eWON Application User Guide

AUG 001 / Rev 1.2

eWON 2001 MPI-Teleservice How To

Content

This guide will explain in a few steps how to configure your system to establish a remote connection to your S7-300 and/or S7-400 PLC using eWON 2001.

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Hardware and software requirements

Hardware requirements

In order to follow this guide you will need:

- At least 1 Siemens PLC S7-300 or S7-400 with an MPI interface.
- 1 eWON MPI with integrated modem (for example : eWON 2001)
- 1 standard Profibus cable to link both equipments together
- 1 PC with internal or attached modem

Software requirements

eWON configuration software:

The eWON is configured through its embedded web server. So all you need is a standard Web Browser software like Internet Explorer[i] or Firefox[ii].

Additionally we suggest you to download the eBuddy utility on our website : http://www.ewon.biz (Support/Download Software).
This utility allows to list all the eWONs on your network and to change the default IP address of an eWON to match your LAN IP address range. With eBuddy you can also easily upgrade the firmware of your eWON (if required).

Siemens programming software:

For the remote maintenance of your S7 PLC, you only need the Step7®[iii] software.

The version of the Step7® software must allow the use of the TCP/IP interface (automatically up from version 5.3).

eWON IP address configuration

Every eWON™ is shipped with the pre-configured IP address **10.0.0.53** and **adm/adm** as User Name/ Password.

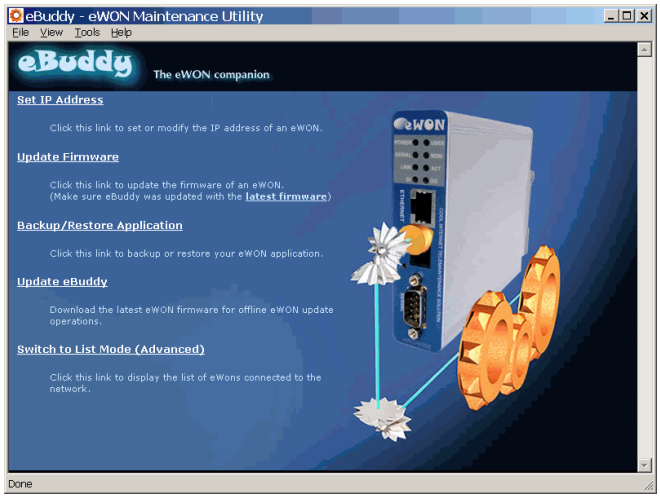
Probably the network settings of your PC doesn't allow you to connect to the pre-configured IP address.

You can find on our website an utility called «eBuddy» that will allow you to change the IP address of the eWON even if your PC is not on the same IP address range.

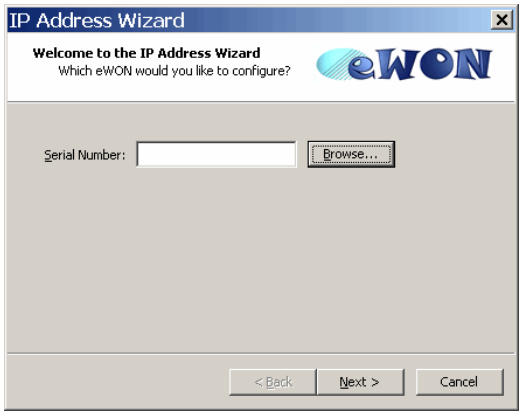
eBuddy : http://www.ewon.biz (Support/Download Software)

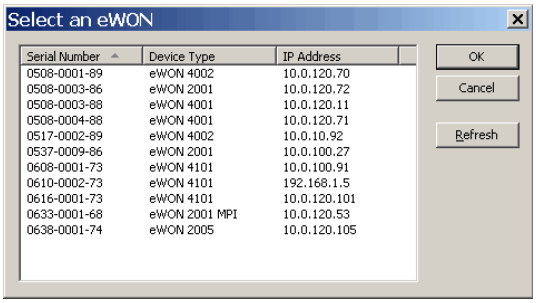
To change the IP address of your eWON using eBuddy, follow the steps below:

- Launch the eBuddy application (eBuddy.exe)

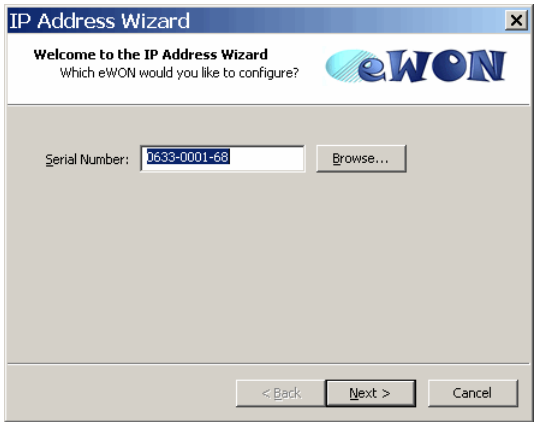


- Click on the «**Set IP address**» link

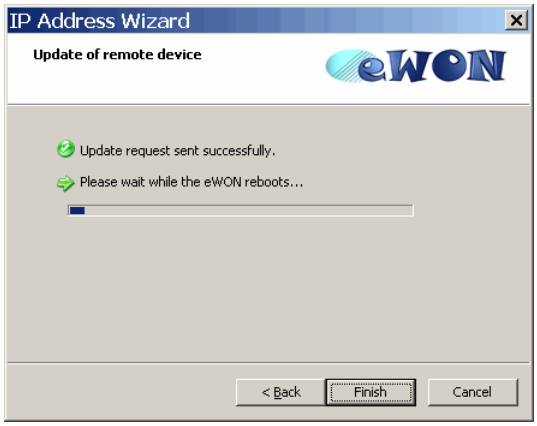


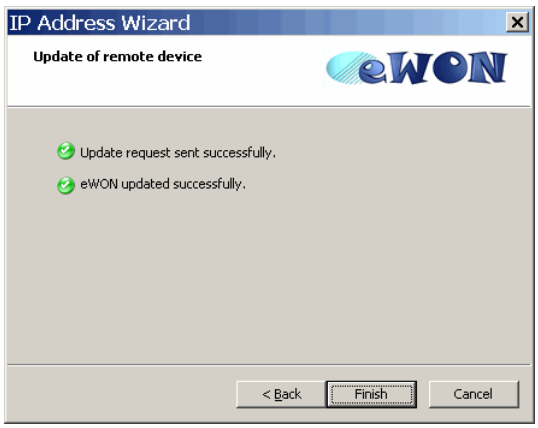


- Enter the eWON serial number in the **Serial Number** field if you know it, or click on the Browse button. In this case, the dialog box «Select an eWON» will appear showing you all the eWON existing on your Network.



- Once the Serial Number entered, click **Next**.
- Set the new **IP Address** and the **Subnet Mask**.
- Click on **Next** to launch the update and wait for the eWON to reboot:



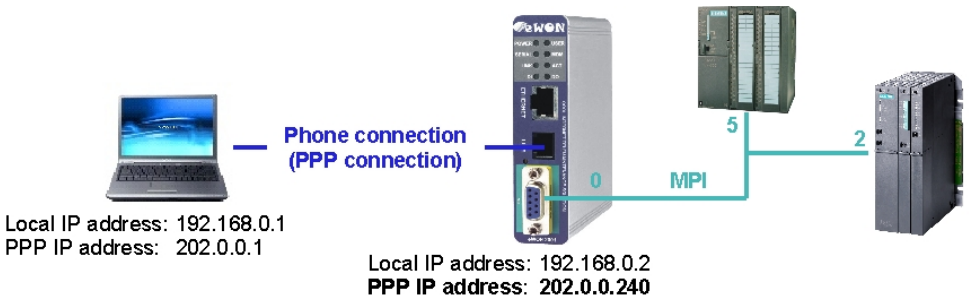


- When done, click on **Finish** to exit from the IP Address Wizard.

eWON configuration for Remote Connection

The remote connection we will use in this example is a “Direct Phone Connection”. This connection consists in calling the eWON using a standard modem to set up a PPP (point to point) connection. For this, we need to configure the eWON as PPP server. eWON will then pick up the phone, authenticate the caller and assign an PPP IP address to the eWON and to the PC for the remote connection.

