Primary Range

500, 2001, 2005, 2101, 4001, 4002, 4005, 4101, 4102

* * *

Compact Design Range

2001CD, 2005CD, 2101CD, 4001CD, 4005CD, 4101CD

* * *

Flexy Range

Flexy 101, 102 & 103 and Flexy 201, 202 & 203

General Reference Guide

rev. 3.0

1 Introduction

This guide describes the features of firmware version 8.0 for all the eWON types.

Note: Not all of the described features may be available on your eWON type. In this guide you'll find some references to a matrix table which you can find at the end of this guide. The matrix table allows you to check if the described feature is available on your eWON type or not. Please refer to chapter "Table of comparison between eWON types" on page 241.

The firmware upgrade process is described very precisely at the end of this manual, at chapter "Upgrading the eWON firmware" on page 227.

2 The eWON login page

2.1 Access from a Computer Browser

To open the eWON internal Web pages, enter the eWON IP address inside your web browser. You'll be invited to log you on.

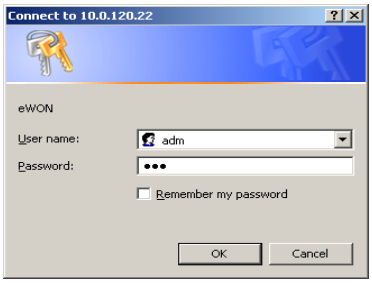


Figure 1: eWON login page

The factory predefined parameters to login on the eWON are:

IP address	10.0.0.53
Login	adm
Password	adm

Table 1: eWON default login parameters

IMPORTANT! Password IS case sensitive but user name is not.

It is recommended to change the password of the "adm" user to protect it against any intrusion. You will be able to change the user configuration in the Users setup screen of your eWON (please refer to chapter "Users Setup" on page 32).

Note: On eWONs featuring a multiple language firmware (ex. Flexy), the language selection pop-up appears after the first login (or after a reset level 2). Changing the language afterward can be done preferably by doing a reset level 2 or, if a reset cannot be done, by changing the parameter ***Language*** in the *comcfg.txt* file that can be accessed through the path: ***Configuration > System setup > Storage > Tabular Edition > Edit COM cfg.*** Set the ***Language*** parameter to -1 (minus one). After reboot, the language pop-up will show and you can do your selection. Whatever the method used to change the language, the eWON needs a reboot to take the change into account. This reboot can be done either by powering OFF and ON again or by software following the path: ***Configuration > System setup > General > General > Reboot.***

2.2 Cloud Accelerated Loading

For accelerate delivery of the JavaScript Library content, we launch a new feature called CAL (Cloud Accelerated Loading).

With the firmware 8.0, we introduce a new concept for ours products based on an CDN (Content Delivery Network) system.

Content will be stock in your internet cache, ready to be load, sparing the time of a download at each connection time,
You can see a new loading page when you make connection with your eWON, indicating the use of this method

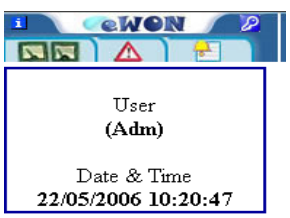
If your computer is not connected to internet (and Javascript Library not stocked in your browser cache), the content will be loaded by the eWON as usually.

2.3 Access from a PDA Browser

The default Website of eWON is designed to be viewed on a PC Browser.

In order to provide an access to the PDA home page,
the full URL: http://ewon_ip/indexpda.htm must be entered.

If the eWON is only supposed to be connected from PDA, the default home page can also be changed.



3 eWON Monitoring Web Interface

If you have configured the eWON with some Tag names, you can now come back to the eWON's Web Interface menu (***Main Menu***). The Web Interface menu of the eWON looks like this:

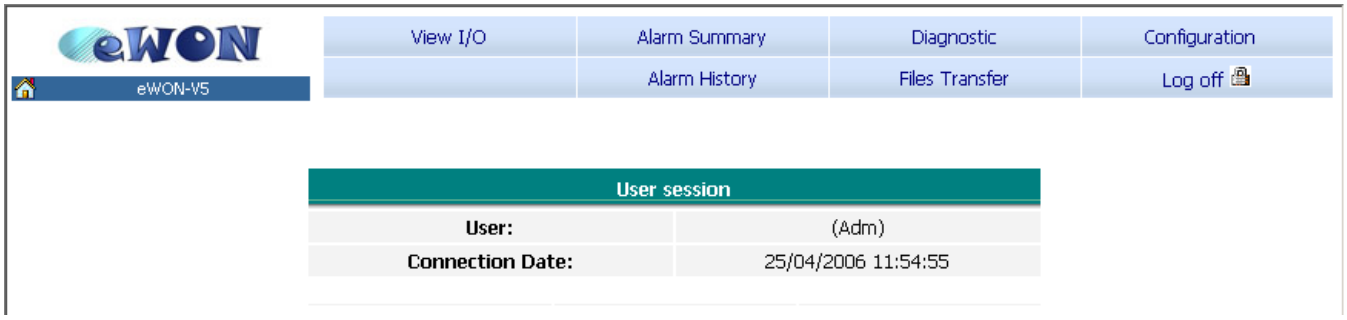


Figure 2: eWON Web Interface menu

The little home icon under the eWON logo can be accessed from any page of the eWON Scada and will always lead your browser directly to this main menu of the Web Interface.

You can always click on the eWON logo to obtain the definition and system information about the eWON you are connected to. A second navigator window will be opened giving you a summary of the main information about the current eWON:

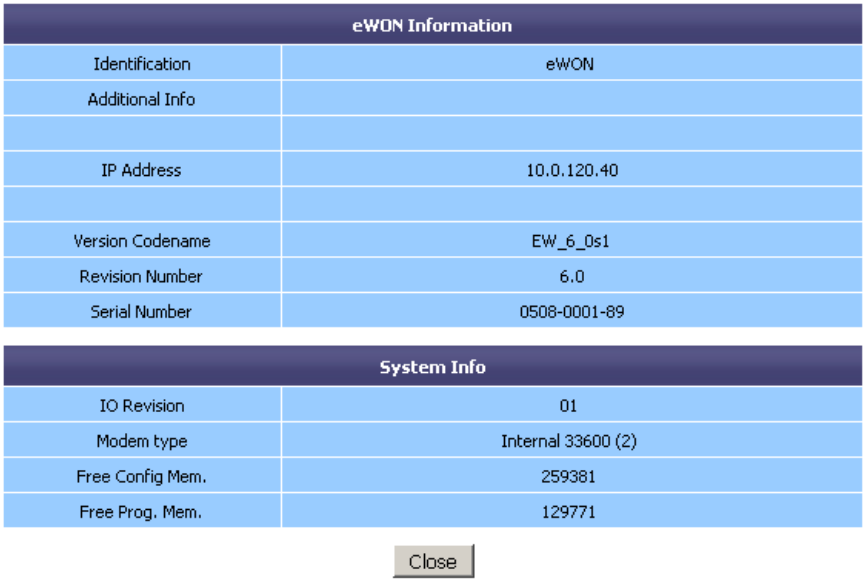


Figure 3: eWON information page

3.1 Real-time screen

Click on the ***View IO*** item from the eWON Web Interface menu to obtain the list of all eWON Tag names and associated real-time values. To refresh the value, click again on ***View IO*** item.

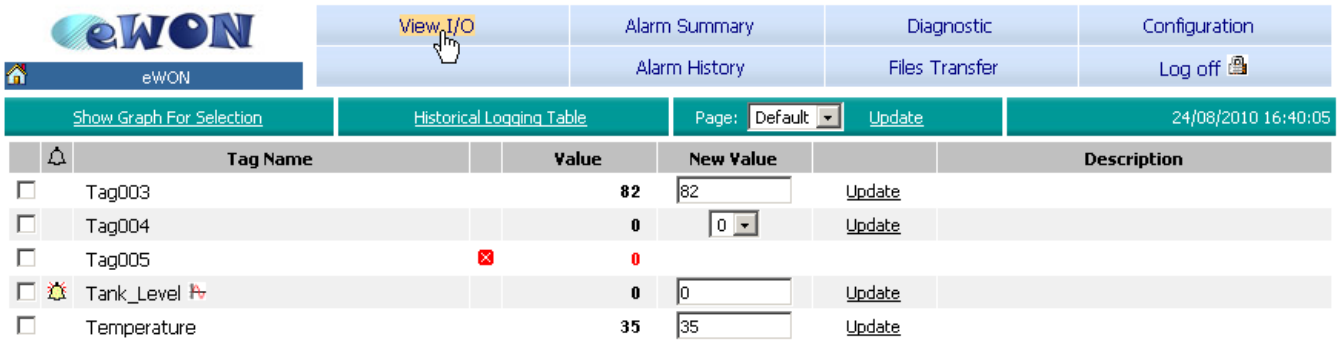


Figure 4: eWON real time screen

3.1.1 Change a Tag value

As shown in the above example, in the first row from the Tag list, if the Tag name is an output and if the user has the right to 'force output', an edit box and an Update link are available. To change the value of the output just fill the related edit box with the new wanted value and click on the related Update link.
If the Tag is of Boolean type, a combo box with values 0 (zero) and 1 is then displayed.

3.1.2 Tag quality

Since the firmware 6.0, eWON Tags have a Quality Information. This quality gives indications about how reliable and recent the displayed value actually is.

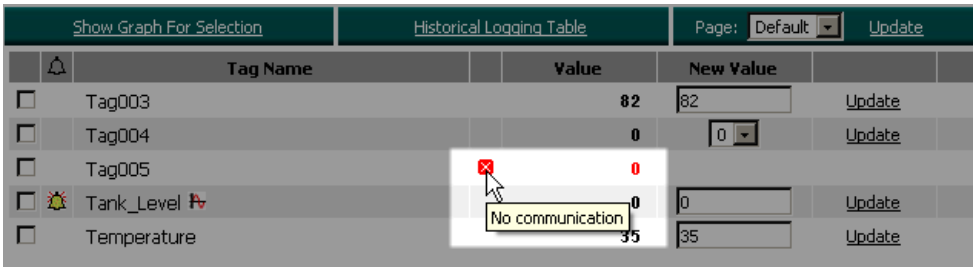


Figure 5: Tag Quality

When a tag is qualified as "bad", the Tag value is displayed in red and a red square is displayed before the value.
Placing the mouse cursor on this red square (no need to click) and an information about the quality problem will be displayed (here above, "No communication").
You can find complete reference of TagQuality in the document "*KB-0039-0-EN-(Tag Quality).pdf*" on the support website (http://support.ewon.biz).

3.1.3 Alarm state

If the Tag name is in alarm state, a yellow bell appears at its left side:

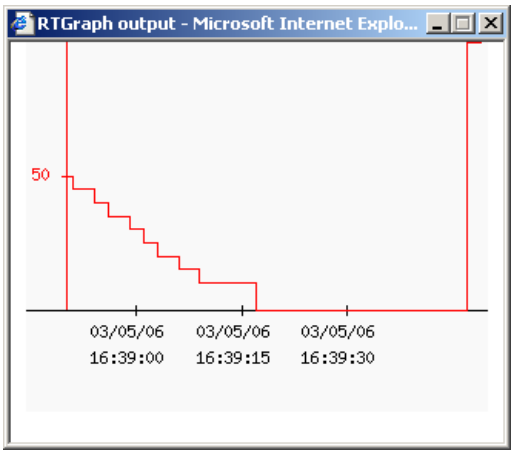
You can click on this picture to access directly the Alarm summary screen.

Tag description: The description of the Tag is also displayed for each Tag.

3.1.4 Real time graph

If a real time recording is enabled for a Tag, a small icon will appear next to its name:

This small icon is an hyperlink to show the graph picture. When the link is clicked, another window will open and after a small delay (about 3 seconds), a graph will be displayed:



This graph displays the whole real time window.

Important: If the main explorer window hides the real time window, clicking again on the real time graph hyperlink will not bring it forward. You should bring it forward manually.

3.1.5 Historical window

A check box may also appear in the first column of the View I/O screen meaning that you can choose this Tag to view its historical trend. It appears only if the historical logging has been enabled in the Tag description (see chapter “Tag main edit window” on page 40).

3.2 Historical Trending screen

Warning: depending on the eWON's version - c.f. table at the end of this manual.

From the real time screen, users can select Tags (providing that the historical logging has been enabled for those Tags) by clicking on the related checkbox and request a graph for these Tags by clicking on the ***Show Graph for selection*** link above the real time tabs. Up to 4 Tags can be selected at the same time to be plotted on the graph.

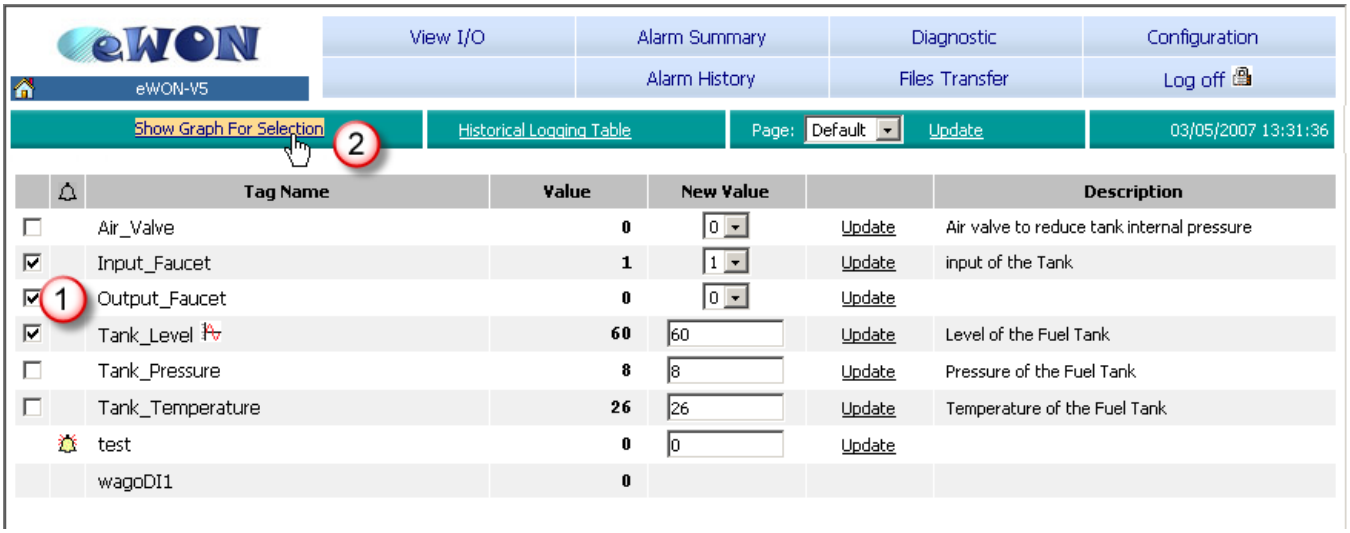


Figure 6: eWON historical trend configuration - 1

The user has then to select the correct time range for the Tag's selection and click on the ***Update graph*** link to obtain a historical trend. The common axis checkbox allows visualizing all the Tag names on the same axis. If the scales are different, it is clearer to display each curve with its own scale (by unchecking the ***Common Axis*** checkbox).

