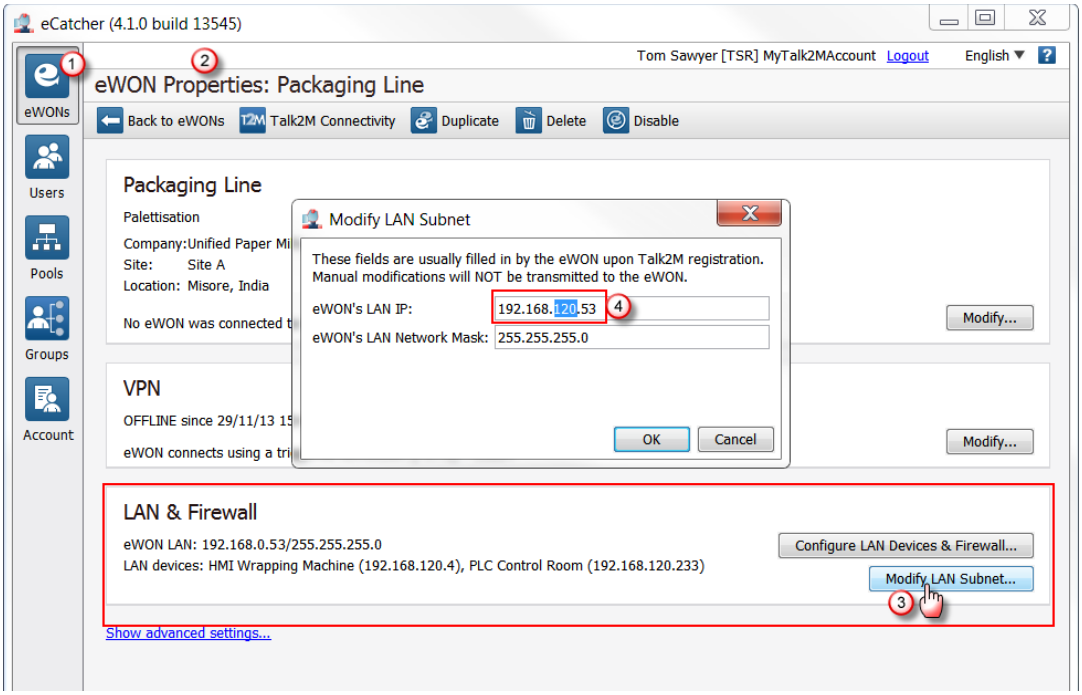
To be able to reach the PLC by Ethernet ISOTCP, the following conditions must be fulfilled:

- Reboot the PLC after IP address and/or gateway change.
- Check that the network LEDs are lighting at both ends. If they aren't, it means there is an issue with the Ethernet cable(s). If you use an eWON having a single Ethernet LAN port (no integrated switch), then you have to use either a ***crossed*** Ethernet cable (point-to-point with single PLC) or an intermediate switch (multiple PLCs).
- You might have a mismatch between the actual IP configuration of the eWON and the eWON LAN IP address configured as Remote Network in your Talk2M account. You can check, and if necessary, modify these settings, in eCatcher. Under the eWON list select the Name of the remote connection and click on the ***Properties*** button.



The eWON ***Properties*** window (2) will open:

Here you can edit several parameters of the related eWON. The Ip Address an Subnet Mask are specified under the ***LAN & Firewall*** section.



To change the IP parameters (4) of the eWON, click on the Modify ***LAN Subnet***... button (3).

Once the modification is finished, click on OK. After the change you would then have to save and ***Disconnect*** and ***Connect*** the VPN bridge to the eWON for Talk2M to take the modification into account.

- The remote PLC network must be in a different range than the company network on which your PC is connected (see Step 1: Setting IP address of eWON LAN).