For our example we will assume to have a layout and address settings as described in the following picture:

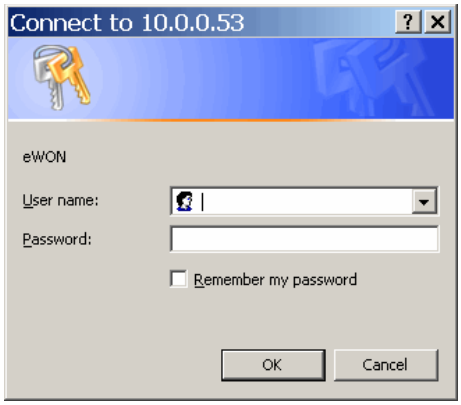


NOTE In this manual we explain the Teleservice using a direct phone connection. Just keep in mind that with eWON you can also make Teleservice using other connection types like Internet connection, GPRS connection, VPN connection or using Callback features.

Accessing your eWON

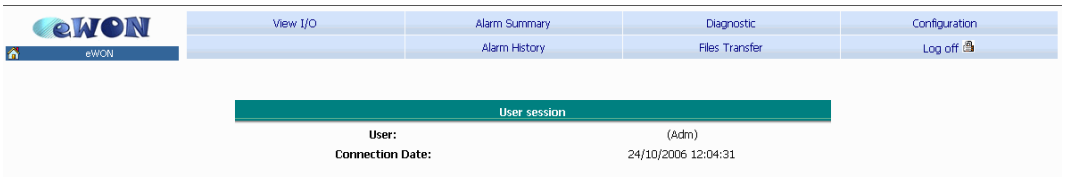
Accessing your eWON is very simple:

- Enter the IP address of your eWON in the address bar of your Web Browser (Internet Explorer, ...): http://10.0.0.53 or http://192.168.0.2 in our example.



- On the «Connect to» popup page enter adm (User Name) /adm (Password) then **OK**.

You are now navigating on your eWON2001.

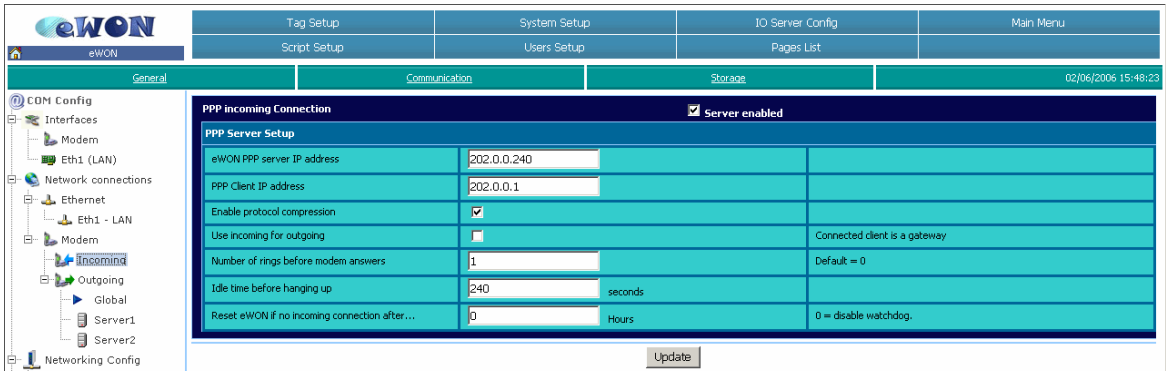


The menu bar on the top of the main page allows you to navigate through the different display and configuration pages of your eWON.

eWON PPP connection configuration

The eWON PPP configuration page can be reached on the web page (starting from the main page, see above) following the link:

Configuration → System Setup → Communication → Network Connections → Modem → Incoming



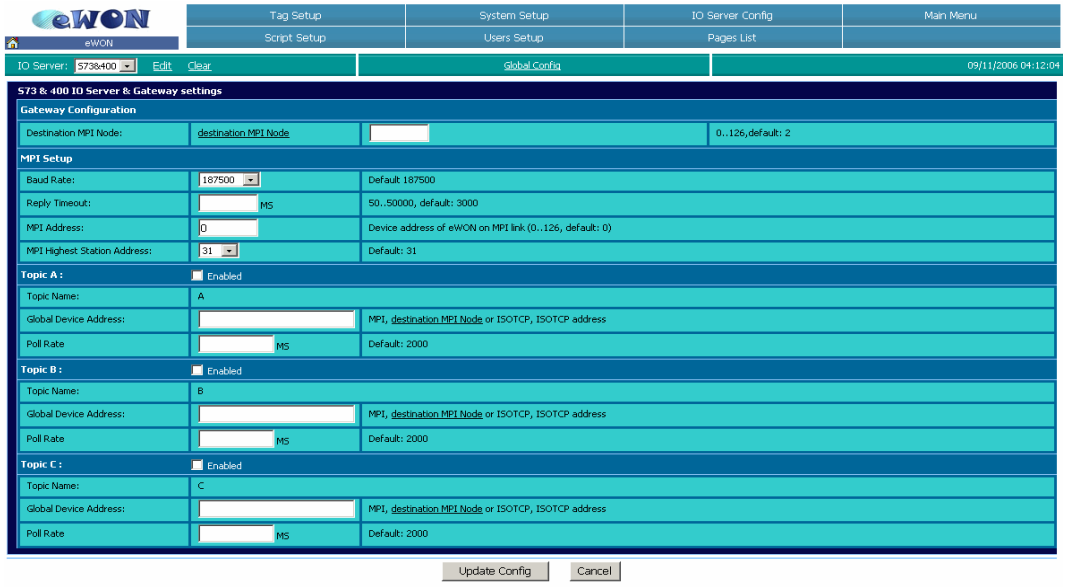
- **Check** the **Server enabled** box for the PPP Incoming Connection.
- Set the **eWON PPP server IP address** to 202.0.0.240.
- Set the **PPP client IP address** to 202.0.0.1.
- Enable the protocol compression.
- Let the other items unchanged.
- Click **Update.**

eWON MPI Interface configuration

To configure the eWON MPI Interface open the **S73&400 IOServer settings** page by following the link:

Configuration → IO Server Config

- Select the **S73&400** in the IO Server list. The following page appears:

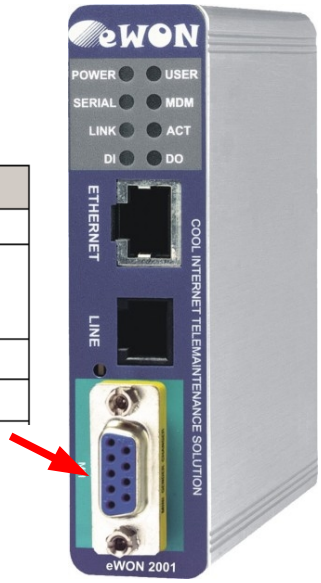


- Set the **Baud Rate** to the MPI transmission rate of your MPI Network (187500)
- Set the **MPI address** to the MPI address of your eWON on the MPI Network (0)
- Set the **MPI Highest Station Address** in relation to your MPI Network layout (31)
- Click the **Update Config** button on the bottom of the page

Your eWON MPI interface is now configured.

eWON connection on the MPI Network

The MPI port of the eWON is easily identifiable by its blue square surrounding the gender-changer.



Specification	Value
Physical mode	MPI
Speed	• 19.2 kBauds • 187.5 kBauds • 1.5 MBauds
Polarisation	680 Ohms (selectable)
Termination	120 Ohms (selectable)

Depending on the layout of your MPI network, you will have to activate or inactivate the polarization and termination of your eWON on the MPI network.