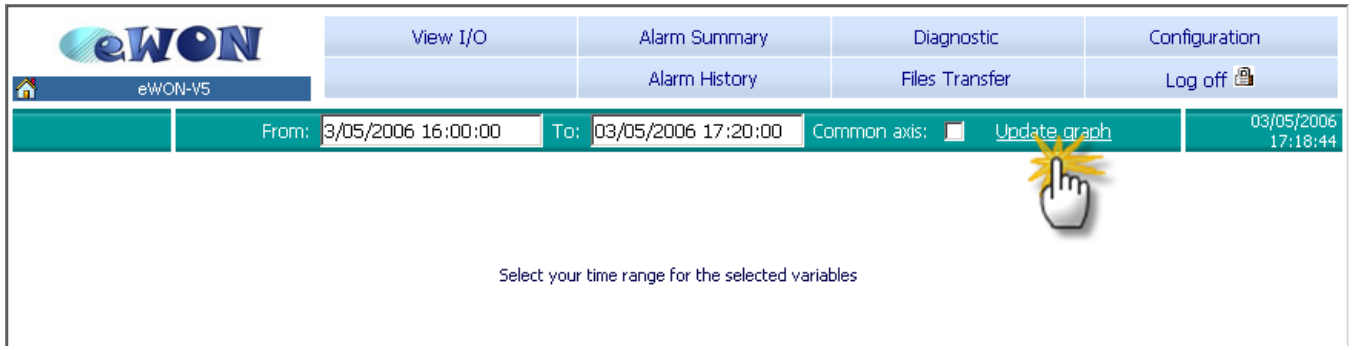


Figure 7: eWON historical trend configuration - 2

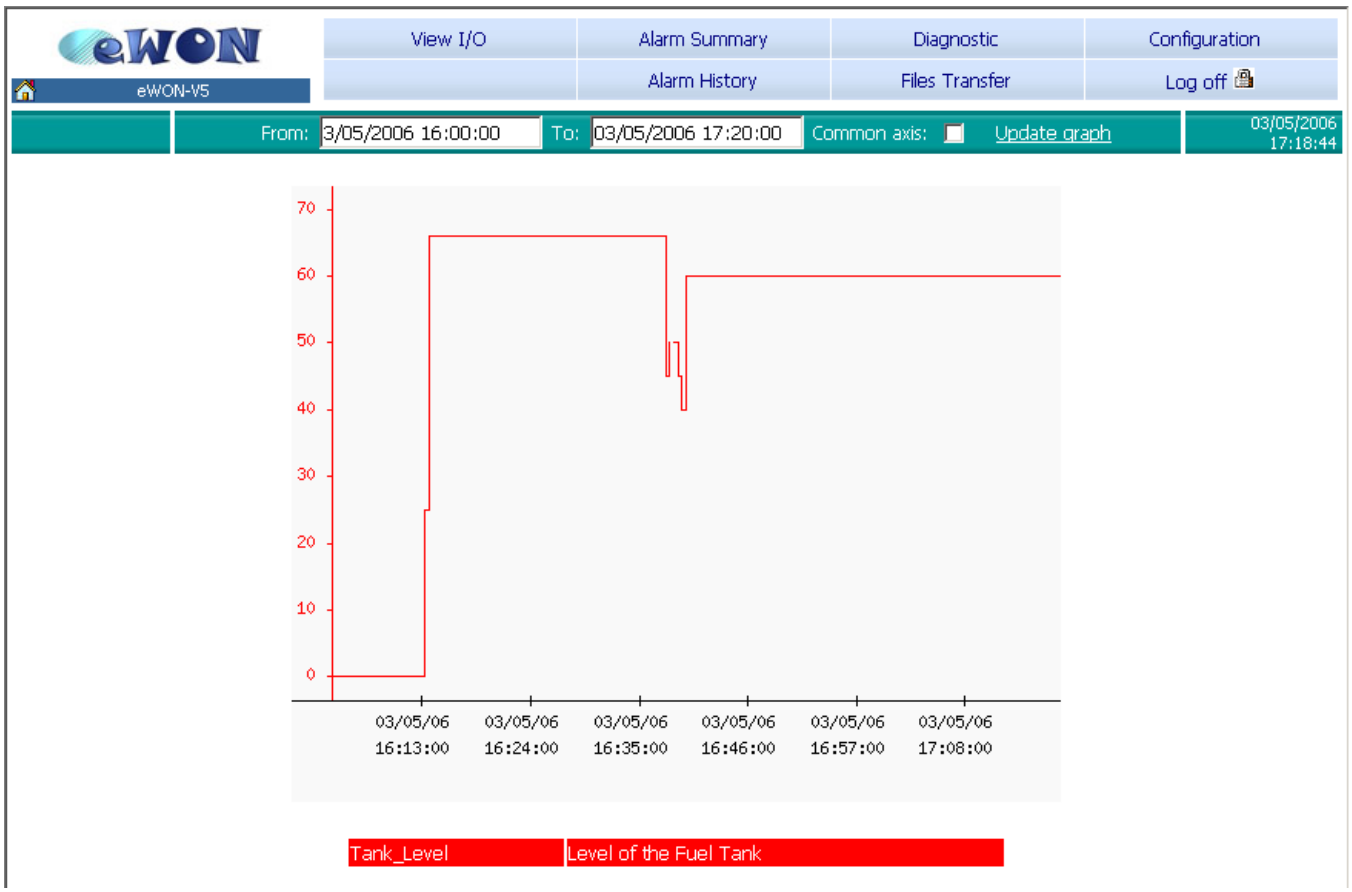


Figure 8: eWON historical trend graph

3.3 Historical table

The historical table is a representation of the IRCALL.BIN (incremental recording).
This representation provides recordings representation as a table where columns are Tag names and rows are recording times.
The features can be used at 2 levels:

- A page in the VIEW area.
- An export bloc descriptor exists (see “$dtHT [Historical Table]” on page 208).

The Historical table is available through the *View I/O* page.

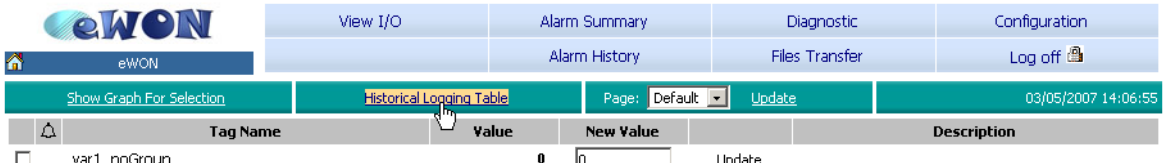
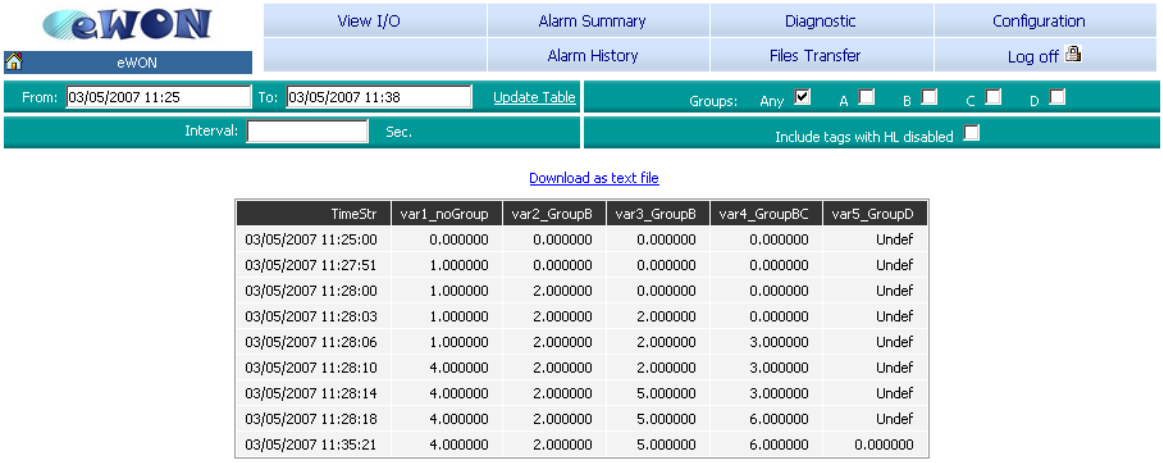


Figure 9: eWON Historical Table link

Use the *Historical Logging Table* link to access to the following page.

Figure 10: eWON Historical Table parameters

Like the “Historical Trending screen ” on page 14, you need to specify the time range of the Historical Table with the *From* and *To* fields.
These fields only accept date on the DD/MM/YYYY HH:MM:SS format. If the hour, minutes, seconds parameter are missing, they will be set to 0.
You can filter the Tags shown by selecting the Instant Value Groups (combination of A,B,C,D groups).
If you want to display all the Tags (with historical logging) of the eWON, check the *Any* checkbox.
The *Include tags with HL disabled* checkbox allows you to include Tags with Historical logging currently disabled but having been previously recorded in the file.
The *Interval* parameter allow you to specify a fixed interval, in seconds, to generate the table (each row will be evenly distributed in time). The Tag value placed in the row is the latest logged value.
If the *Interval* is empty or set to 0, the output time is defined by the time in the recording file. You will have a row at each value changes (as shown in the figure below).



TimeStr	var1_noGroup	var2_GroupB	var3_GroupB	var4_GroupBC	var5_GroupD
03/05/2007 11:25:00	0.000000	0.000000	0.000000	0.000000	Undef
03/05/2007 11:27:51	1.000000	0.000000	0.000000	0.000000	Undef
03/05/2007 11:28:00	1.000000	2.000000	0.000000	0.000000	Undef
03/05/2007 11:28:03	1.000000	2.000000	2.000000	0.000000	Undef
03/05/2007 11:28:06	1.000000	2.000000	2.000000	3.000000	Undef
03/05/2007 11:28:10	4.000000	2.000000	2.000000	3.000000	Undef
03/05/2007 11:28:14	4.000000	2.000000	5.000000	3.000000	Undef
03/05/2007 11:28:18	4.000000	2.000000	5.000000	6.000000	Undef
03/05/2007 11:35:21	4.000000	2.000000	5.000000	6.000000	0.000000

Figure 11: eWON Historical Table

You can use the link *Download as text file* to export this table in csv format.

3.4 Real time Alarm screen

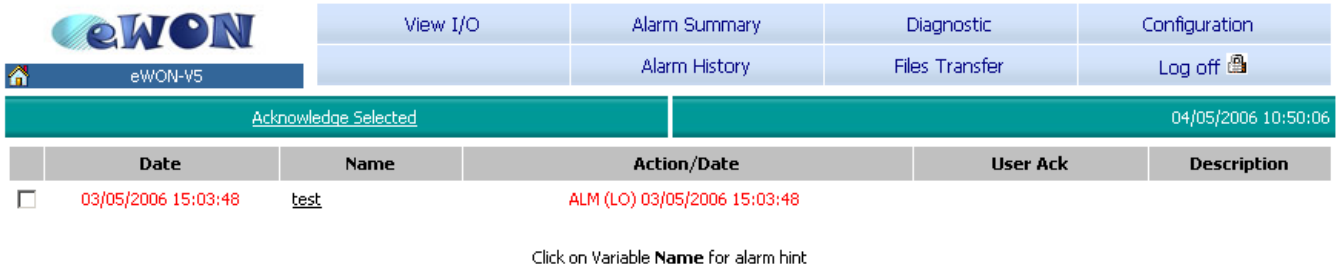


Figure 12: eWON real time alarm screen

The real time alarm page lists all the Tag names currently in alarm state.

- **The 'Date' tab displays the eWON date and hour when the Tag was in alarm.**
- **The 'Name' tab displays the Tag in alarm.**
- **The 'Action/Date' tab displays the last status of the Tag and the date and hour of this state.**
- **The 'User Ack' tab displays the user who acknowledged the alarm.**
- **The 'Description' tab displays the description of the Tag in alarm.**

There are several types of Alarm status:

ALM (HI)	ALARM status, the current value is in warning high position
ALM (HIHI)	ALARM status, the current value is in insecure high position
ALM (LO)	ALARM status, the current value is in warning low position
ALM (LOLO)	ALARM status, the current value is in insecure low position
ALM	ALARM status, the present value is out of defined threshold (Boolean Tag)
RTN	Return to Normal status, the present value is inside the defined threshold but has been out of threshold before and hasn't be acknowledged
ACK	Acknowledgment status, the present value is out of defined threshold but someone has acknowledged the alarm

Table 2: alarm status types

It is possible to define an alarm hint ("Tag main edit window" on page 40):

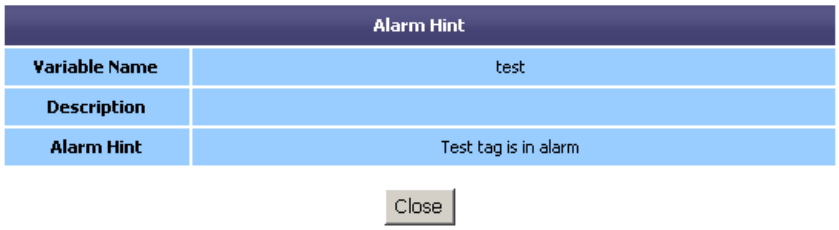


Figure 13: eWON alarm notification: pre-defined hint

This alarm hint can be useful to help the users that are allowed to take actions regarding the alarms.

3.5 Historical Alarm screen

The historical alarm screen is used to find the alarms generated in the past and know who acknowledged a specified alarm. All the alarms are stacked from the top to the bottom.

The given information is:

- **The date and the hour of the event.**
- **The Tag name.**
- **The type of the event: ALM, RTN, ACK or END (RTN and ACK).**
- **The user who acknowledged the alarm.**
- **The description of the Tag.**

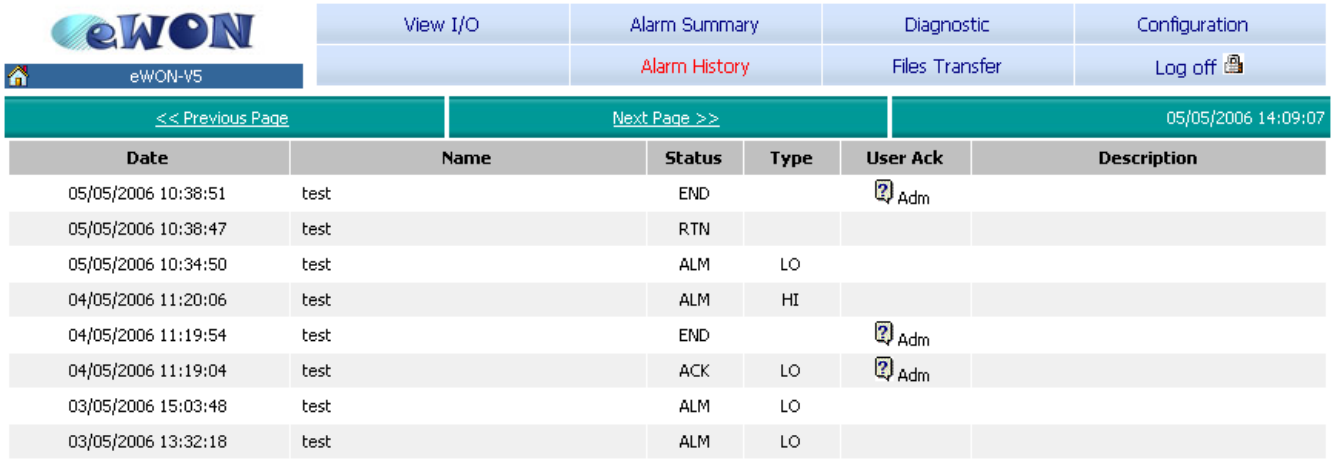
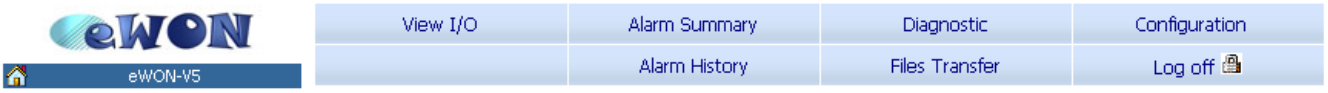


Figure 14: eWON alarm history page

The ***Previous Page*** link is used to go back to the past and the ***Next page*** link is used to go to the present. When no more alarm is available for display, the following message appears: "No more history page".