10. Appendix 1 – Specifics for Modem connections

10.1 General

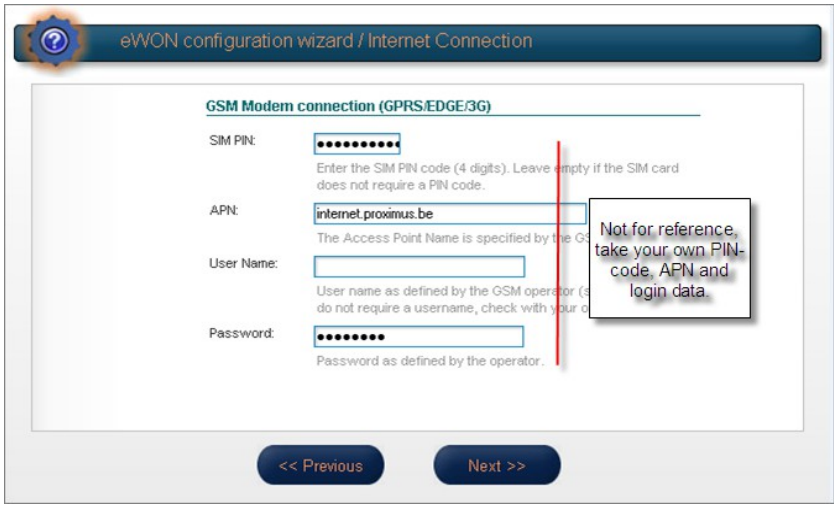
The basic configuration principles remain the same except for typical modem settings. Allow enough time for tasks to be executed when you use a modem link.

In the following explanations, we took the most current example of GPRS/Edge modem. Extrapolating to other modem technologies is rather straight forward.

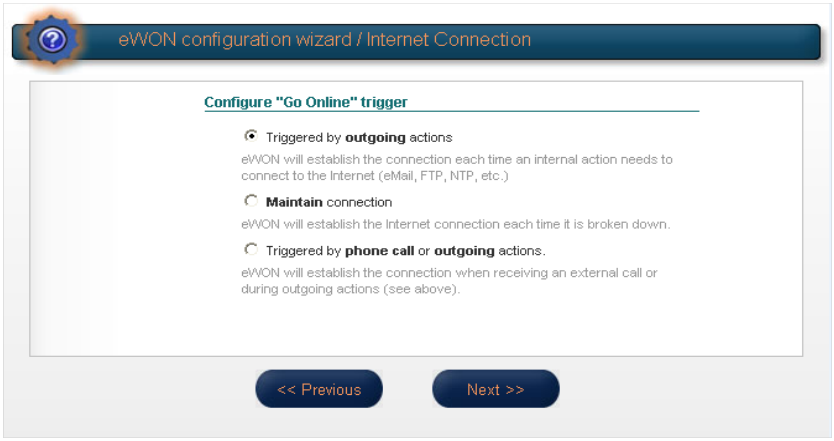
Only those steps that are different from the LAN/WAN connection are addressed.

10.2 Configuring the eWON for Internet connection

1. In the Internet configuration wizard of the eWON, select ***Modem Connection*** option and, depending on the modem installed in the eWON, the interface asks the user to fill out the different parameters of the relevant modem. Fill out the different fields (PIN code, APN and user name/password) according those you received from your Service Provider. For most Service Providers, User Name and Password can be left empty. Click ***Next.***

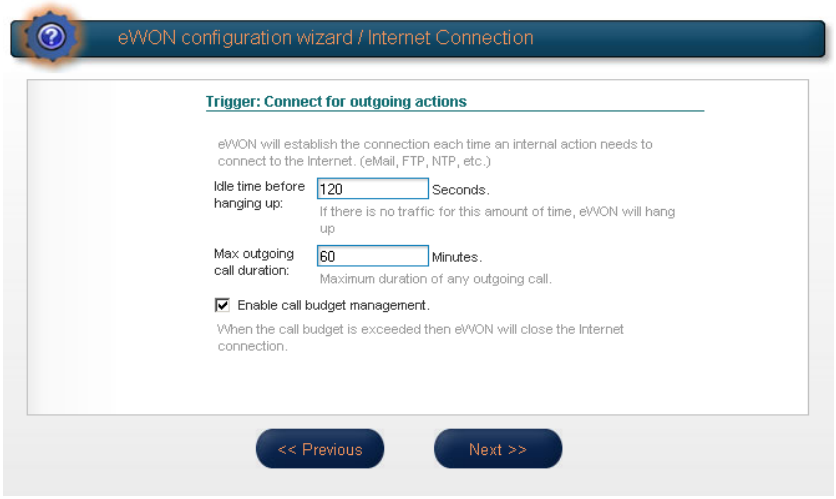


2. Configure how the eWON should go online, and click ***Next.***



In most cases, it will be ***Triggered by outgoing actions***. This option is needed to be able to use the Wake-Up function. Only check ***Maintain connection*** if you want to use a permanent connection to your eWON device (which can be very expensive using a GPRS/Edge line).