The configuration of the termination and polarization is done by a set of 4 dip switches located on the left side of the eWON housing.

Available dip switch positions:

Positions	Mode	
	MPI WITH polarisation and termination resistors	all dip switches ON
	MPI WITHOUT polarisation and termination resistors	dip switch 1 & 2: ON dip switch 3 & 4: OFF

To connect the eWON on your MPI Network:

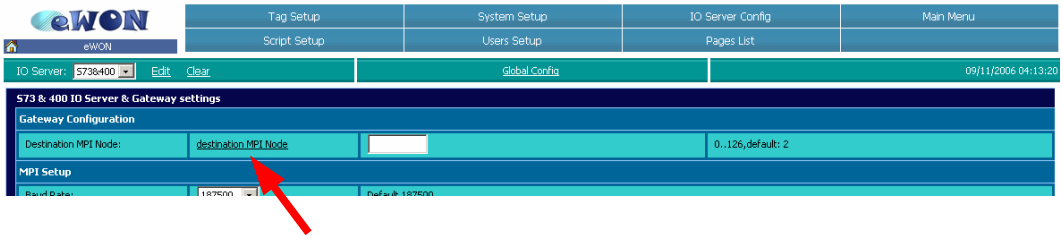
- ➔ Power off the eWON
- ➔ Connect the eWON MPI port to the MPI network using a standard Profibus cable
- ➔ Power on the eWON.

eWON MPI connection verification

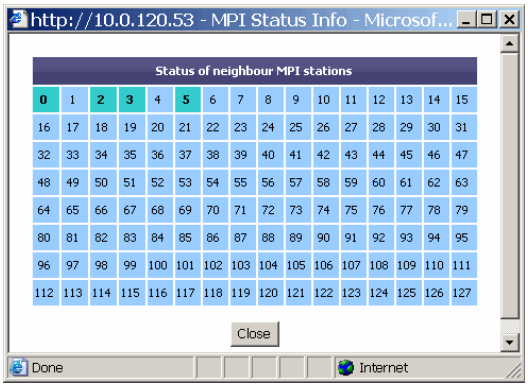
To check if the eWON MPI interface is correctly configured and connected to your MPI network you can reopen the **S73&400 IOServer settings** page by following the link:

Configuration → IO Server Config

- Select the **S73&400** in the IO Server drop down list. The following page appears:



- Click on the «**destination MPI Node**» link to open the «MPI Status Info» popup:



This window will show you the different MPI devices detected by the MPI chip of the eWON. The detected MPI devices are represented with a green square.

If the status table displays only the MPI address of your eWON, then probably the eWON is not connected to the network.

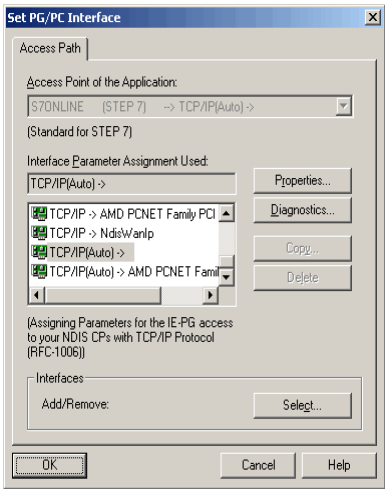
If the table doesn't display any MPI addresses, then probably the MPI setup parameters for your eWON are not correct. Please check the baud rate settings and verify if eWON is not using an already used MPI address.

Step7® configuration for the eWON Teleservice

In the Step7® program, open your existing project or create a new project and follow the explications below:

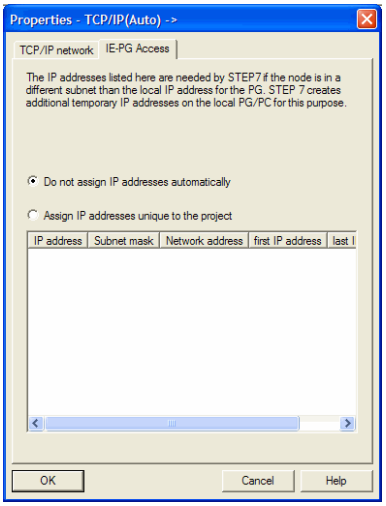
Set the PG/PC Interface

Options → Set PG/PC Interface



- Select the *TCP/IP interface* that you are using on your PC and click **OK**.
In our example we chose the TCP/IP(Auto) interface.

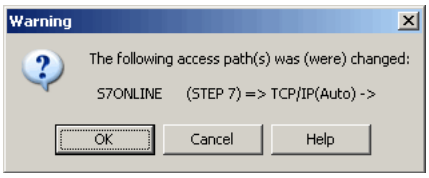
- Click on the **Properties...** button to show up the properties of the selected interface.



- Open the **IE-PG Access** tab and select «**Do not assign IP addresses automatically**».

- Click **OK** to close the properties page.

- Back on the «Set PG/PC Interface» window, click **OK** to set the PC/PG interface.



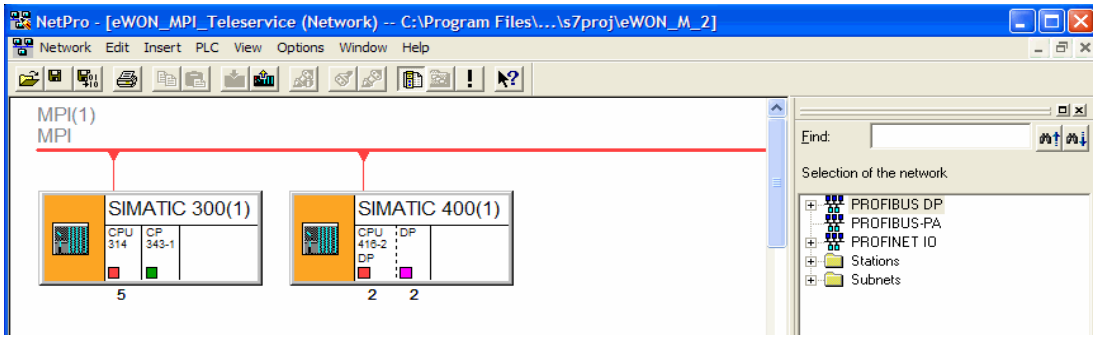
- Click **OK** to accept the changes.

Define the eWON as Gateway in the Network Configuration

1) Download the «**eWON gateway station file for STEP7®**» (**eWON.cfg**) from our web site (http://www.ewon.biz (Support /Documentation /Technical notes – Miscellaneous)).

2) Open the Network Configuration (**NetPro)** window of your Step7® project :

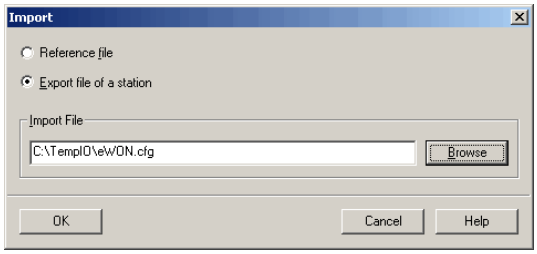
Options → Configure Network



In our example there is one S7-300 and one S7-400 on the MPI network.

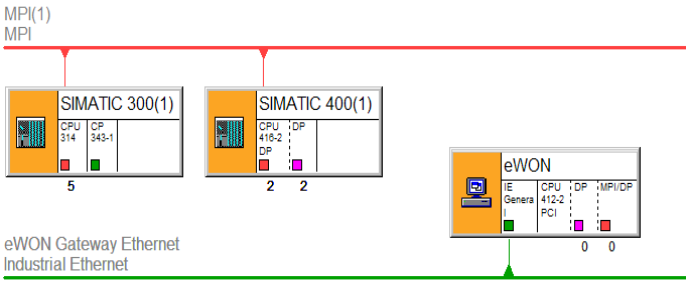
3) Insert the eWON gateway station file you downloaded just before.