3.6 Files transfer

This link gives you access to a page where the eWON files are listed:



File Name	Description
Events.htm	Events log as table
sstat.htm	Scheduled status as table
estat.htm	System status as table
rt_alm.txt	Real time alarms
inst_val.txt	Instantaneous values as text
inst_val.bin	Instantaneous values (binary)
events.txt	Events log
hst_alm.txt	Alarms history
var_lst.txt	Variables list and details
var_lst.csv	Variables list and details
program.bas	Program
ewonfwr.edf	Firmware
dump.ppp	PPP Dump
config.bin	Binary config
config.txt	Text config
comcfg.txt	Text COM config
ircall.bin	All historical logs
backup.tar	TAR Backup/Restore + erase
irc_Tank_Level.txt	Tank_Level Historical log
irc_Input_Faucet.txt	Input_Faucet Historical log
irc_Output_Faucet.txt	Output_Faucet Historical log
irc_Tank_Temperature.txt	Tank_Temperature Historical log
irc_Tank_Pressure.txt	Tank_Pressure Historical log
irc_Air_Valve.txt	Air_Valve Historical log
irc_wagoDI1.txt	wagoDI1 Historical log
irc_test.txt	test Historical log

Select the file you want to download.
REM: you can right click on a file and select "save target as..." to save the file on your disk.

Figure 15: files transfer page

3.7 Diagnostic

If you encounter problems with your eWON, you will find a lot of information in the diagnostic area of the eWON.

Figure 16: Diagnostic page (without ADSL)

The diagnostic area is divided in four or five zones :

- **Event Log**
- **Status**
- **Scheduled Actions**
- **Real Time Log**
- **ADSL Log (on eWON with ADSL modem)**

Figure 17: Diagnostic page (with ADSL)

3.7.1 Event Log

The Event Log page shows you the information recorded in the Events.txt file.
In this page, the logged data are presented in reverse chronological order (recent events on the top, older ones at the bottom) on page containing a fixed number of events. These events are displayed in different colors to differentiate ***Error***, ***Warning*** and *Trace* events.

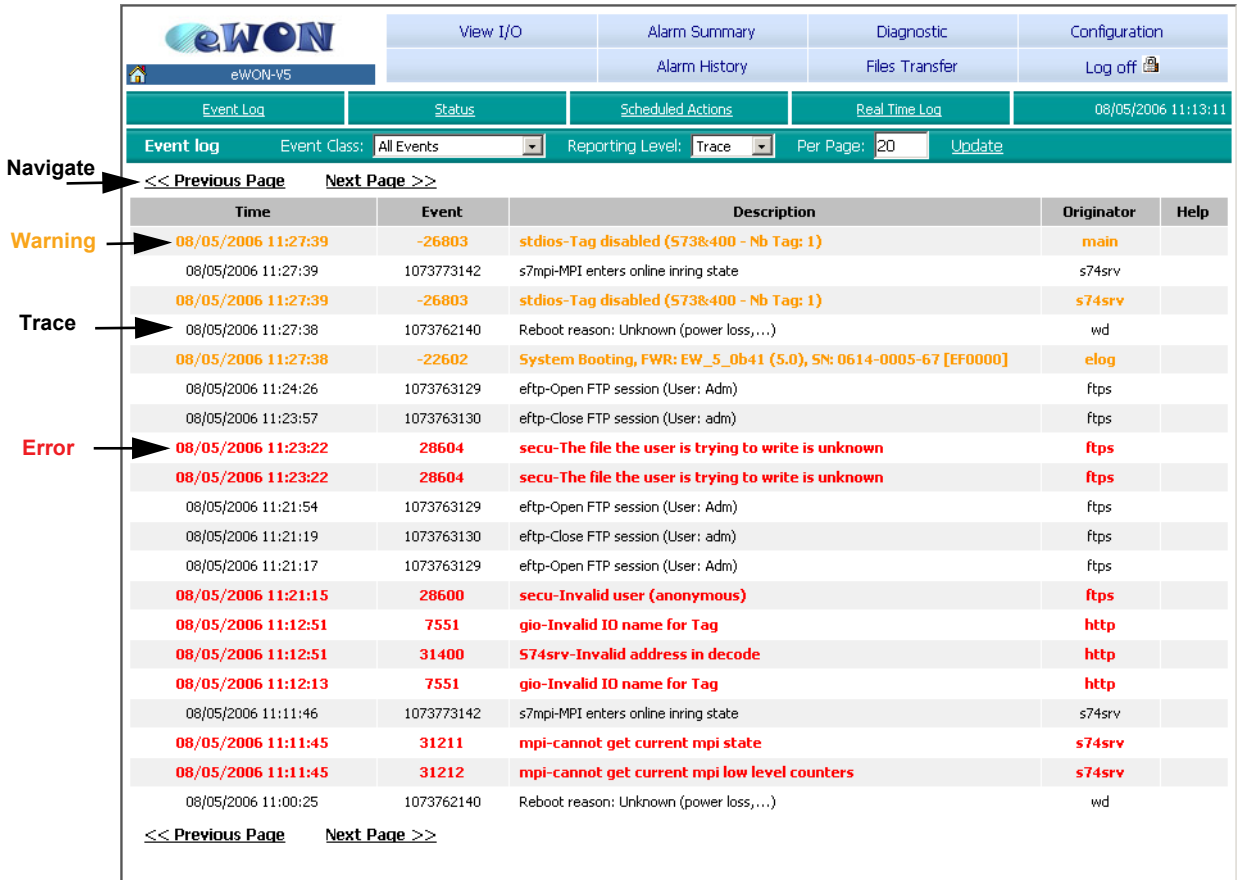


Figure 18: Event Log page

You can customize the information displayed on this page by using the Event Class, Reporting Level and Per Page entry fields.

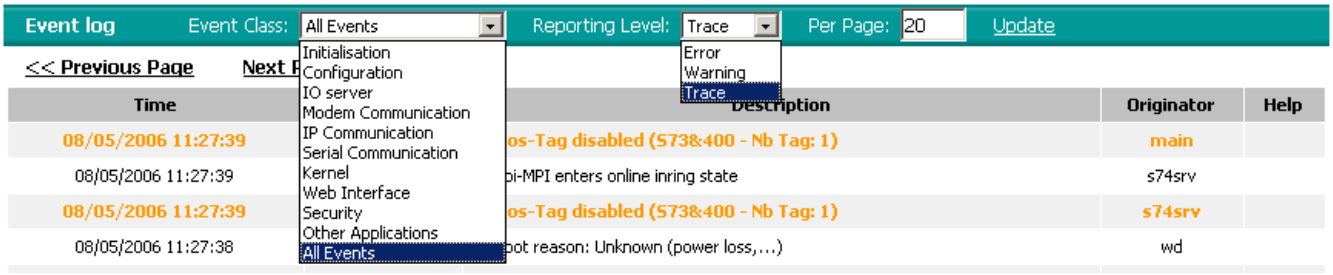


Figure 19: Customize the Event Log page

Event Class	Allows you to filter the events displayed by categories (or ALL)
Reporting Level	Allows you to filter the events displayed by severity. You view the level choosed and the levels greater. If you select Warning, you will see the warning and Error events.
Per Page	Defines the number of events you wants to see in each pages.

Table 3: Event Log page parameters

Choose the events that you want to see and validate with the Update link.

3.7.2 Status

With the Status page, you can access all the internal variables, counters representing the current live status of your eWON. These counters are organized in three main categories: *System Counters*, *I/O Servers counters* and *System Info*.

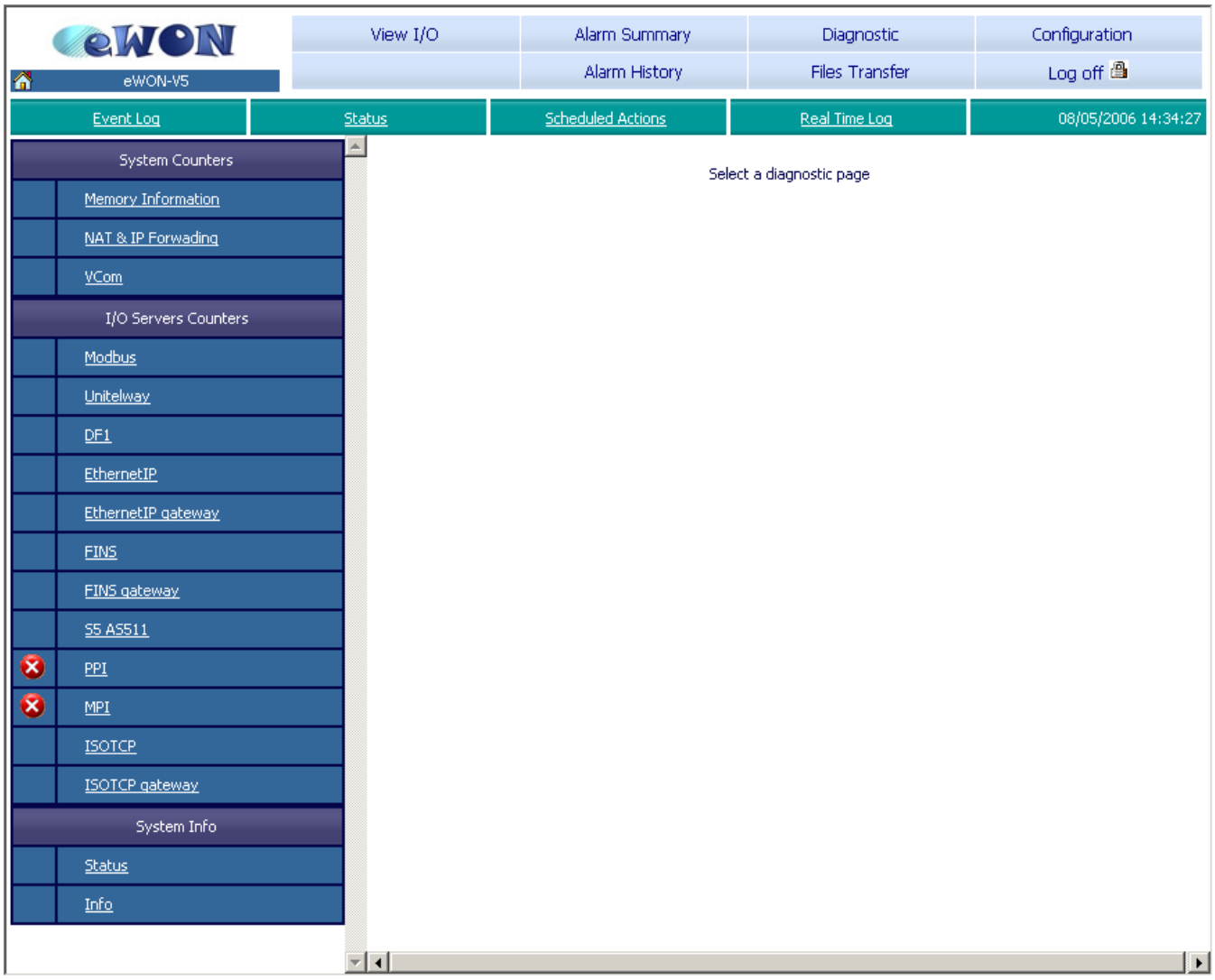


Figure 20: Status select page

In the first column, you can see an or icon representing the Error or Warning level of this category.
Click on the category link to view different counters/info.
All these counters are accessible from outside of the eWON by FTP in the *estat.htm* file.

3.7.2.1 Memory Information

Memory Information				
Description	Value	Unit	Stat	?
Total memory allocated	2235480	Bytes		
Number of Free Chuncks	10			
Number of free blocks in fast bin	0			
Maximum allocated space	2235616	Bytes		
Fast bin block size used	0	Bytes		
Total Alloc Space	2223984	Bytes		
Total Free Space	11632	Bytes		
Memory that could be trimmed	4056	Bytes		
Total Memory Available	11534336	Bytes		
Tcp Ip allocated memory	152576	Bytes		
Sockets allocated	11			
Snmp allocated memory	22240	Bytes		
Config free memory	254913	Bytes		
Script free memory	126959	Bytes		
/usr partition free space	5449728	Bytes		
/usr partition total size	5468160	Bytes		

Figure 21: Memory Information page

3.7.2.2 NAT & IP Forwarding

NAT & IP Forwading				
Description	Value	Unit	Stat	?
Minimum number of available config nodes	0			
Minimum number of available NAT nodes	0			
Number NAT entry missed	0			
Service node recycled	0			
Port forward node recycled	0			
Number of incoming packets dropped (reason other)	0			
Number of outgoing packets dropped (reason other)	0			
Number of incoming packets dropped (invalid packet)	0			
Number of incoming packets dropped (Filtered)	0			
Number of incoming packets dropped (invalid destination)	0			
Number of packets forwarded	0			
Number of outgoing packets dropped (invalid packet)	0			
Number of NATed packets	0			
Number of NATed TCP packets	0			
Number of NATed UDP packets	0			
Number of NATed ICMP packets	0			

Figure 22: NAT & IP Forwarding page

3.7.2.3 VCom

VCom				
Description	Value	Unit	Stat	?
VCOM1: COM Port Opened	No			
VCOM1: COM Port Error	No			
VCOM1: TCP Port Error	No			
VCOM1: Serial Bytes In	0			
VCOM1: Serial Bytes Out	0			
VCOM2: COM Port Opened	No			
VCOM2: COM Port Error	No			
VCOM2: TCP Port Error	No			
VCOM2: Serial Bytes In	0			
VCOM2: Serial Bytes Out	0			

Figure 23: VCom page

3.7.2.4 Status

Status				
Description	Value	Unit	Stat	?
PPP allocated IP address	0.0.0.0			
Current IP transparent forward address	0.0.0.0			
VPN allocated IP address	0.0.0.0			
PPP accumulated incoming traffic	0	Bytes		
PPP accumulated outgoing traffic	0	Bytes		
ADSL Line status	Online			
ADSL WAN status	Up			
ADSL Local IP	80.201.80.107			
ADSL Remote IP	80.201.80.1			
ADSL Primary DNS	195.238.2.22			
ADSL Secondary DNS	195.238.2.21			

Figure 24: Status page

3.7.2.5 Info

Example of System Info from an eWON 4101 MPI

Info				
Description	Value	Unit	Stat	?
Serial number	0835-0004-54			
Firmware version	327684			
Code name	EW_5_4s5			
Firmware download date	29/04/2002 15:00:00			
CPU ID	00000000			
System Enabled	1			
Hardware Revision	000000D0			
Hard Extended Revison	00000010			
Hardware options	119			
Modem type	23			
MAC address	00:03:27:40:30:0f			
MAC address WAN	00:03:27:00:30:0f			
Modem extended information	[115Kb] PRODUCT: WAVECOM MODEM MULTIBAND 900E 1800 , ROM: 663_09gg.Q2686H 1955080 080207 16:01			
Features	EF0000			
Boot loader revision	00030007			
ADSL Version info	SW Ver:VUL-2.5.060823p, FW Ver:E37.5.49			
ADSL Serial number	456789abcdx			

Figure 25: Info page

3.7.2.6 System

This diagnostics page is available only on eWON Flexy.
It shows the detected Extension Cards.
Example of System info from a Flexy with detected Etension Cards

System				
Description	Value	Unit	Stat	?
MB Part Num	FLEXY20300_00			
MB Serial Num	1305-0022-21			
MB Ext. Info	PType:0, MTID:714			
Ext1 Part Num	FLX3101_00			
Ext1 Serial Num	675-1224-0048-07			
Ext1 Ext. Info				
Ext2 Part Num	FLA3301_00			
Ext2 Serial Num	692-1226-0056-06			
Ext2 Ext. Info				
Ext3 Part Num				
Ext3 Serial Num				
Ext3 Ext. Info				
Ext4 Part Num				
Ext4 Serial Num				
Ext4 Ext. Info				

3.7.3 Scheduled Actions

The Scheduled Actions diagnostic page shows you the states of the outgoing actions like SendMail, putFTP, getFTP, NTPSynchro, SNMPTrap.