3. Configure your online time parameters, and click ***Next***



In most cases, you can leave the default parameters.

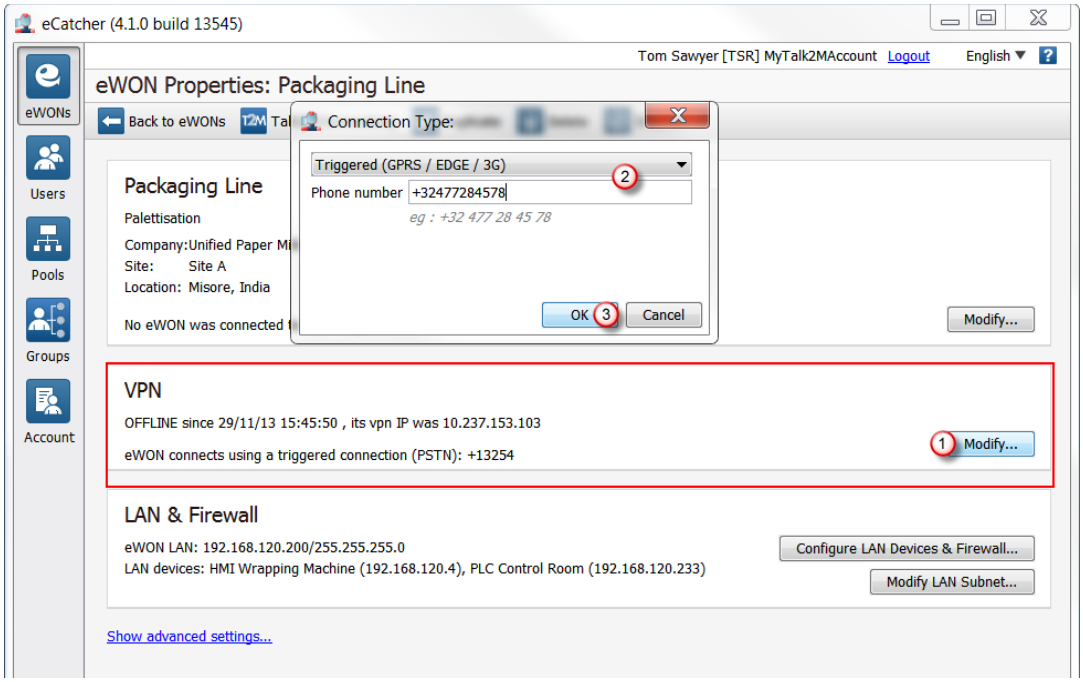
The ***Max outgoing call duration*** is set by default to 60 minutes. The eWON will drop the Talk2M connection after 1 hour. If you need longer connection times, enter a higher value or set it to 0 for no limit.

By default, the ***Idle time before hanging up*** is set to 120 seconds. You can leave this value as is. In fact, it is not a useful parameter for a Talk2M connection because a VPN life bit is periodically exchanged preventing connection interruptions due to idle times.

4. End of Step 2 in Appendix 1.

10.3 Creating the eWON in your Talk2M account

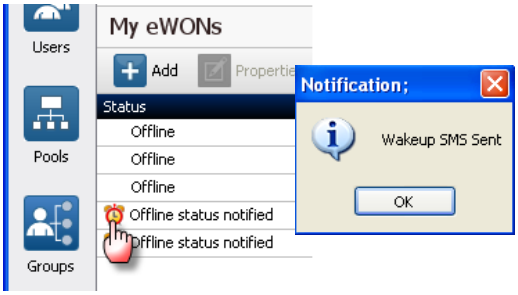
1. In the creation process of the eWON in your Talk2M account, the sole additional steps are:
   - specifying the connection type (in our example Triggered GPRS / EDGE / 3G)
   - entering the phone number