Edit → Import



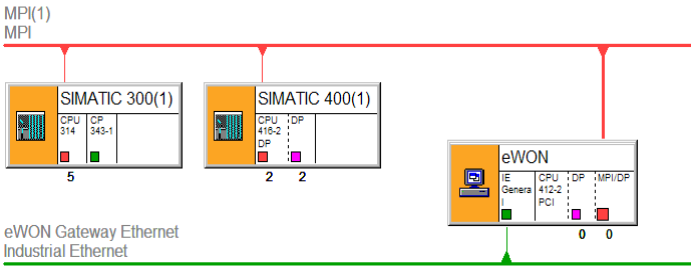
- Browse to select the eWON.cfg file and click **OK**.

The eWON gateway will now be displayed in your network layout:

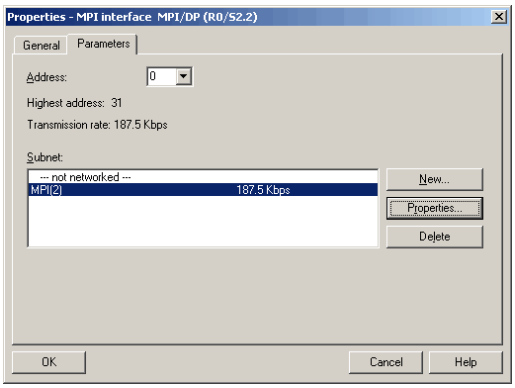


If you have problems with the importation of the eWON.cfg file refer to appendix 1 of Technote 29 explaining how to create the «**eWON gateway station file for STEP7®**» from scratch.

4) Link the MPI interface of the eWON to the MPI network.
To do this, click on the red square of the eWON and drag it to the MPI network of your S7 PLC.



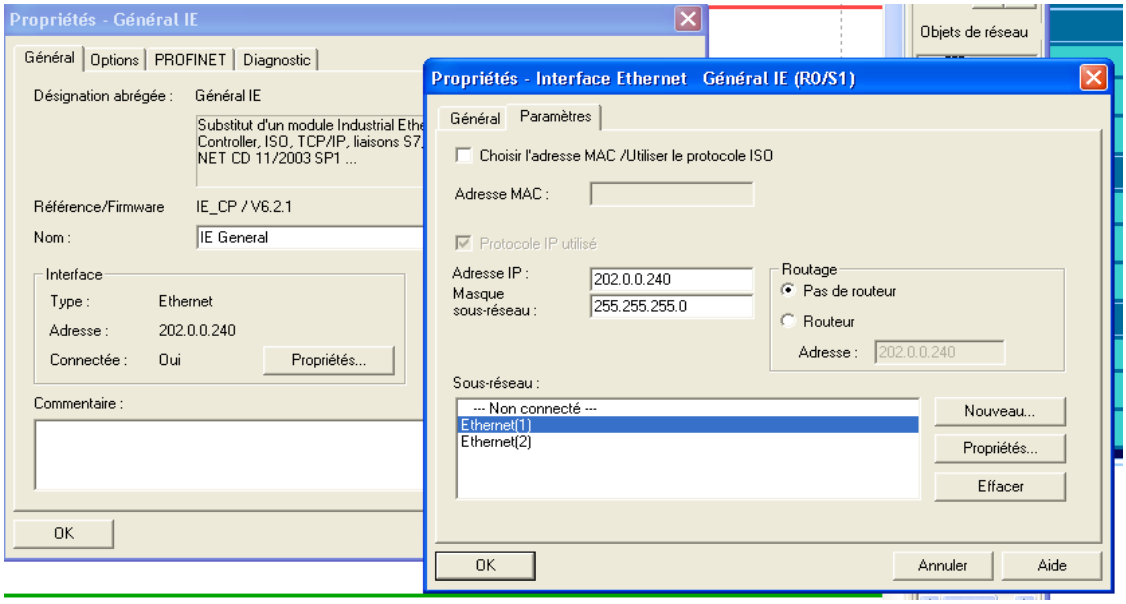
- Open the MPI interface of the eWON by a double-click on the red square and check if the MPI address, the transmission rate and the Subnet-ID are correctly set. (Use the Properties... button for details)



- Click OK to close the Properties window.

5) Configure the Ethernet Interface of the eWON Gateway.

- Open the Ethernet interface of the eWON by a double-click on the green square.
- **Don't check** the «Set MAC address / use ISO protocol»



- In the **IP address** field, enter the IP address of the eWON which will be used for the remote connection.

IMPORTANT

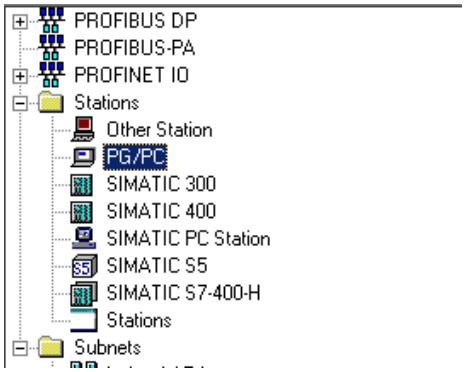
Because you will connect to the eWON using a dialup connection you must enter here the **PPP IP address** of your eWON: **202.0.0.240** (as defined in chapter 2).

- For the **Subnet mask** enter the mask corresponding to the IP address you specified for the eWON (255.255.255.0)

- Click **OK**.

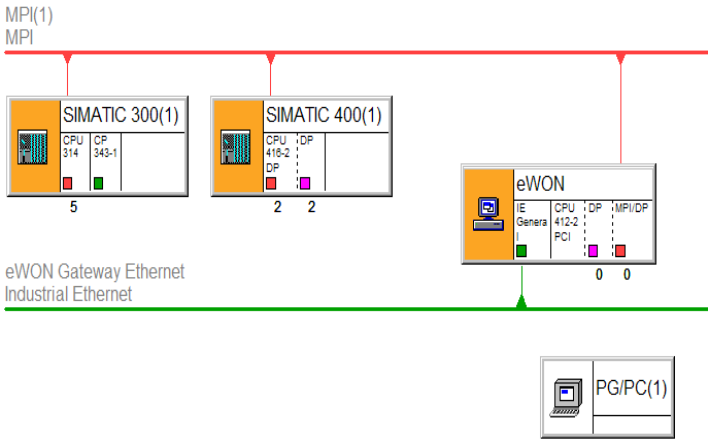
6) Add a PG/PC Station to the network layout.

Insert → Network Objects

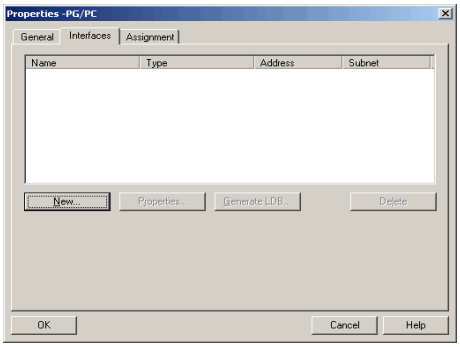


- Double-click on the PG/PC Station.