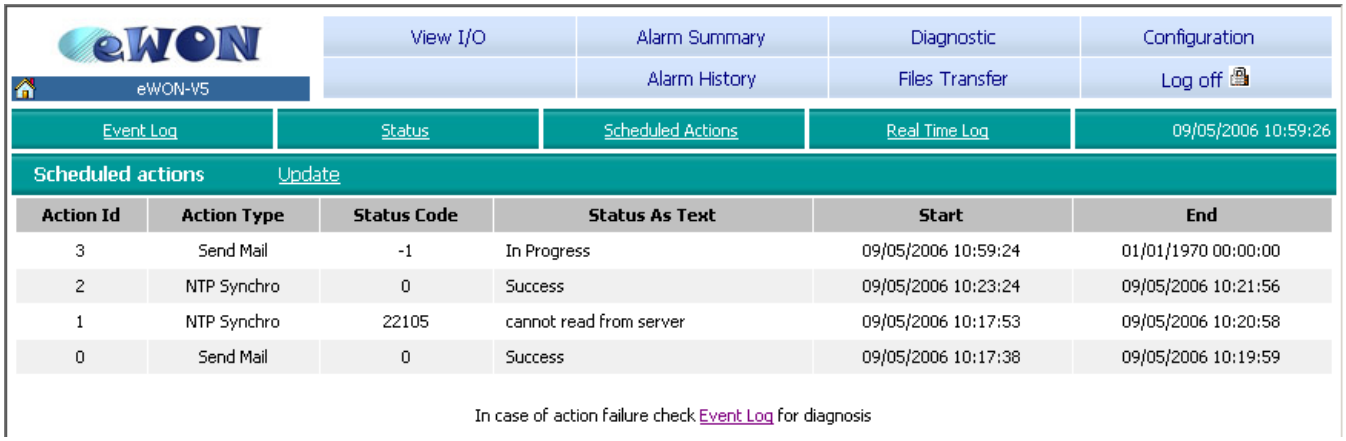


Figure 26: Scheduled Actions page

The Status code can take the following values:

Status code values	
0	Ended with Success
-1	In Progress
>0	Ended with Error. The value is the Error code. See *Status As Text* column for explanation.

The eWON maintains a list with the status of the last 20 scheduled actions executed.
You can find the same information in the sstat.htm file.

To refresh this page, use the Update link.

3.7.4 Real Time Log

The Real Time Log diagnostic page shows you the *Debug* information from **VCom**, **Energy**, **Serial** and **VPN**.

This logging is a time consuming eWON task and is not activated by default. It will slow down the overall behavior of the eWON. Use it only during your debugging process !

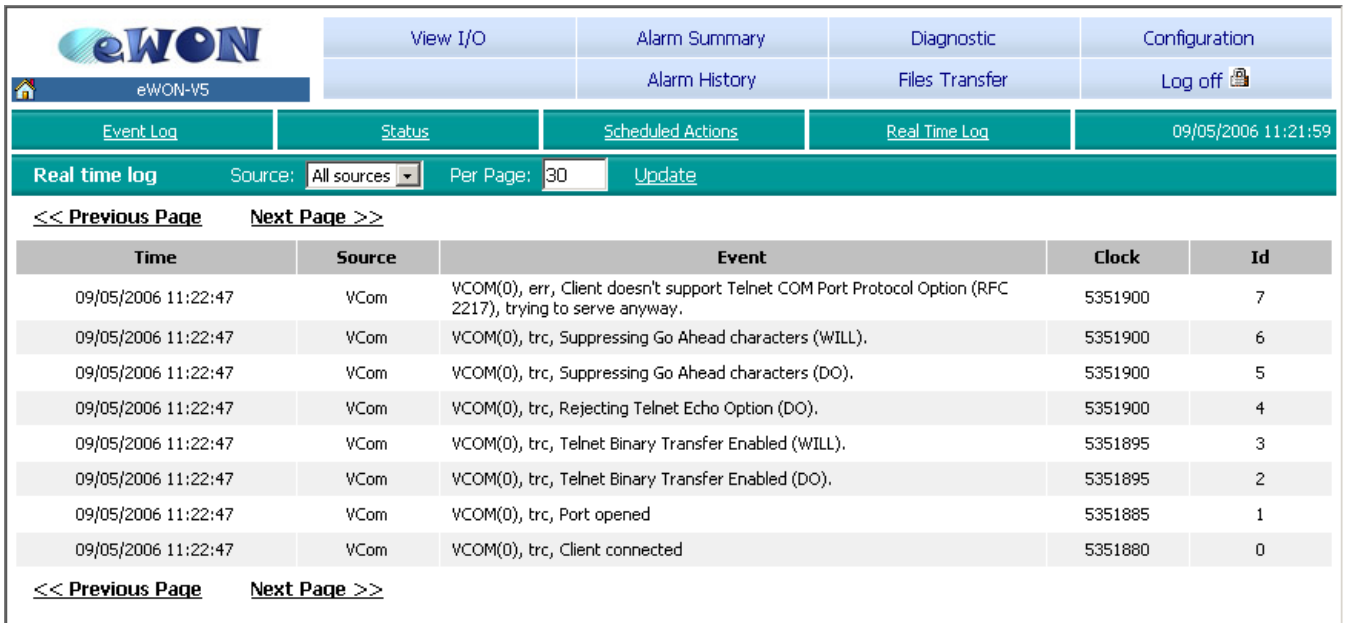


Figure 27: Real Time Log page

You can select the source of the data to display and the number of events per page with the configuration fields.

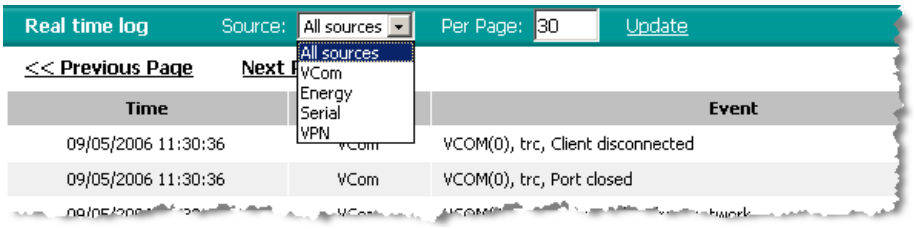


Figure 28: Real Time Log parameters

These information are stored in RAM memory, they are cleared by an eWON reboot.

3.7.4.1 *Activate VCOM debug mode*

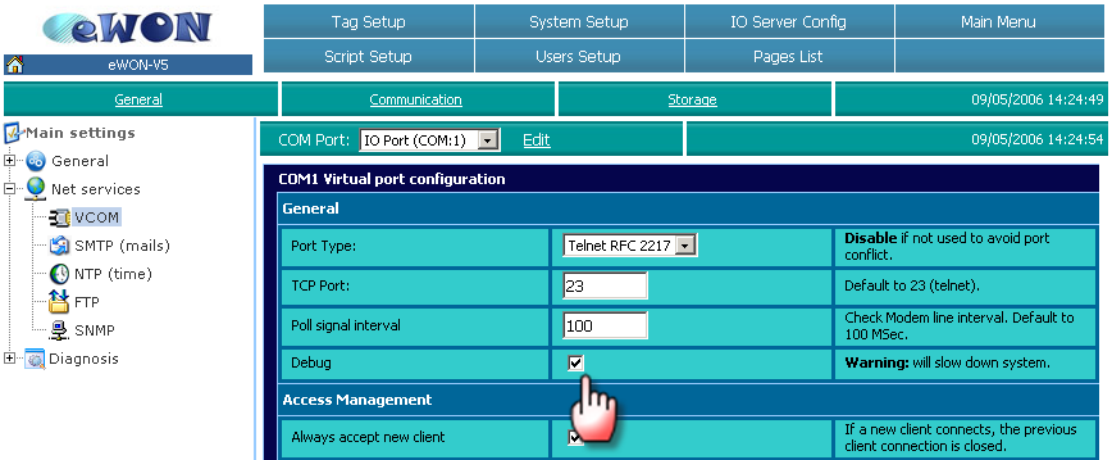


Figure 29: Activate VCOM debug

3.7.4.2 *Activate Energy debug mode*

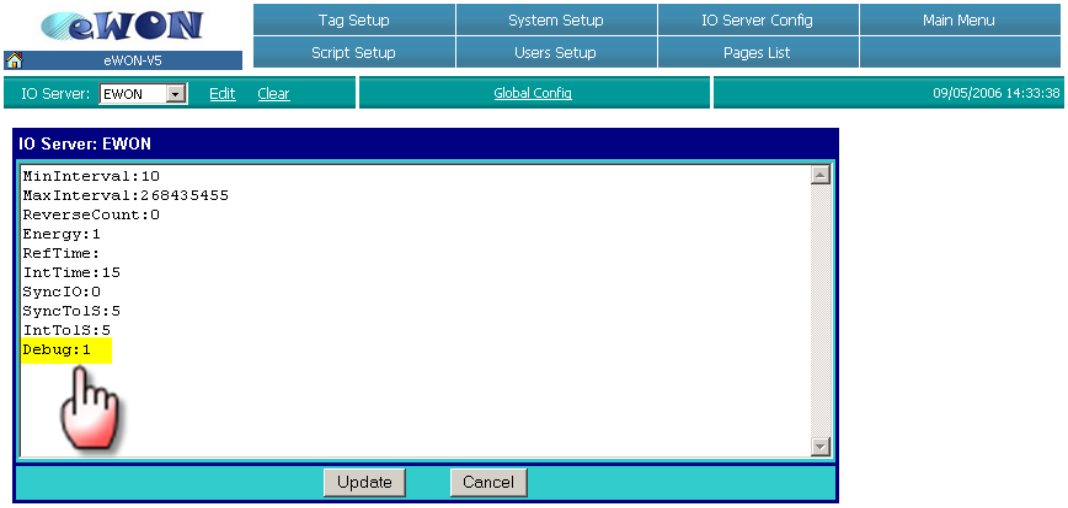


Figure 30: Activate Energy debug

3.7.4.3 Activate Serial debug mode

You can activate the debug mode on every serial port of the eWON (COM port(s) and internal Modem ports PPP)
In the case of multiple COM ports, the order of appearance including position of the PPP (modem) port depends on the eWON type.

eWON type	COM # and Serial port number
eWON4002	COM: 1 : Debug SER Port1 COM: 2 : Debug PPP Port (modem) COM: 3 : Debug SER Port2 COM: 4 : Debug SER Port3
eWON MPI	COM: 1 : Debug PPP port (if a modem is available)
eWON Flexy 101 & 201 **eWON Flexy 103 & 203**	COM: # : Debug IO/PPP Port# - Depends on the presence/order of Extension Cards. A modem COM port can be recognized by its label ***Debug PPP port*** Note: the order of COM port recognition is from left to right, top to bottom.
eWON Flexy 102 & 202	COM: 1 : Debug IO Port1 Debug Serial port 1 (Embedded in Base Unit) COM: # : Debug IO/PPP Port# - Depends on the presence/order of Extension Cards. A modem COM port can be recognized by its label ***Debug PPP port*** Note: the order of COM port recognition is from left to right, top to bottom.
Other eWONs	COM: 1 : Debug IO port 1 COM: 2 : Debug PPP port ((if a modem is available) COM: 3: Debug CTRL port (for internal use only)

Table 4: Serial Debug : Serial port available

The example below shows the serial debug page for an eWON2005CD with modem:

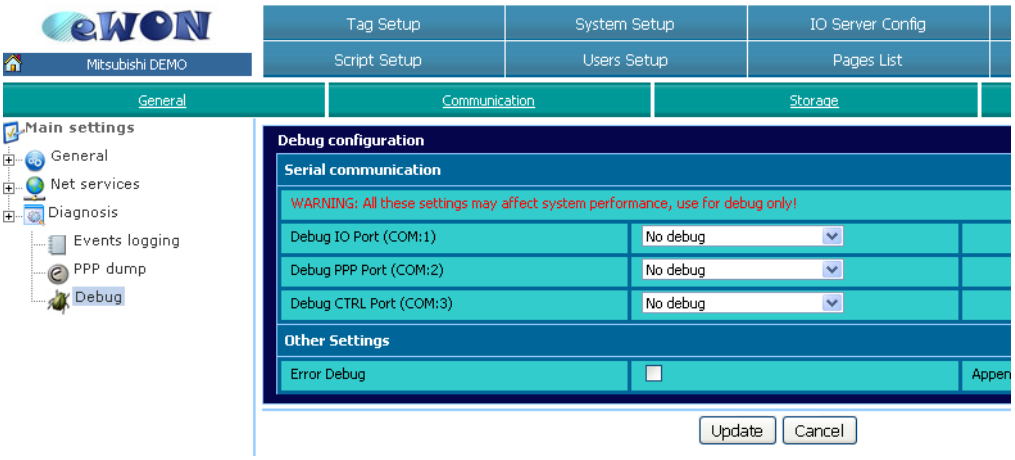


Figure 31: Serial Debug Page on eWON2005CD with modem

The example below shows the serial debug page for an eWON Flexy 103/203 with modem:

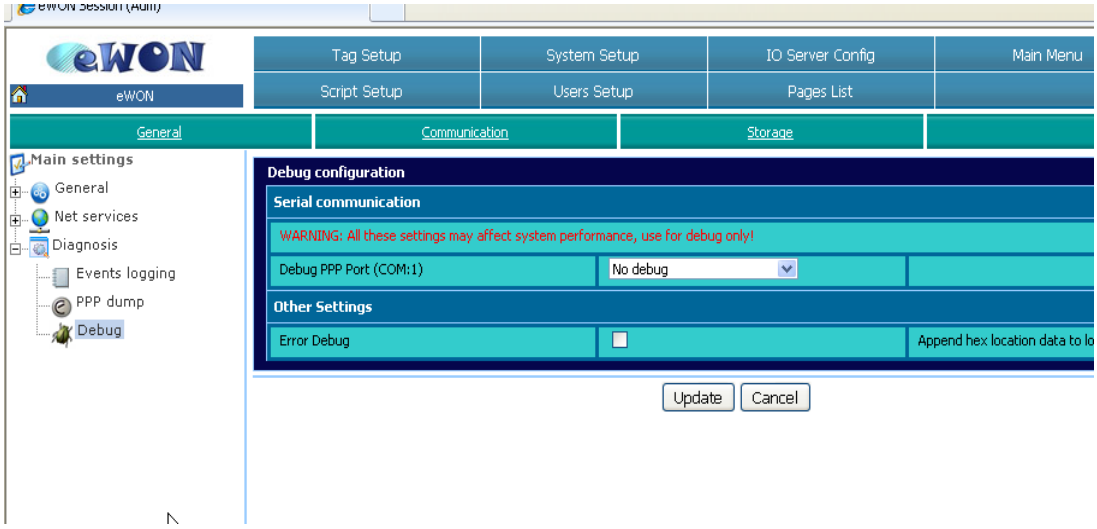


Figure 32: Serial Debug Page on eWON Flexy 103/203 with modem Extension Card

As the Serial Debug uses eWON ressources (CPU and memory), don't forget to disable the debugging once you don't need it anymore. Set the Debug to "No debug" to disable it.
you can also activate the Serial Debug in the configuration file.
Syntax is **SerDeb***X*:*Y* X is the Serial port number and Y is the debug mode

Debug mode value (*Y*)	Description
0	**No debug**
1	**Hex values Tx & Rx**
2	**Hex and Ascii values Tx & Rx**
3	**Hex and Ascii values Tx & Rx** **but Rx timeouts are not logged (clearer in log)** (usefull for Modem debugging)

Table 5: Serial Debug : mode values

The buffer used to store data in the real time log is limited to 500 characters, so if an RX or TX data stream is too long, an error message saying that it is not possible to log it is logged instead
Example: SER-Rx: Too long to print (800)
If the Debug mode is >1 then the ascii values are also logged if there is enough space.
So, even if ascii debug is used, if there is no space, no ascii data are appended to the hex data.