2. End of Step 3 in Appendix 1.

10.4 Connecting the eWON remotely (Step 5)

1. If you use an eWON GPRS, then you probably configured the eWON not to stay connected all the time to the Talk2M server. Before being able to connect to the eWON over Talk2M you will first need to wake-up the modem of the eWON. To do this, click on the ***Wake-up*** icon in front of the eWON name as shown in the following picture:



2. Talk2M sends an SMS (text message) to the eWON to ask the eWON to start its Internet connection and to connect to the Talk2M server. This can take up to several minutes; do not interfere until this process is completed.

Note: You do not necessarily need Talk2M to send the wake-up SMS to the eWON. You can do this using your own GSM (cellular phone). All you need is to have the dial number of the eWON by the hand and to send the following SMS (text-message) to it: [Talk2MConnect] (without brackets).

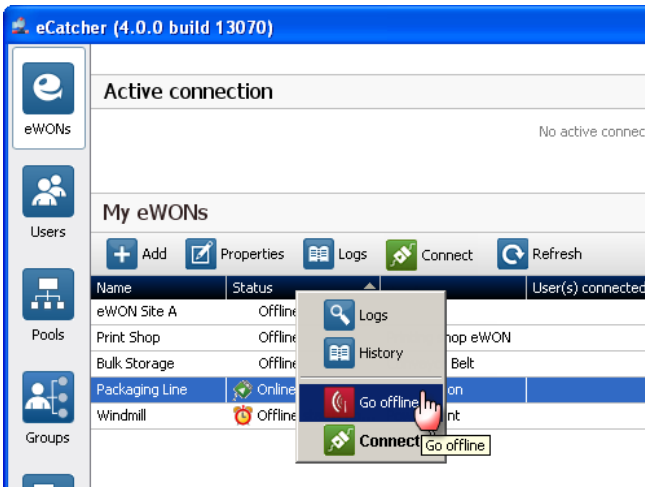
3. Once the modem is online, the green ***Connect*** icon is shown to allow to bridge the VPN tunnel.
4. You can now click on the ***Connect*** button as explained in the LAN/WAN procedure to establish the remote connection.
5. Once the VPN tunnel is bridged the red ***Disconnect*** icon is shown to allow you to cut the bridge of the VPN connection.
6. End of Step 5 in Appendix 1.

10.5 Terminating the remote connection (Step 6)

If the eWON to which you were connected uses a Modem connection for the Internet access, then you probably want to close the Internet connection of the eWON (to save GPRS communication costs). This is done with eCatcher.

Note that there are 2 distinct notions to be considered: ***Connect*** / ***Disconnect*** that applies to bridging the VPN tunnel and ***Go Offline*** that closes the VPN link and hence the modem connection (on hook)

1. Click on ***Disconnect*** to cut the VPN bridge.
2. Right-click on the Online icon in front of the eWON. In the context menu click on the ***Go offline*** button to send the disconnect request to the eWON. The eWON will then close its Internet connection and after a while the eWON will be displayed as offline in your Talk2M account.
3. End of Step 6 in Appendix 1.