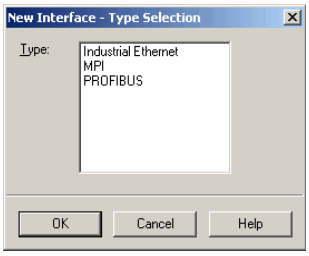
- The PG/PC will be added to the network:



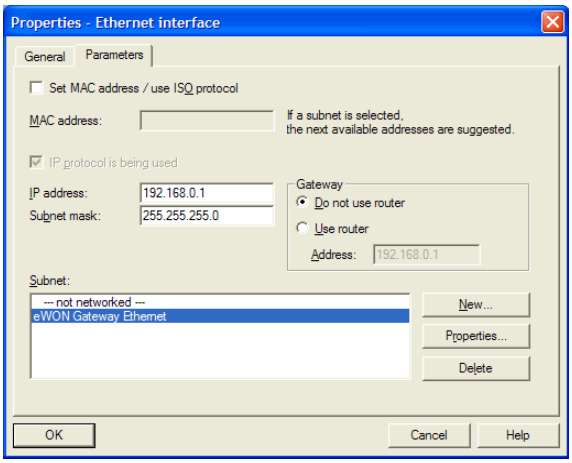
- **Right click** the PG/PC and click on **Object Properties...**
- Select the Interfaces tab :



- Click **New**.



- Select the **Industrial Ethernet**, and click **OK**.



- **Deselect** the «Set MAC address / use ISO protocol»

- Set the **IP address** and the subnet mask of **your PC**.

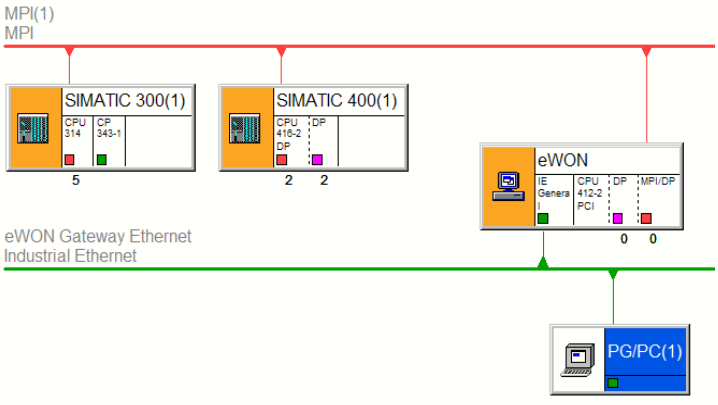
- Check the «**Do not use router**» box.

- In the Subnet window on the bottom of the page select the network on which the eWON is connected to: **eWON Gateway Ethernet**

- Click **OK** to close the Properties – Ethernet interface window.

- Click **OK** to close the Properties – PG/PC window.

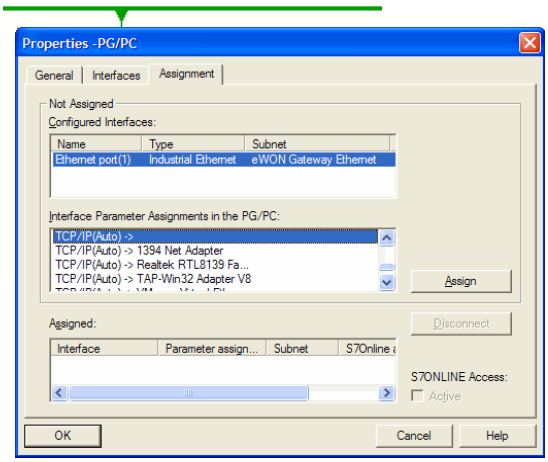
Your network layout should now looks like this:



7) Assign the PG/PC interface.

- Right click the PG/PC picture and click on **Assign PG/PC**

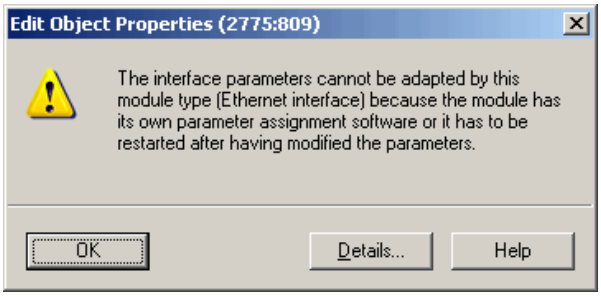
The **Assignment tab** of the Properties -PG/PC page will show up:



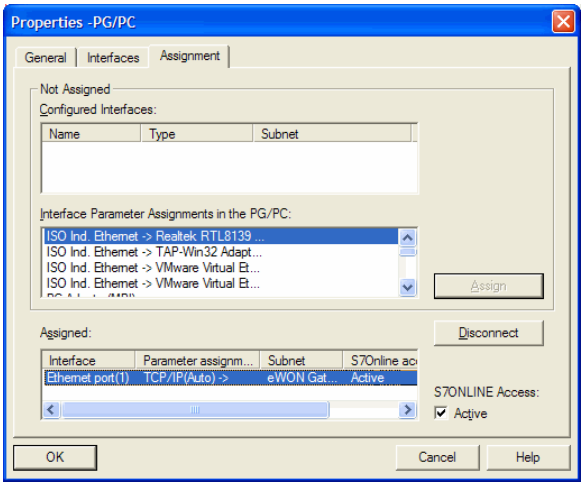
- In the «**Interface Parameter Assignments in the PG/PC**» select the TCP/IP interface you are using to connect to the Ethernet. (In our example **TCP/IP(Auto)**)

- Click the **Assign** button.

The following message could be displayed:

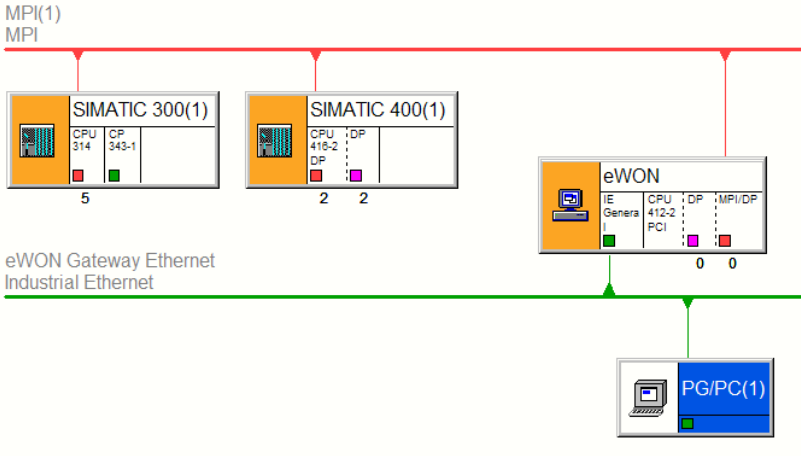


- Ignore the message and click **OK**



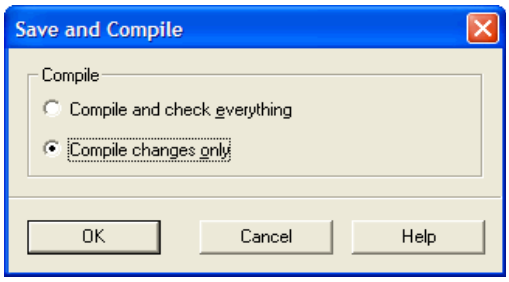
- Verify that the **Assigned** Interface is the Ethernet card and click **OK**.

Your network layout should now looks like this:



8) Compile and save the network layout

Network → Save and Compile...

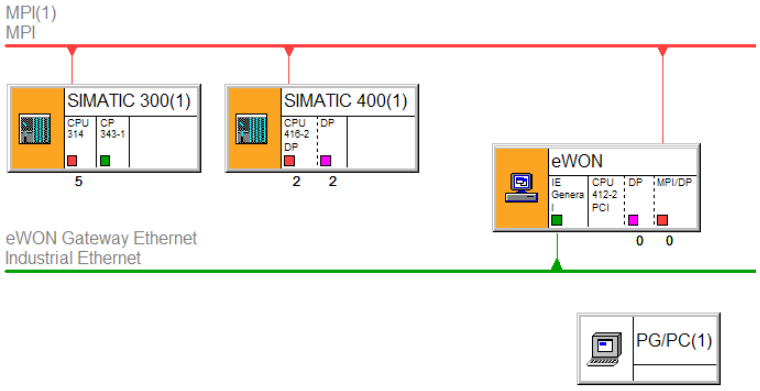


- Select the «**Compile changes only**» option.