3.7.4.4 Activate VPN debug mode

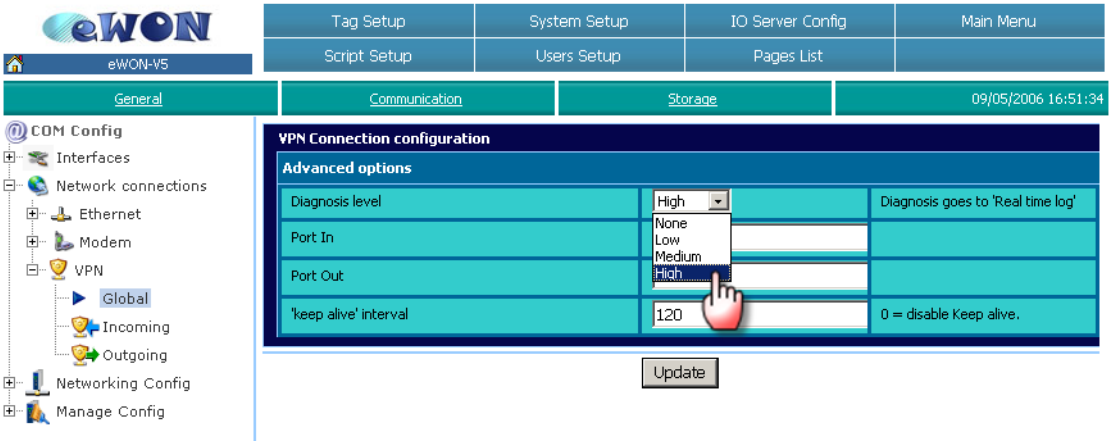
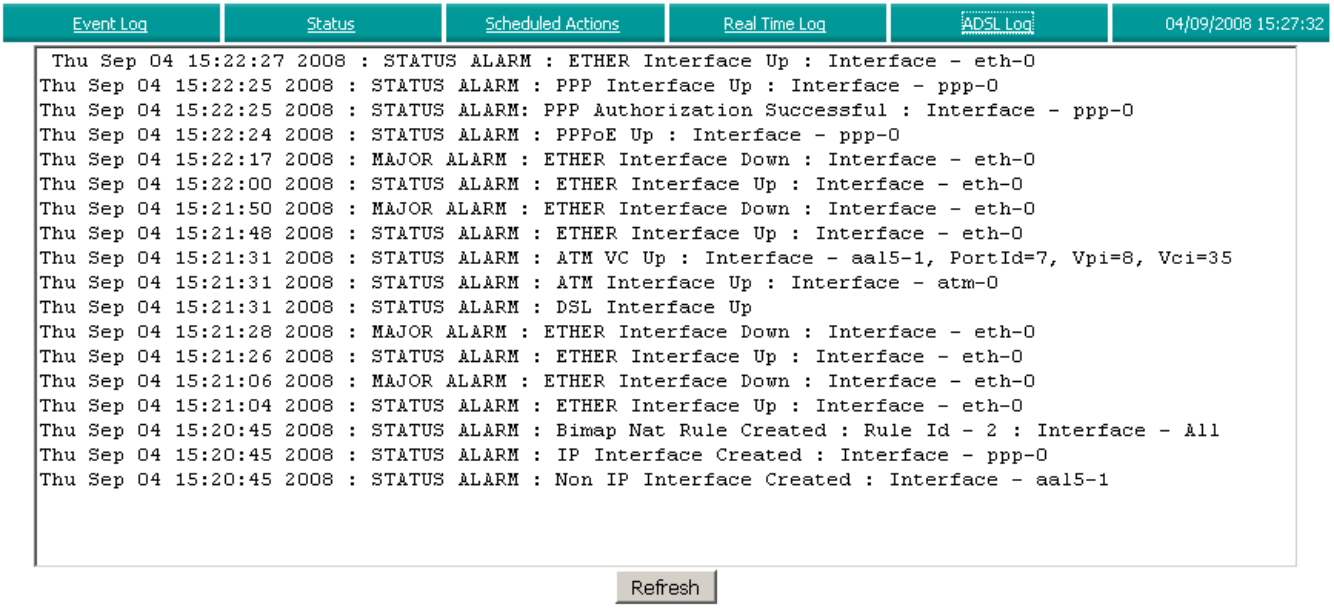


Figure 33: Activate VPN debug

The VPN diagnosis can be set to 3 levels or disabled.

3.7.5 ADSL Log

If your ADSL does not work, you may have problems with your configuration. In that case, you can check the ADSL Log, this log is fetched from the modem itself and remains in 'English'. It may contain information about an invalid VPI/VCI configuration or an incorrect username and password.



4 eWON Configuration Interface

Just after you have logged in successfully, the eWON Web Interface will be displayed.

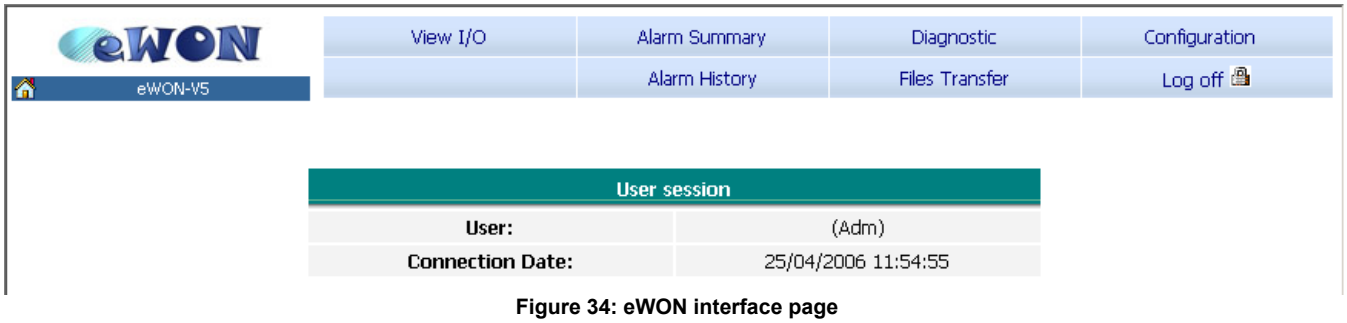


Figure 34: eWON interface page

But before analyzing the Monitoring Web Interfaces page, you need to configure your eWON.
Click on the ***Configuration*** menu item. The following Configuration web page then appears:

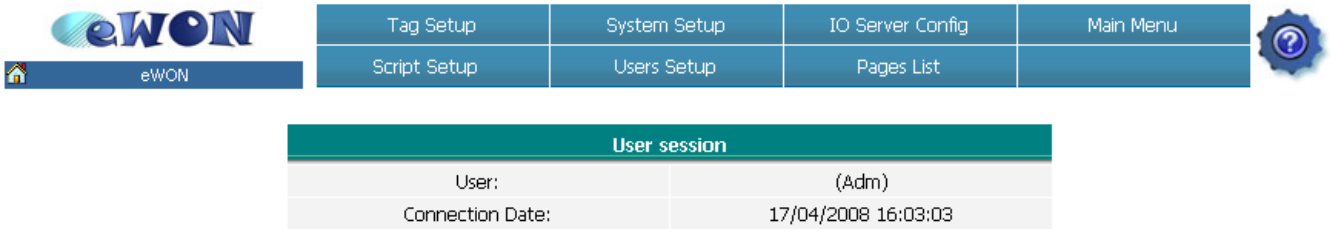


Figure 35: eWON configuration links

4.1 Overview

The Configuration menu includes the following points:

- **Tag Setup**
  The eWON monitors and manages variables (called *Tags*). A Tag can be *of type Boolean, Integer, DWord or Float.* Tags are produced by IO servers. The configuration of a Tag defines its IO server and all its monitoring parameters like alarm levels, historical logging (Warning: not for all eWONs versions - Table on page 244), etc.

  See chapter "Tag Setup" on page 37

- **The Main system setup (General)**
  Defines all the eWON global settings, except for settings regarding the eWON communication. The user can modify the Email, FTP and NTP parameters, along with reboot.

  See chapter "System Setup - General Setup" on page 57

- **The Communication setup section**
  Includes all the communication settings of the eWON. These settings are separated from the Main settings and are stored at a different place inside the eWON in order to allow formatting the eWON flash file system without affecting the communication settings (see also chapter "eWON configuration and files storage" on page 220).

  See chapter "System Setup – Communication" on page 73

- **The storage setup section**
  Allows to define the way the memory resources of the eWON are used. It also allows formatting the Flash file system.
  The storage menu also gives access to the advanced tabular editor, allowing to change every configuration parameter.

  See chapter "System Setup - Storage" on page 118

- **IO Server Config**
  The IO server allows to interface the eWON with external equipments, as for example PLCs, modbus IO devices, etc.
  The IO server allows to define the communication parameters used to communicate with the device.

  See chapter "IO servers config" on page 52

• **Main Menu**
Will display the Monitoring Interface menu of the eWON.

See chapter "IO servers config" on page 52

• **Wizards** 

Wizards will help you quickly configure some eWON features. As for example the Internet connection , Talk2M connection, etc.

See chapter "Wizards" on page 56

• **Script Setup**
eWON embedds a Basic Script language that allows performing different actions on the eWON itself. As for example change automatically its config, send out mails, program special actions, etc.

See chapter "Script Setup" on page 53

• **Users Setup**
The Users Setup allows to create different user loggings for the eWON. This allows to restrict access to the various features of the eWON according to the user's rights. It also allows logging the user's actions (like alarm acknowledge…).

See chapter "Users Setup" on page 32

• **Pages List**
It is possible to organize the Tags by groups. These groups are called "pages" and they help keep a clearer organization of the Tags and also manage per user rights for the Tags. Two pages, called "Default" and "System" are automatically defined, and up to 10 pages can be user defined.

See chapter "Pages List" on page 52

4.2 Users Setup

The **Users Setup** page allows building the list of authorized eWON users.

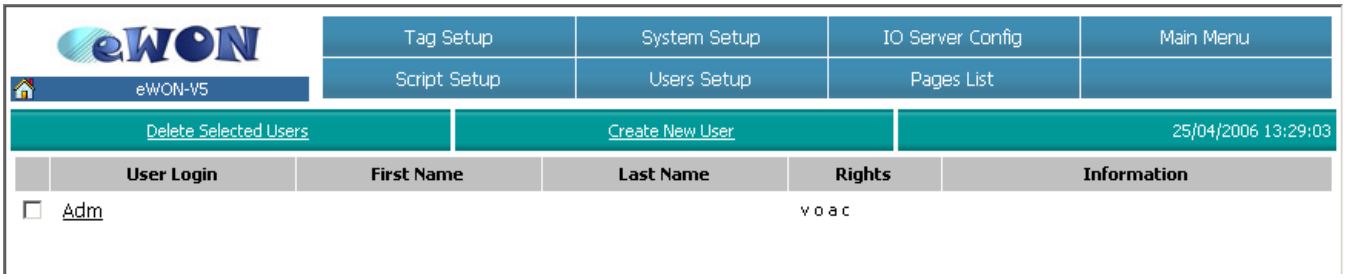


Figure 36: eWON Users Setup page

The user's page lists all the eWON users and attributes. The first time that you connect to the eWON, the default user is Adm. It is recommended to modify the default password of the Administrator user.

4.2.1 To edit a user

Click on the user's name link in the ***User Login*** column.

4.2.2 To create a new user

Click on the ***Create New user*** link.

In both cases, you will get the following edit window:

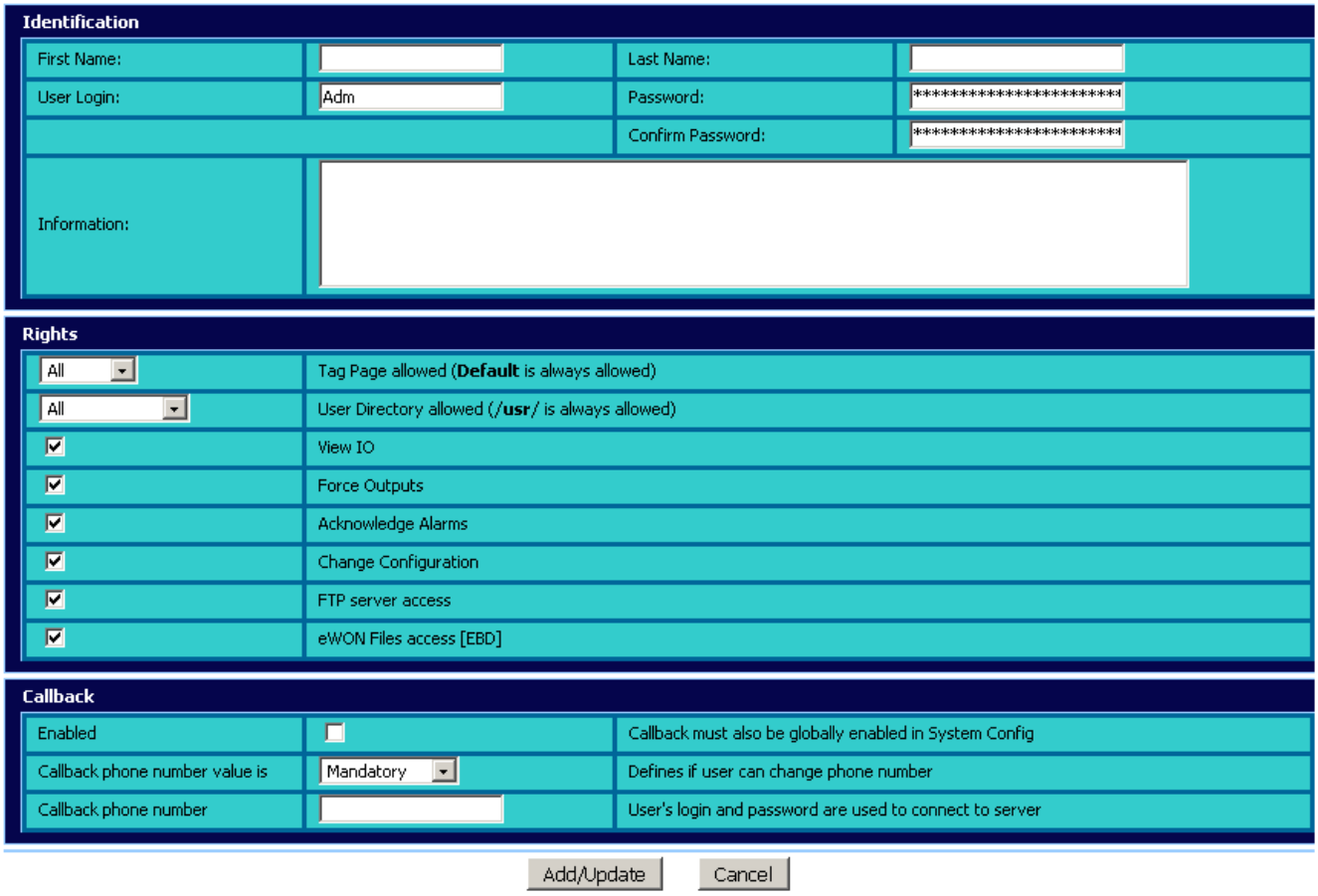


Figure 37: eWON user's configuration page

4.2.3 Logon parameters

First Name and ***Last Name*** are detailed (and optional) information about the user, while ***User Login*** and ***Password*** are mandatory (they are used during the logon procedure).