11. Appendix 2 – Security aspects

11.1 eWON login security

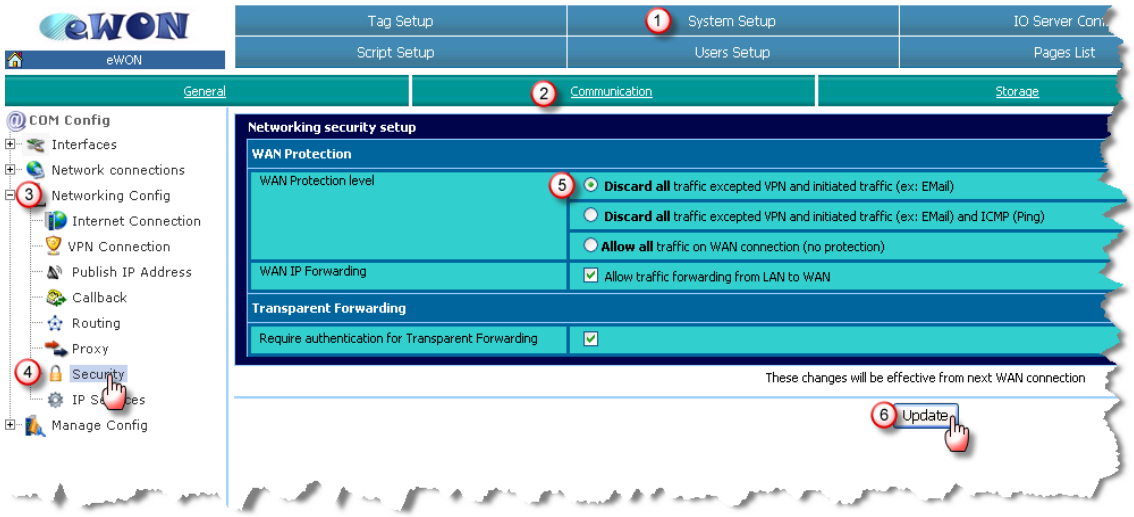
A good security practice consists in modifying the login and password of the default super user adm/adm (this default super user cannot be deleted). Modifying the default super user is done by clicking on ***Configuration, Users Setup*** button on the main menu of the eWON web page.

11.2 Traffic security @ eWON level

Since the eWON firmware version 6.2s1 (see note), when the Talk2M wizard is executed, the WAN Security setting is set automatically to ***Discard all traffic excepted VPN and initiated traffic.*** This is preventing third party traffic to interact with your private traffic.

If, for any reason, your eWON runs an earlier firmware version (not recommended) OR that you want to check the WAN protection status, you can do it using the following path: ***Configuration, System Setup, Communication, Networking Config, Security.***

Check that the ***Discard all traffic excepted VPN and initiated traffic*** check-box is ticked.



If the eWON is configured to use a modem to go out on the Internet, then the WAN connection is the GPRS/EDGE connection. This type of access definitely requires protection. If the eWON is configured to use its second Ethernet Interface to go out on the Internet, then the WAN connection is the Ethernet WAN port that uses the company infrastructure and benefits from the IT protections in place. Hence, this type of access is less exposed to security issues.

Note*:* The changes applied on this page will only be effective from the next WAN connection. So from the next GPRS connection, or after an eWON reboot if you use the 2nd Ethernet port of the eWON for the Internet connection.

11.3 Traffic security @ Talk2M level

Offering products featuring top-notch security is eWON's priority number one. That's why eCatcher 4, our Talk2M VPN connection utility, has tools that will help you to comply with your corporate IT security policies.

Considering the ongoing challenge of keeping corporate IT security to the level that is appropriate to YOUR business, it is our duty at eWON to put the relevant toolbox at your disposal. eCatcher 4 and Talk2M provide you the tools to customize the level of security to the specific requirements of the infrastructure used to make remote connections to your equipment.

Tal2kM Free+ already features:

- Configurable Talk2M user password requirements
- Firewall at the VPN level

Talk2M Pro offers in addition:

- More sophisticated password policy options
- Restricted access at the gateway and service levels
- Greater access control for user groups and eWON pools

12. Appendix 3 – MPI/Profibus cable

The MPI/Profibus cable you can use the standard Siemens Profibus cables and connectors.

Siemens is offering a range of different MPI cable references we cannot list here.

One of the basic genuine Siemens references is 6ES7901-0BF00-0AA0.

There are compatible cables available on the market. Not having the same quality or featuring the same functions (i.e. switchable termination resistors).

eWON is proposing a compatible unshielded cable:

P/N EW40912 - SUBD9/SUBD9 cable for Siemens S7, Length: 2 meter

Max baudrate is 1.5 MBit/s.

For higher baudrates use the Siemens genuine Profibus cables with resistor terminations.

Revision history

Revision Level	Date	Description
1.0	01/03/12	Initial version, without Ethernet connection
1.1	25/02/14	Addition of ISOTCP connection
1.2	15/12/16	Added “PLC Discovery” to Chapter 6.3

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Document build number: *30*