- Click **OK**.

After compilation a popup will be displayed to inform you if the compilation was done with success or not.

The network layout should now looks like this:



9) Close the NetPro window

Establish the remote connection

On your PC you will need to create a Dial-up connection.

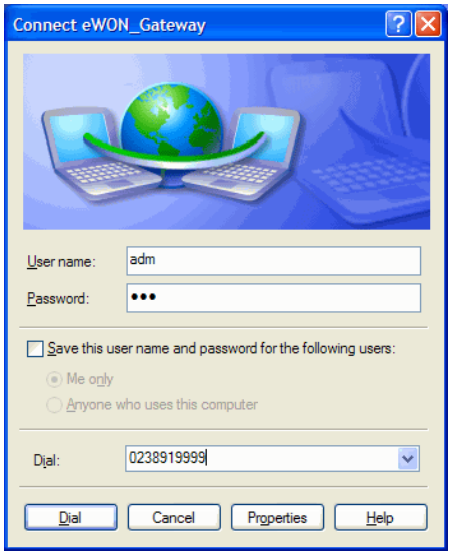
You can create a standard Dial-up connection in Windows using the «New Connection Wizard» or you can use eCatcher, a free downloadable program on our Website.

With eCatcher you can create and manage easily your different remote connections. For example with eCatcher you can configure your Dial-up connection to launch automatically the corresponding Step7® project once the Dial-up connection established.

eCatcher : http://www.ewon.biz (Support/Download Software)

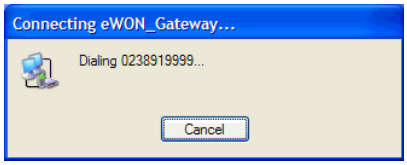
Using the Windows Dial-up connection

- Click on your Dial-Up connection to open the «Connect» window:



- In the **User name** and **Password** fields enter a valid eWON user and password (adm/adm for example)

- Enter the phone number of the eWON and click on **Dial**

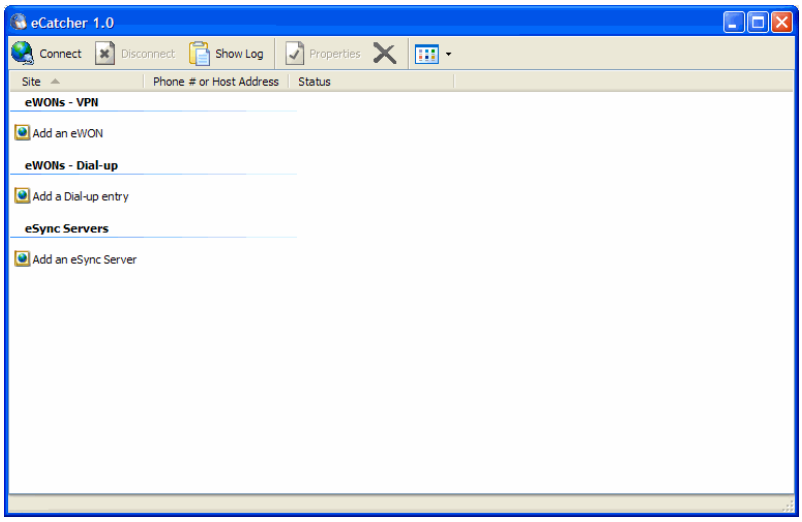


Once the connection established, the status of your Dial-up connection becomes connected.

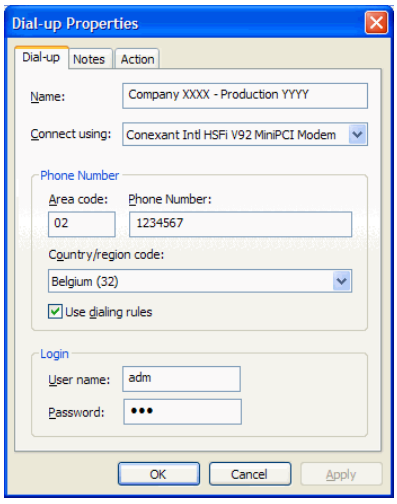
Using eCatcher

To create a new Dial-up connection in eCatcher follow the steps below:

- Launch the eCatcher application (eCatcher.exe)



- Click on «**Add a Dial-up entry**»



- On the «Dial-up» tab, enter following information:

  Name: a name to identify the Dial-up connection

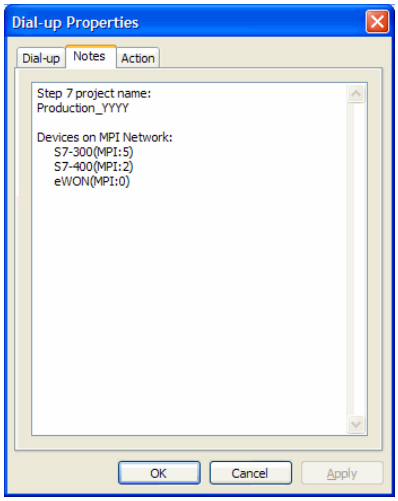
  Connect using: choose the Modem you will use on your PC

  Phone Number: enter the phone number of your eWON. You can use or not the dialing rules defined on your PC.

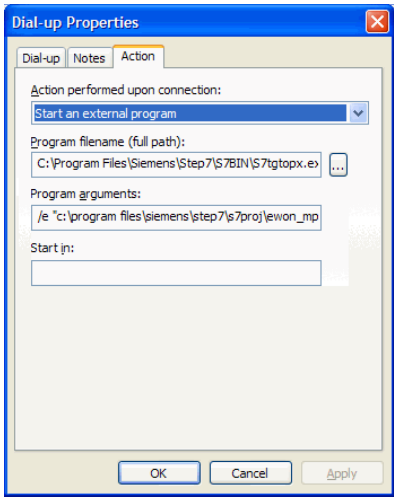
Login: enter a valid eWON user and password (adm/adm for example)

- Go to the «Notes» tab:

This window will allow you to encode some information that will be useful for the remote connection. For example, the name of the involved Step7® project or the addresses of the PLC which can be reached through the remote connection, ...



- Go to the «Action» tab:



This window will allow you to configure the action that will be performed once the remote connection established.

For example to start automatically Step7® with the concerned project:

- Action performed upon connection: Start an external program

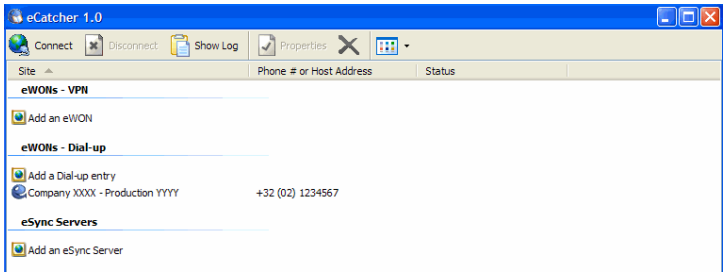
- Program filename: Use the «...» button to chose the Step7® program (S7tgtopx.exe)

- Program arguments: /e & full path of your Step7® project

(for our example: /e "c:\program files\siemens\step7\s7proj\ewon_mpi\ewon_mpi.s7p"

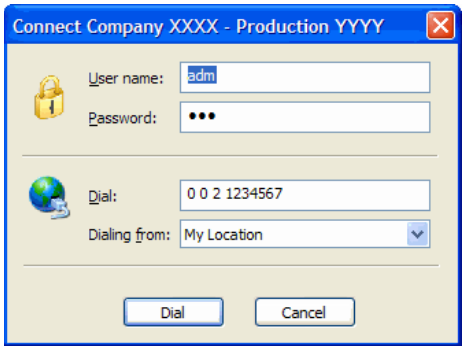
- Click «**OK**» to close the Properties window

The Dial-up connection you created will now appear in the list of «eWONs -Dial-up».