Logon procedures using the ***User Login*** and ***Password*** are:

- **Main eWON access logon**
- **FTP server access**
- **User defined page Basic Access authentication ("eWON identification" on page 57)**
- **PPP Dial up connection**

Warning: depending on the eWON's version (Table on page 244)

The same user name and password will be used for the different access.

4.2.4 User's rights

The following rights can be selected for user:

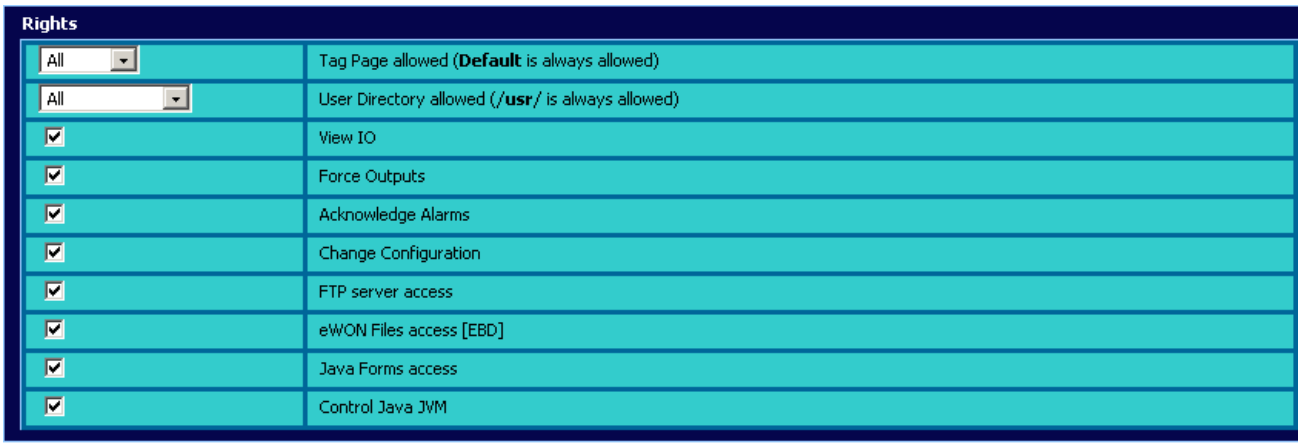


Figure 38: User Rights

View IO	allows accessing the SCADA real time IO screen
Force outputs	allows changing the eWON outputs
Acknowledge alarms	allows acknowledging alarm
Change configuration	allows accessing the configuration part of the eWON
FTP server access	allow this UserName/Password to be used to access the eWON FTP Server
eWON File access [EBD]	allows accessing the File Transfer page. allow this UserName/Password to be used to retrieve eWON Files (containing Export Block Descriptor) with HTTP request using /rcgi.bin/ParamForm?AST_Param=$$...*EBD...*
Java Forms access	allows accessing the Java Forms
Control Java JVM	allows this user to control the Java JVM

Table 6: user's rights explanations

4.2.5 User's directory restriction

When the user web site is built, HTML (or SHTM) pages can be placed in subdirectories. The root directory of the user defined web site is **/usr** (from the FTP directory structure). Every user has access to that directory.

/usr is considered as DEFAULT directory for the web site.

For this explanation, assume that the following FTP directory structure is defined:

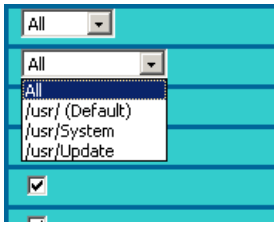
/usr/System contains pages for system administration

/usr/Update contains HTML files to update Tags

There are 10 user defined pages (please refer to chapter "Pages List" on page 52) and one default page. Let's suppose that for the explanation the following pages have been defined:

Page 2	**System**
Page 3	**Update**

When editing users rights, the following list would be proposed:



The following security schemes would be possible:

Dir. Right selected	Access description
All	HTML Pages in any directory will be accessible.
Default	Only the **/usr** directory pages will be accessible.
System	**/usr** and **/System** directory pages will be accessible. **Note:** this is obviously not useful because **/usr/Update** will not be accessible which is probably not what is required for an "administrator". In the "administrator" case, the best selection is probably "All".
Update	**/usr** and **/usr/Update** directory pages will be accessible. Note: **/usr** is always accessible. When a subdirectory is accessible, all its subdirectories are accessible as well. Example: **/usr/Update/image** would also be accessible.

Table 7: user's security schemes - 1

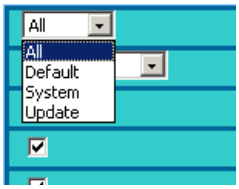
The proposed directories list is derived from the PAGES LIST. It is of the user's responsibility to create the same pages as the directories in the FTP structure (otherwise security setup will not be possible).

4.2.6 Tag pages restriction

There are 10 user defined pages (please refer to chapter “Pages List” on page 52) and one default page. The security mechanism follows the below rules:

- **User has always access to the "Default" page**
- **User can have access to all pages**
- **User can have access to only 1 page**

Example: taking the same pages as in the previous example, the following selection box appears:



The following security schemes would be possible:

Page Right selected	Access description
All	Access to all Tag pages is granted.
Default	Only the "Default" page is accessible.
Update	"Default" and "Update" pages would be accessible.
System	"Default" and "System" pages would be accessible.

Table 8: user’s security schemes - 2

4.2.7 To delete a user

Click on the check box just next to the user's login of the user that you want to delete and click on the ***Delete Selected Users*** link.

- **Note 1: you can select for deletion more than one user at the same time**
- **Note 2: the Adm user won’t be deleted (but you can rename it)**
- **Note 3: password is CASE SENSITIVE**

4.2.8 Callback settings

Warning: depending on the eWON's version (“eWON Version” on page 244)

When the callback is enabled as a global parameter in the **COM Setup** page, the user can initiate a User’s callback and specify when the trigger will be started for the callback.

The callback phone number can be forced (from this menu), then the user can only initiate a call to a fixed phone number; or User Defined, then he can modify the phone number. In the first case, the list box is set to ***Mandatory***, and in the second case, it is set to ***User Defined.***

The callback phone number can be specified here. Remember that the user’s login and password that have been defined for the eWON access are used as login and password on the remote server called for callback.

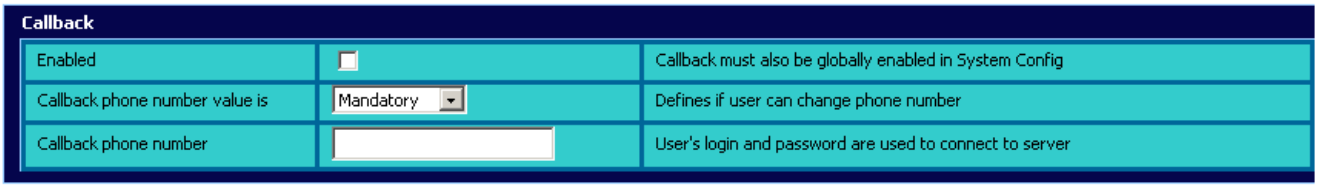


Figure 39: User’s callback settings

4.2.9 Validation of the User's settings

When all the required fields are filled in, you can either click on the ***Add/Update*** button (to validate your changes) or on the ***Cancel*** button (to undo your changes).

4.3 System Setup

The system setup page (accessed by clicking on the ***System Setup*** item from the configuration menu) allows to set all the eWON system parameters and looks as follows:

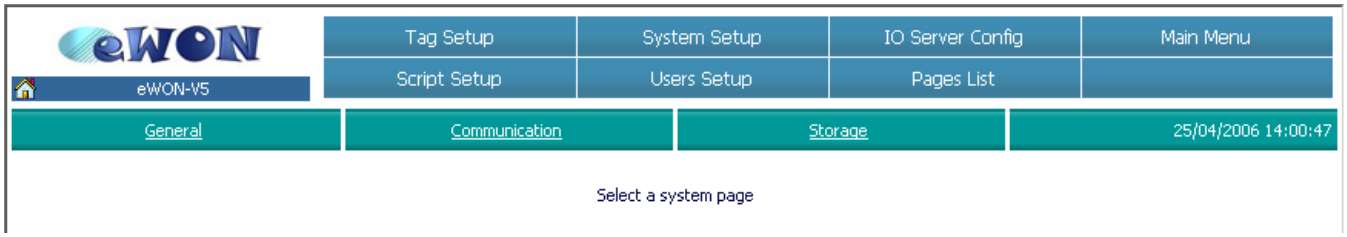


Figure 40: eWON system configuration page

This section has a high impact on the eWON behavior (mainly from a communication point of view). You should fill it in carefully.

The System setup page is divided in three sections:

- **The Main system setup (General)** See System Setup - General Setup
  Defines all the eWON global settings, except for settings regarding the eWON communication. The user can modify the Email, FTP and NTP parameters, along with reboot.
- **The Communication setup section** See System Setup – Communication
  Includes all the communication settings of the eWON. These settings are separated from the Main settings and are stored at a different place inside the eWON in order to allow formatting the eWON flash file system without affecting the communication settings
  (see also chapter "eWON configuration and files storage" on page 220).
- **The storage setup section** See System Setup - Storage
  Allows to define the way the memory resources of the eWON are used. It also allows formatting the Flash file system.
  The storage menu also gives access to the advanced tabular editor, allowing to change every configuration parameter..

4.4 Tag Setup

4.4.1 Tag definition: Introduction

The eWON Monitoring Web Interface features are based on:

- **The configurable monitoring of Tags**
- **The execution of scripts**

All the variables monitored by the eWON are defined as "Tags". A Tag is a value changing with time and coming from a data-source.

Typical data-sources are:

- **eWON internal Inputs/Outputs**
- **Remote Inputs/Outputs (modbus, UnitelWay, DF1, MPI, ...)**
- **eWON memory Inputs/Outputs (updated by script)**

The data source is called an "IO Server". An IO Server is the interface between the changing value and the eWON monitoring engine. It is a kind of driver. Any variable from any data source must have a common representation for all IO Servers in order to define common interface in the eWON.

The *data-source* representation in the eWON uses 3 fields for the definition of a Tag:

- **The IO Server Name**
- **The Topic name**
- **The Item Name**

A Tag's data-source will be uniquely identified with these 3 parameters.

IO Server name	Is a kind of driver name. For each IO Server there is a specific Topic Name and Item Name syntax. The following drivers are available: MODBUS, EWON, MEM, NETMPI, UNITE (Unitelway), DF1, FINS, S7 3&400(MPI), S7 200(PPI) and S5-AS511, SNMP, ABLOGIX, HITACHI, MELSEC.
Topic Name	Is used to group items inside an IO Server, for example the memory an IO Server uses the blank topic ("") and the retentive topic ("ret"). All the Tags of the MEM IO Server defined in the "ret" topic will have their value saved and restored when the eWON boots. All the IO servers do not use Topic Name. In that case Topic Name must be empty.
Item Name	The item name is a string of characters; its syntax is specific to each IO Server. The Item Name describes the physical variable to monitor using the IO Server.

Table 9: Tag's data-source parameters

For example, the MODBUS IO Server needs to poll registers or coils from a slave, so it uses an item name representation to define the register type, register address and slave address. (Example "40001,5" => Where 4 means read write register, 0001 is the register number and 5 is the slave Modbus address).

A description of the different IO Server syntax is given in chapter ""The eWON IO Servers" on page 124. Once a Tag is configured with its Server Name, Topic Name and Item Name, it is given a Tag name that will be used everywhere in the eWON.

4.4.2 DataType of Tags

Internally, all Tags are stored on 4 bytes and represent:

- **a single precision FLOATING POINT format (IEEE float representation)**
- **a DWORD, an unsigned 32 bits integer**
- **an INTEGER, a signed 32 bits integer**
- **a BOOLEAN, a binary value**

In addition, an **Automatic** choice is provided to let eWON store the value of the tag in the best of the above DataTypes (depending of the IOServer register/ modifier type).

The DWORD and INTEGER types are available only since firmware 6.0.

Before firmware 6.0, all the tags were stored in single precision FLOAT format (IEEE float representation), and only 2 types were available (Analog and Boolean). This means that you can only expect a maximum precision of 7 decimal digits.

That's why, before Firmware6.0, the 32 bits Integer data read by an IOServer were automatically converted in the nearest float number representation.
For a huge number, it will mean a truncation (ex: integer value 1600000015 will be stored as float 1600000000.0).

4.4.3 Tags validation

For optimisation purpose and since firmware version 5.2, the eWON can detect if tags are valid or not, **and disables the polling of *invalid tags***.

By default, this feature is not activated, See "Global Config" on page 99 to enable it.

At the creation of the Tags or at the initialisation of an IOServer, all tags are considered as valid and are polled.
If repetitive errors occur on some Tags, these tags will be considered as invalid and **will not be polled anymore !**

A specific error message will be written in the event log.
This message is "Protocol Error while reading Tag (*TagName* - Polling disabled for this tag)" (see example in figure below)

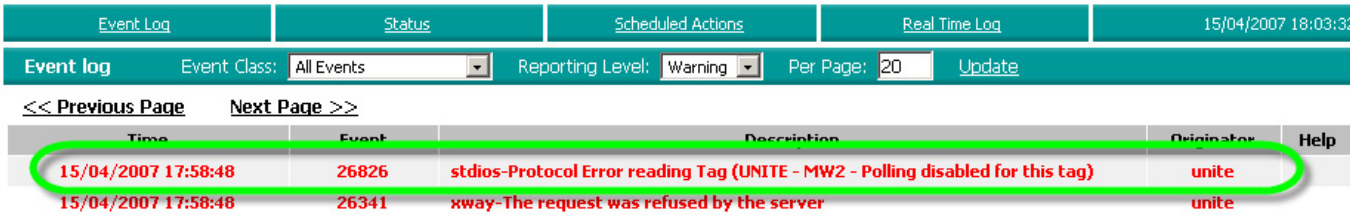


Figure 41: Tag validation - error event

Invalid tags will be polled again when:

- the IOServer is started (i.e.: after a IOServer modification)

- a manual INIT of the IOServer (See "IO Server Init" on page 99)
- a modification of the Tag (in the *I/O Server Setup* part of Tag Setup)

4.4.4 Tags monitoring and handling

The eWON engine can handle the following operations on the Tags:

Operation	Description
Alarm monitoring	Check for low and high alarm levels or Boolean alarm level and management of alarm **acknowledgement**, **alarm historical logging** and **action** on alarm (Email, SMS, etc.)
Historical logging	Tags can be monitored and changes on a Tag can be saved in the Flash File System. Storage can be based on change threshold or at regular interval.
Real Time logging	A Tag history can be kept in memory for an amount of time with a given time interval. This operation is volatile and does not involve any flash storage.
Modbus TCP publishing	All the Tags can be given a Modbus address and can be read using the Modbus TCP protocol by and external modbus TCP master.
Tag grouping	Tags can be organized by page and group for easier handling and viewing.
Script Access	All the Tags values and attributes can be read or changed from script.

Table 10: Tags operations handled by the eWON

4.4.5 Tag definition: Setup

The Tag Setup page, reachable by clicking on the ***Tag Setup*** item of the ***Configuration*** menu, offer the possibility to build the eWON Tag's dictionary.
The Tag name dictionary is the eWON central database where you have to define all the Input / Output (internal – available on the eWON – or external – through extension bus) that you want the eWON to monitor. If your Input/Output is not defined by a Tag, you will not be able to address it.
The Tag configuration includes two parts:
• The complete Tag configuration except for the actions to execute in case of an alarm.
• The alarm action list.

The first part of the configuration is accessed through the Tag hyperlink; the second part is accessed with the icon next to the Tag hyperlink.

Note: In the header menu of the Tag edition, a combo box appears with a list of pages (please refer to chapter "Pages List" on page 52). Only the Tags of the selected page will be displayed in the list, except if "ALL" is selected.

Important: If a Tag is created in a different page than the page being displayed, it will not appear in the list, although it is present.

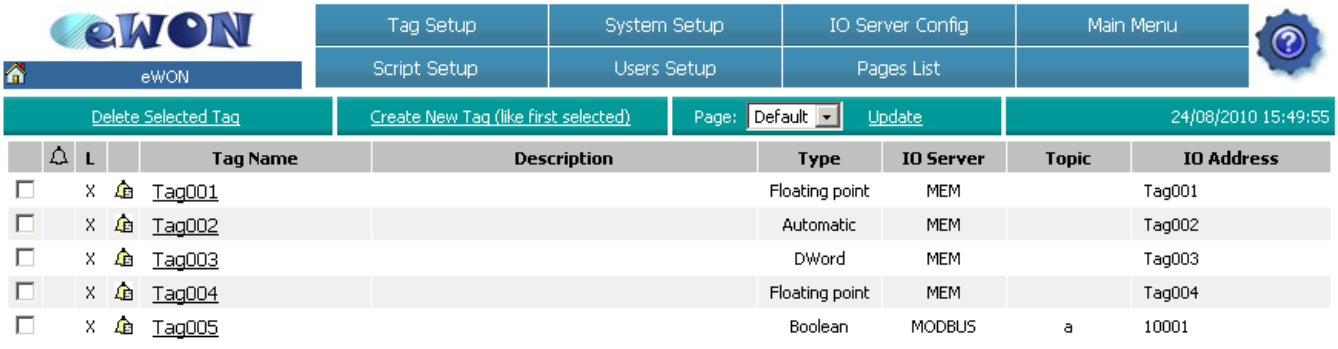


Figure 42: eWON Tag Setup page

• To EDIT a Tag
Click on the link in the *Tag name* column.

• To EDIT a Tag ALARM ACTION
Click on the icon next to name of the Tag link.

• **To DELETE a Tag**
Click on the check box near the Tag name and then click on the *Delete Selected Tag* link.

• **To ADD a Tag**
Click on the *Create New Tag* link.

If you want to create a new Tag that has nearly the same property as another Tag in the list, then validate the checkbox that stands at the left side of the “source” Tag’s name and then click on the ***Create New Tag*** link. Doing that, all field properties of the new Tag will be automatically filled with the selected Tag’s properties.

Note: “the first selected” means that if several Tags are selected, then the Tag that is cloned will be the first among the Tags that have been selected.

4.4.6 Tag main edit window

You will have access to the Tag main setup page by clicking on the ***Create New Tag*** **link, or by editing an existing Tag when clicking on its name (the content of this page differs accordingly to your eWON’s version: Historical Data Logging and Real Time Logging is not available on all the eWONs)**: "eWON Version" on page 244

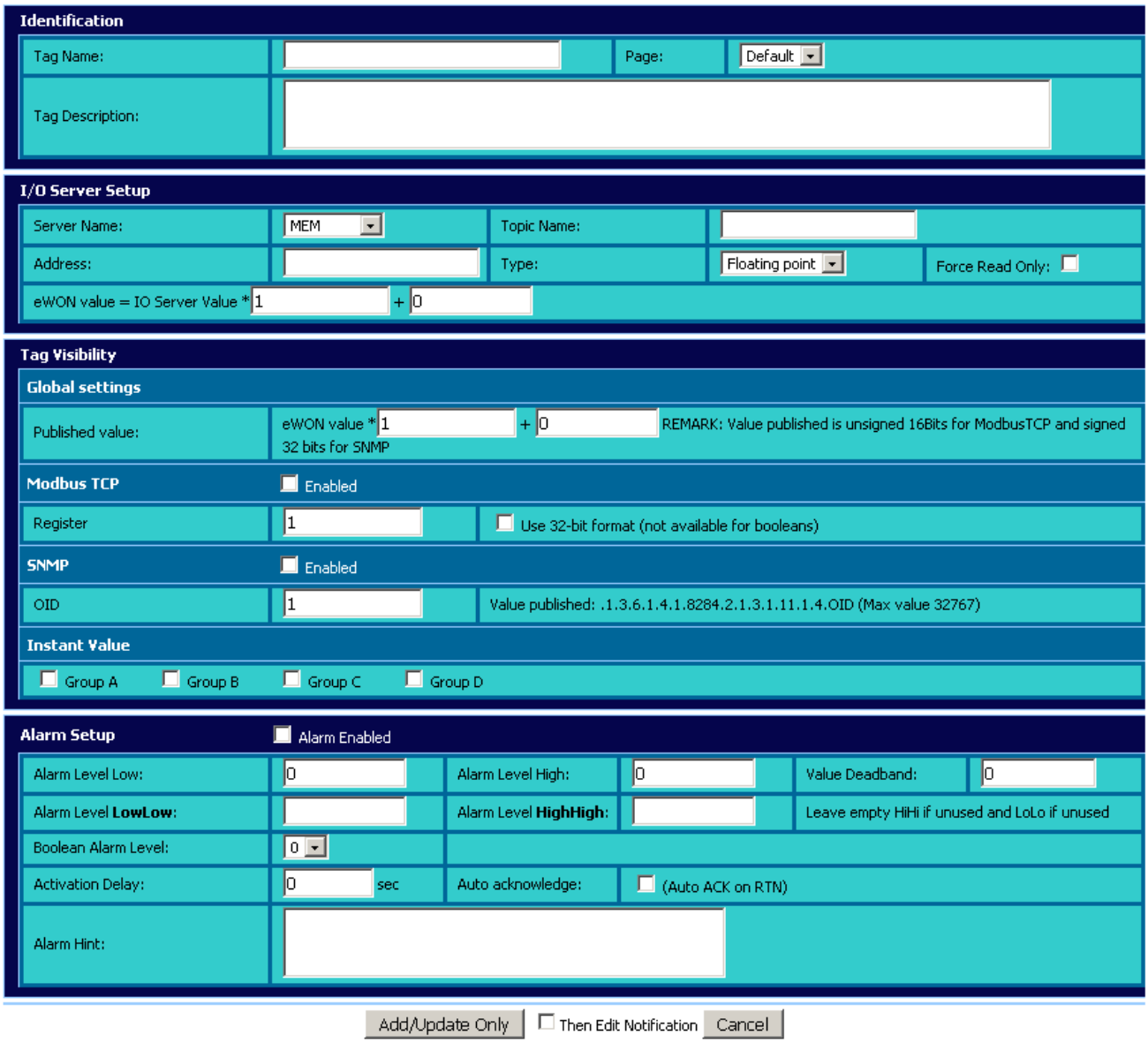


Figure 43: eWON Tag main configuration page - eWONs that does not allow logging feature

Figure 44: eWON Tag Main Configuration page - eWONs that allow logging feature

Control	Description
Tag general properties	
Tag Name	Name of the Tag The name of the Tag will be used for any reference to the Tag when using the export function or the script function. -This Information will be included in the alarm email Note: the Tag's name cannot contain: spaces $ character " characters Maximum length for a Tag's name is 64 characters
Page	You can use these feature to filter your tags and display them on a chosen page: The basic configuration lets you choose between "Default page" or "System page". But you can also declare more pages that will be added to the combobox
Tag Description	A free text to describe the meaning of the Tag. Useful to clarify the meaning of an alarm. -This Information will be included in the email that you can send on alarm.

Table 11: Tag's general properties controls

I/O Server Setup	
Server Name	The IO server name is the Data source of the Tag name. Six data sources are available: '***eWON***' for all the eWON internal IO (please refer to chapter "The eWON IO Servers" on page 124) '***MODBUS***' for IO located on the extension bus (please refer to chapter "Modbus IO server" on page 128) '***MEM***' for virtual IO used by script function (please refer to chapter "MEM IO Server" on page 168 '***NETMPI***' for IO located on the extension bus (please refer to chapter "NETMPI IO Server" on page 135) '***UNITE***' for IO located on the extension bus (please refer to chapter "UNITE IO Server" on page 137) '***DF1***' for IO located on the extension bus (please refer to chapter "DF1 IO Server" on page 141) '***FINS***' for IO located on the extension bus (please refer to chapter "FINS IO Server" on page 147) '***S5-AS511***' for IO located on the extension bus (please refer to chapter "S5-AS511 IO Server" on page 152) '**S73&400**' for IO located on an MPI bus (please refer to chapter "S7-300&400 (MPI/Profibus - ISOTCP)" on page 169) '**S7200**' for IO located on an PPI bus (please refer to chapter "S7-200 (PPI - ISOTCP)" on page 174) **'SNMP'** (please refer to chapter "SNMP IO Server" on page 189) **'ABLOGIX'** (please refer to chapter "ABLOGIX IO Server" on page 154) **'HITACHI'** (please refer to chapter "HITACHI IO Server" on page 181) **'MELSEC'** (please refer to chapter "MITSUBISHI FX IO Server" on page 186)
Topic Name	Used to apply a common configuration to several Tags. Please refer to chapter ""Tag Setup" on page 37
Address	Please refer to chapter ""Tag Setup" on page 37 Note: for memory Tag (MEM IO server) this field can be left empty. Although when editing a memory Tag, the Tag Name will be found here, this field is insignificant. See also the Tag Helper section here under.
Type	Defines the Tag name type: Floating Point, DWord, Integer or Boolean See ""DataType of Tags" on page 38. Boolean only return value 0 or 1. If the IO server returns a value equal to 0, the Boolean value is 0. If the IO server returns a value different from 0 the output value is 1.
Force Read Only	Allows the disabling of the **Update** function in the *View IO* page. This is useful if you want to monitor a read/write Tag. The Tag is still read/write for BASIC operations.
eWON value	Defines the offset and scale factor to be applied to the IO value coming from the server. The offset and scales are float values and negative values are accepted. The Tag value will be: *TAGval = IOSERVERval * scale + offset*.

Table 12: IO server configuration controls

Tag Visibility	
Published value	The value published by the eWON could be the same as the Tag value or could be modified with a scale factor and an offset.
Modbus TCP visibility	Each Tag in the eWON can be accessed by a modbus TCP master. If the Tag must be visible: Enable this checkbox.
Register	Address of the register, starting with 1. Only the register address has to be specified, the type of Tag (coil, contact, Input register or Holding register) is obtained from the Tag type (Analog or Boolean) and the Tag Read Only or Read/Write property (obtained from the IO server).
Consider as float	If this option is checked, then 2 consecutive 16 bits registers will be reserved and the value will be output as a 4 bytes IEEE float in those 2 registers (standard Modbus float representation). If the Tag is published as integer it may need to be scaled to fit the 16 bits modbus register. This operation will be applied to the Tag value to publish it.
SNMP Visibility	If this is checked, the Tag can be seen by the SNMP manager. The OID of the Tag can be defined. The base OID is already defined, the only parameter is the end of the OID.
Instant Value	Allows you to group Tags into group (from A to D). The Tag's instant values are stored in the inst_val file (available in txt and binary format from the ***Files Transfer*** link from the ***Main menu*** navigation bar from eWON). The 4 checkboxes that match the groups that you want to choose will work accordingly to the $ft Export Block Descriptor Tag that is described in chapter "$dtIV [Instant Values]" on page 211 in this manual. You will find there detailed information about Instant Value too.

Table 13: Tag visibility controls

Alarm Setup	
'Alarm Enabled' Check Box	Check if you want to generate an alarm on the current Tag name.
Alarm level low	Low "warning" threshold value for alarm detection.
Alarm level high	High "warning" threshold value for alarm detection.
Alarm level lowlow	Low "danger" threshold value for alarm detection.
Alarm level hihi	High "danger" threshold value for alarm detection.
Value Dead band	The dead band is the difference between the alarm level and the RTN level (Return To Normal). e.g. if the alarm value is 20°C with a DeadBand=1, the alarm is triggered when the Temperature crosses this 20°C boundary. On the other hand, the AlarmStatus will be RTN when the temperature passes below 19°C (20-1).
Boolean Alarm level	The alarm value ('0' or '1') of a Boolean Tag name –not applicable for analog Tag name-.
Activation delay	Time in seconds for which the Tag has to be out of threshold before declaring the Tag is in an alarm state. (This is mainly to avoid non significant alarms)
Auto acknowledge	If checked, the alarm will be automatically acknowledged when the alarm state goes to RTN value. Thus, the alarm is directly ended.
Alarm Hint	Information related to the alarm action - This Information will be included on the alarm email-

Table 14: alarm setup configuration controls

• Historical and real-time logging:

Those fields display only for some eWON's versions (c.f. "Tags monitoring and handling" on page 39

Historical and real-time logging	
	If checked, the Tag values will be logged in a circular file. **Warning**: This is a non-volatile logging; data are stored in the flash file system. All the data are stored in the same file, the maximum number of values that can be saved is from 16384 to 139264, depending on the way you have set up the resources storage in the eWON (when maximum size is reached, then the older data will be erased first). If one Tag "a" is recorded very often (every seconds) and another Tag "b" is recorded rarely (every day), you may have your Historical Log filled with a lot of tag "a" and few (or none) tag "b" because of the circular storage mechanism.
Logging dead band	Defines the dead band of the Tag's incremental recording (use a negative value to disable it)
Logging Interval	Defines the interval, in seconds, for the Tag recording (set to zero to disable the logging interval). Can be used at the same time as *logging dead band*.
Real time enabled	If checked, the Tag values will be logged in memory. Real time logging is different from historical logging because data are saved in a circular memory buffer. The other difference with historical time logging is that incremental recording is not possible, only fixed interval recording can be performed.
Time span	Defines the total logging window time in seconds.
Logging Interval	Defines the interval, in seconds, of the Tag recording

Table 15: Historical and real-time logging controls

4.4.6.1 Defining the Modbus TCP address

There are 4 types of Modbus variable, Contact (RO), Coil (RW), Input Register (RO), Holding register (RW). The type selected for the Tag that you want to publish will depend on its type:

Tag property	Modbus data type
Boolean, RO	Contact
Boolean, RW	Coil
Analog, RO	Input register
Analog, RW	Holding register

Table 16: the 4 Modbus variable types

Usually, the RO or RW property of a Tag is obvious. But in case of doubt, you can confirm the type by checking the View IO for the Tag:

• Remove the "Force Read Only" option in the Tag configuration (disabled by default).
• Check the View IO page, if the Tag has an update field, it means it is a RW Tag otherwise the Tag is RO.
• The address selected will be the address of the Modbus 16 bit register. The address range starts with register 1 (in the Modbus frame, eWON register 1 is transmitted as 0).
• Publish as float

The eWON supports accessing Tag values as float registers. The float is published with the IEEE representation and the value can be read on 2 consecutive registers, with the first register starting at the user defined address.