To start the remote connection follow the steps below:

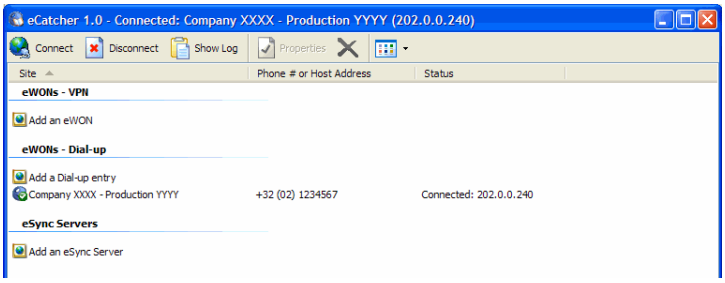
- Double-click on the eWON – Dial-up you want to open (Company XXXX – Production YYYY)



- Click the «Dial» button to start dialing.

Once the PPP connection established, the Step7® project will start automatically.

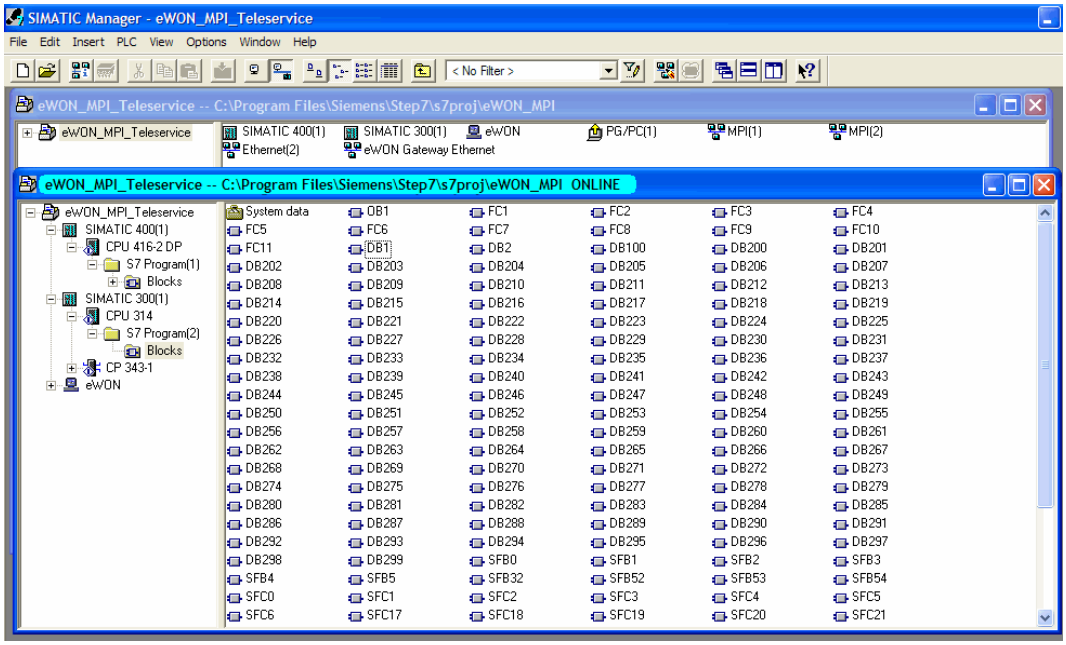
In eCatcher, the active Dial-up connection will be checked in green color and the Status column will indicate the PPP server address (Connected: 202.0.0.240).



Online Viewing

In Step7® open your project and go Online.

View → Online



Tag Polling

eWON disposes of several internal IOServers which allows you to poll tags on your PLC devices.

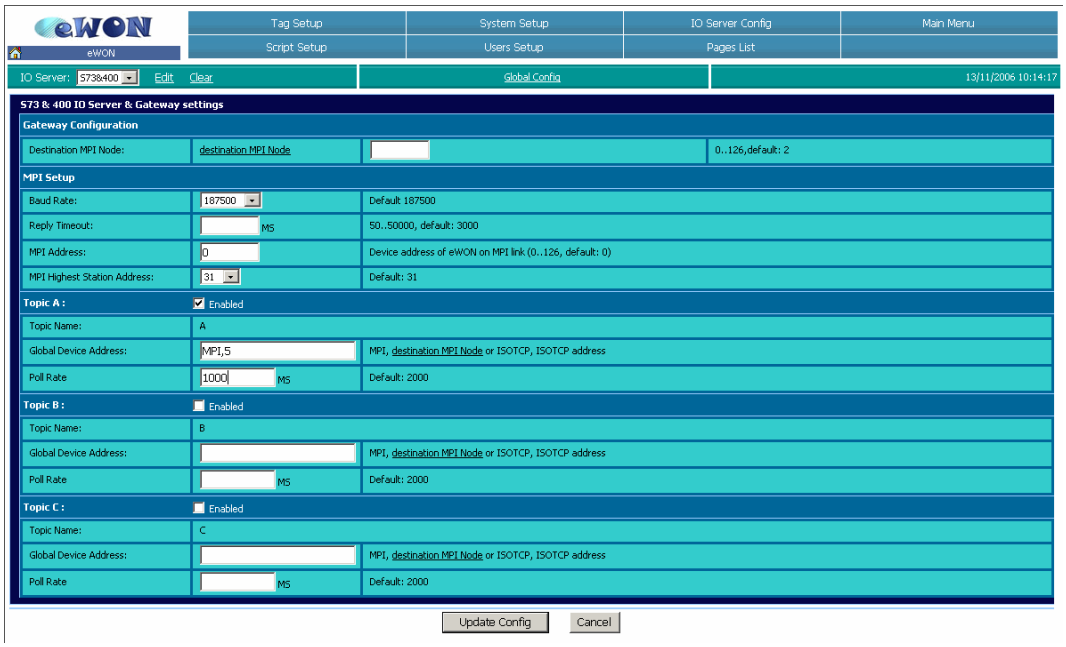
To poll a Tag on a S7-300 & 400 device, follow the steps below:

Activate a Topic for IOServer S73&400:

- Open the **S73&400 IOServer settings** page by following the link:

Configuration → IO Server Config

- Select the S73&400 in the IO Server drop down list. The following page appears:



- Check the **enable** box for **topic A**
- Set the **Global Device Address** to MPI,#
  where # represents the MPI address of your PLC (MPI,5)
- Set the **Poll Rate** to 1000
- Click **Update Config**

Create a Tag using IOServer S73&400

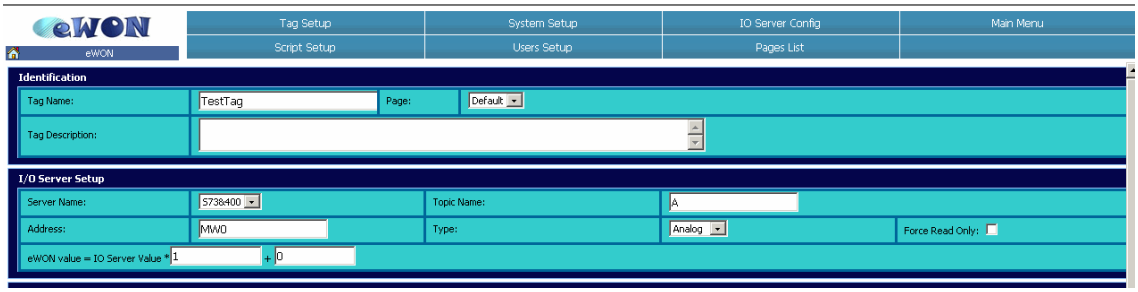
The creation of a Tag is done in the Tag Setup page.

Configuration → Tag Setup

Select Create New Tag

The **Tag Setup** page appears. The page is composed of four parts that allow you to configure the Tag configuration fields (such as the Tag name and Tag Description, the Tag I/O Server Setup, the Tag visibility,...).

In this tutorial, we will only care about the Tag name and IO server.



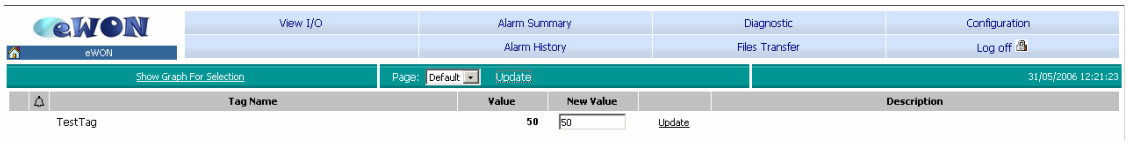
- Set the **Tag Name** to TestTag
- Set the **Page** to **Default**
- Set the **Server Name** to **S73&400**
- Set the **Topic Name** to **A**
- Set the **Address** to an accessible item address in your PLC (**MW0**)
- Set the **Type** to **Analog**
- Let the **eWON value** to 1 and 0

Click **Add/Update Only**

Now that we created the tag, we will check it's value.

Main Menu → View I/O

The following page will be displayed:



Change the value in the «New Value» field of the TestTag and click the «Update» button beside the field.

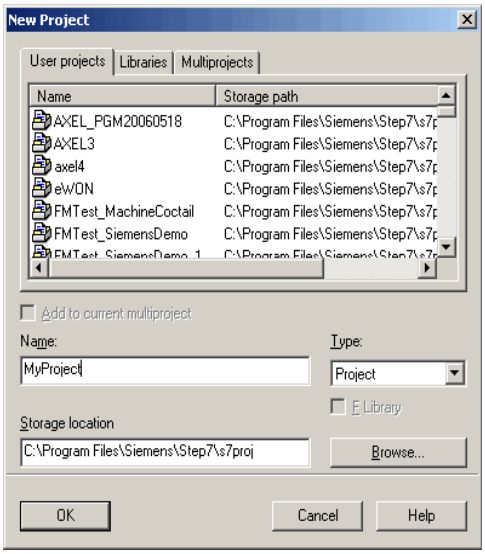
To check if the new value has been correctly written to the PLC click on the **Page Update** button to read again the value in the PLC.

Upload a program using Step7® and eWON MPI

To upload a program in Step7® using eWON MPI Teleservice you don't need to define the eWON first as Gateway in the Network Configuration (Netpro).

1) Start the Step7® application.
2) Create a new project in your Step7® application.

> **File → New**

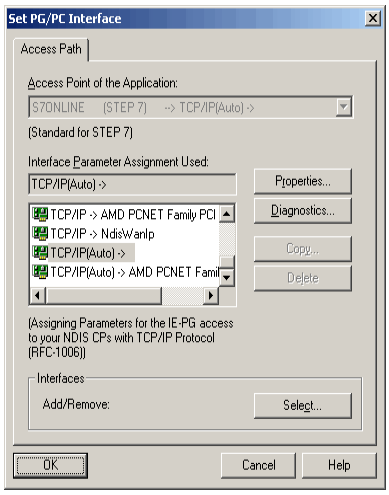


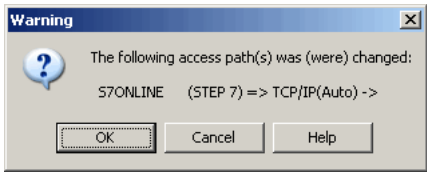
Enter the Name of the new Project and click OK.

3) Set the PG/PC Interface

> **Options → Set PG/PC Interface**

Select the TCP/IP interface you are using to connect to the eWON and click OK. (In our example TCP/IP(Auto))





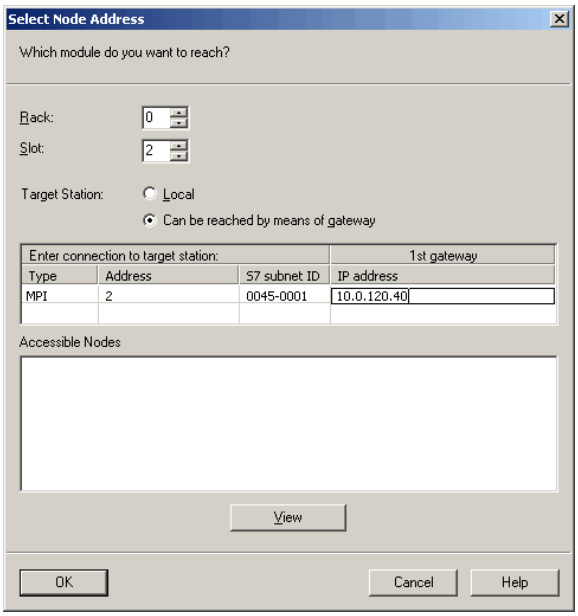
Click **OK** to confirm the changes

4) Establish the remote connection to the eWON

Use eCatcher for example to dial the eWON2001.

5) Upload the program in Step7®

PLC → Upload Station to PG



- Set the Rack and Slot number corresponding to the CPU of the PLC to reach (**Rack**:0, **Slot**:2)

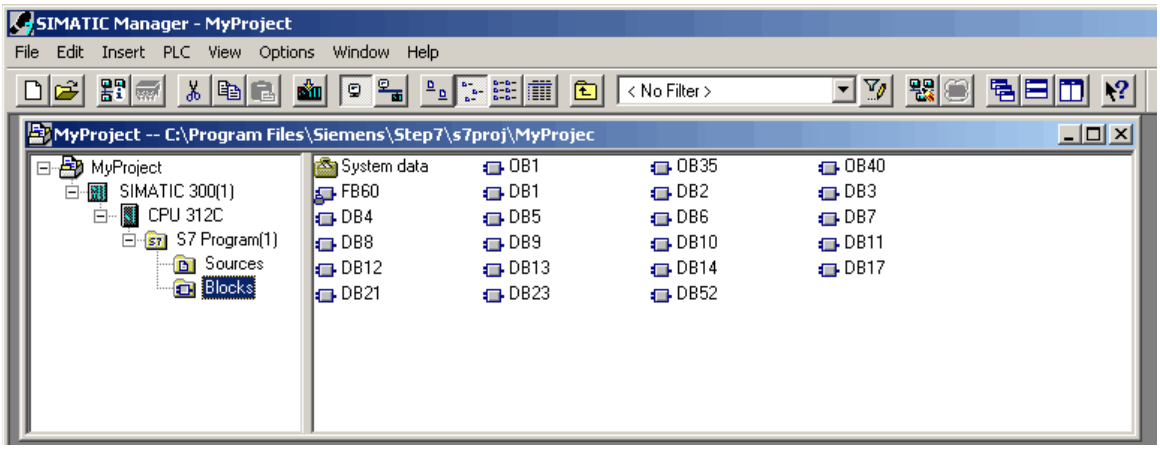
- Check the Target Station «**Can be reached by means of gateway**» option.

- Fill the «Enter connection to target station» with following values:
    - **Type**: MPI
    - **Address**: MPI address of your PLC (2)
    - **S7 subnet ID**: the MPI Subnet ID of your PLC (0045-0001)

      Fill the «**1st gateway**» with following value:
    - **IP address**: the eWON Dial-up (PPP) address = **202.0.0.240**

- Click **OK** to start the upload

After upload is completed, the following window will appear:



For the Online connection Step7® will use by default the last configured path to connect to the S7 PLC.

That's why you don't need to setup the Network configuration in this case.

Thus, to view your program Online, just open the Online view in Step7®.

View → Online

Revisions

Revision Level	Date	Description
1.0	2008-05-05	First release.
1.1	2008-09-23	Template Update
1.2	'2013-01-17	Snapshot updated page 14 (IP address mismatch)

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