4.4.6.2 Modbus TCP rules

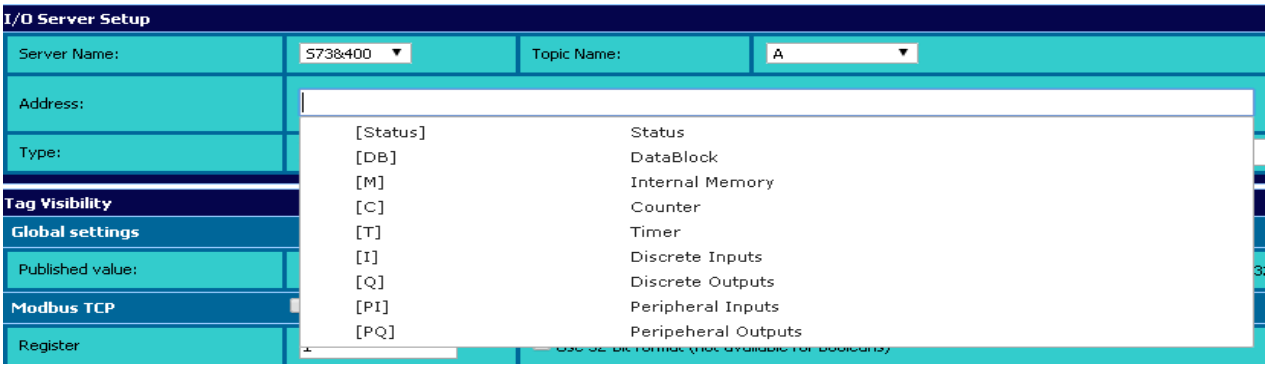
• When accessing Modbus registers or coils that are not mapped to an eWON register, the returned value is 0.
• Maximum number of registers readable in 1 request: 25

Maximum number of coils readable in 1 request: 2000

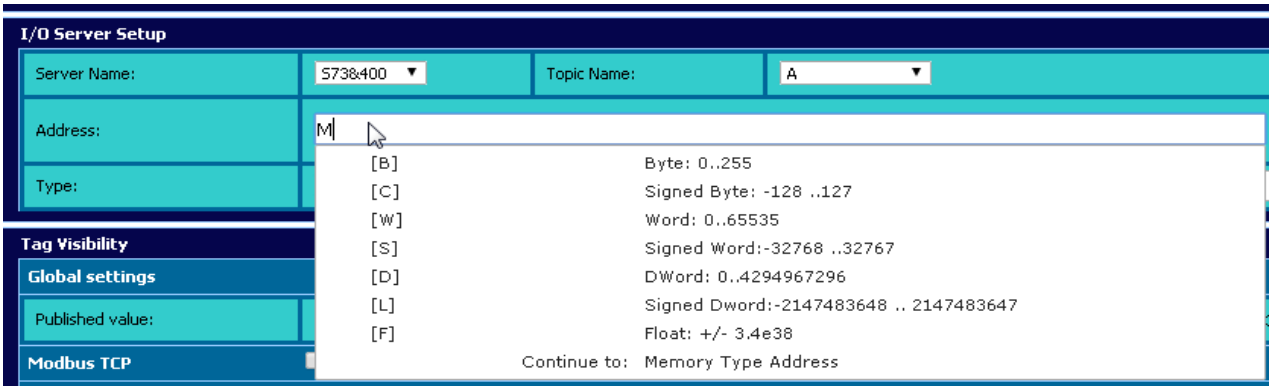
4.4.7 Tag Helper

For the Address field of the Tag, eWON features an assisted edition.
This allows to define the complete address syntax (address path) which is required to reach the register inside the PLC.

According to the IOserver you selected for the Tag, eWON will display the different possibilities for the address syntax.



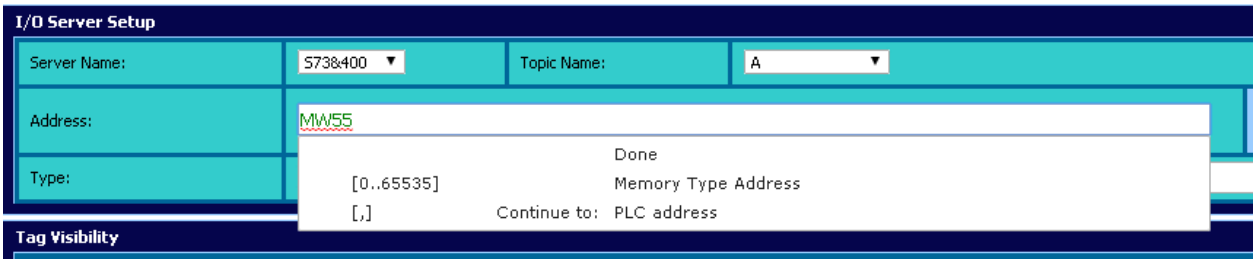
You can with a mouse click select one of the proposed items, or simply enter the text directly inside the address field.



As long as the address path is not complete, eWON will display the address field in black color. This means that some items are still missing inside the address path.

To continue the address path, select or enter one of the new proposed items.

Once the encoded address is a valid address path, eWON will display the address in green.

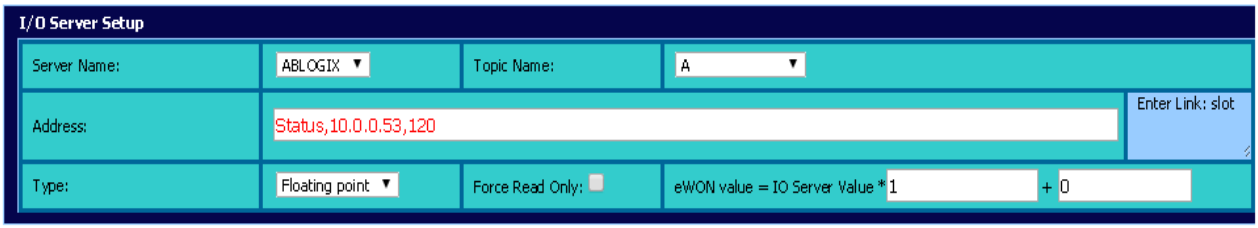


You can now leave the address as it and save the configuration.

Or, if required, you can define supplementary optional address path options.

For example, in the picture here above clicking (or typing) the [,] option allows to encode the PLC address on which the Tag should be read.

An incorrect address syntax will be displayed in red and you'll not be allowed to save the configuration.



Note: Tag Helper is not applicable for MEM tags as Modbus TCP

4.4.8 Tag "Alarm Action" edit window

Alarm action can be one of the following:

- **Send an Email**
- **Send an SMS**
- **Send a file to an FTP server**
- **Send an SNMP Trap**

The Alarm action window is accessed with the icon  next to the Tag's link.

Each of the four actions can be triggered with the following events:

- **The alarm occurs (ALM) - low, lowlow, high or hihi (The alarm will also be triggered when changing the alarm level)**
- **Acknowledging (ACK)**
- **Return to normal level (RTN)**

• **End of Alarm (END)**

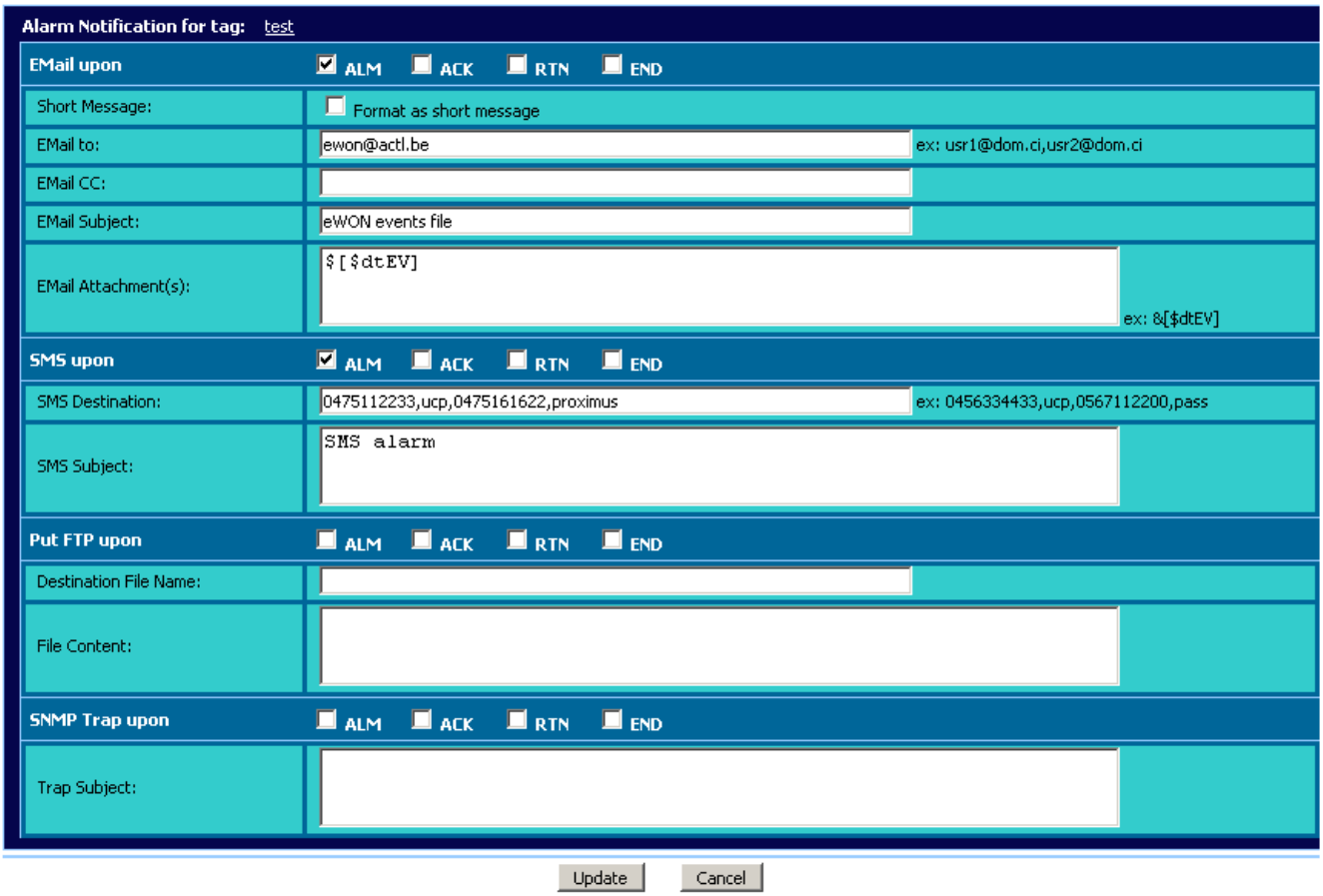


Figure 45: Alarm notification setup

4.4.8.1 Email on alarm configuration

The required configuration if an email must be sent in case of alarm. If an email must be sent through PPP, the system configuration (Main and COM) must also be set up.

Alarm action Properties	Description
Email upon	Checks the alarm states triggering an email (ALM, ACK, RTN, END).
Short Message	In some cases it is useful to have the whole message sent in the subject. For example if you need to route email to SMS. Usually this checkbox is disabled.
Email To	List of TO email address comma **(**, or ;) separated.
Email CC	List of CC email address comma (, or ;) separated.
Email subject	Will be the subject of the email (except if short message is selected).
Email attachment	Body text of the email. This text can include Export Block Descriptor inline with text or as attachment. Attachments to include in the Email must follow the syntax: &[EXPORT_BLOC_DESCRIPTOR_1] &[EBD_2]… There can be as many attachments as required. EXPORT_BLOC_DESCRIPTOR syntax is described in chapter "Export Block Descriptor" on page 195 Example: &[$dtRTGA_AN01$ftG] &[$dtEV$ftT] Will export Real time data of GA_AN01 as a graph and the event log file as a text file.

Table 17: Email on alarm configuration controls

4.4.8.2 SMS on alarm configuration

Warning: Sending an SMS is only possible from an eWON that embeds a modem ("eWON Version" on page 244)

Alarm action Properties	Description
	Checks the alarm states triggering an SMS (ALM, ACK, RTN, END).
SMS Destination	A list of SMS_RECIPIENT;SMS_RECIPIENT;… See below for the SMS_RECIPIENT syntax.
SMS Subject	Will appear at the beginning of the SMS message.

Table 18: SMS on alarm configuration controls

4.4.8.3 SMS_RECIPIENT: syntax

The SMS_DESTINATION defines the phone number of the SMS recipient.

In order to reach an SMS recipient, an SMS server must be called and the correct protocol must be used with that server. The server phone number depends on the GSM operator and the protocol used will be one of the 2 standard UCP or TAP protocol. A table with the SMS protocols and server phone numbers is available on http://support.ewon.biz/redirect/SMSProvider.htm .

To introduce a pause in the number composition, use '+' in the number.

SPECIAL CASE FOR FRANCE USERS: as ucp and tap server is not available in France, the InfoZ protocol is available for eWONs embedding an analog modem. In that case the server phone number is 0. If a number has to be dialed to access the network it can be entered before the 0.
Example: if 9 must be dialed to leave PABX the syntax is 0407886633,ifz,90
if a pause is required to leave the PABX, the syntax will be 0407886633,ifz,9+0

See also www.infoz.fr for details about the InfoZ service.

The syntax for SMS_RECIPIENT is:

- **DDDD,TTT,MMM,PPP**

Or

- **DDDD,TTT,MMM**

DDDD	Destination phone number	

Table 19: the SMS_recipient syntax

TTT	Protocol type, must be one of the 4 following values:	
	ucp	It is possible to add a word datasize and parity specification. The generic syntax is **ucpDP**: with Datasize D= 8 or 7 with Parity P= n: none, o: odd, e: even Examples: ucp7o ucp7e ucp7n ucp8n (default value)
	tap	It is possible to add a word datasize and parity specification. The generic syntax is **tapDP** with Datasize D= 8 or 7 with Parity P= n: none, o: odd, e: even Examples: tap7o tap7e tap7n tap8n (default value)
	gsm	
	ifz	
MMM	Server phone number, see your GSM provider or for example: http://www.woodstone.nu/salive/PagerSettings.html If the previous field is GSM or IFZ, the server must be set to "0" - For SMSC see note ate the end of this §.	40 char max
PPP	A password is sometimes required by the GSM provider.	30 char max

Table 19: the SMS_recipient syntax

Examples:

SMS on alarm "SMS Destination" syntax	Explanations
0407886633,ucp,0475161622,proximus	ucp protocol requires the use of a password. In this case, the password is "proximus" See in the above table for the word datasize and parity specification
0407886633,tap,0475161621	tap protocol does not require to enter a password. See in the above table for the word datasize and parity specification
0407886633,gsm,0	Syntax for sending an SMS from an eWON with a GSM/GPRS modem Note: we advise you to exclusively use this syntax to send an SMS from an eWON that embeds a GSM modem (not tap or ucp protocols).
0407886633,ifz,0	Syntax for sending an SMS from a PSTN modem in France
0495112233,gsm,0;0495445566,gsm,0	Send multiple SMS (note the ; between each SMS_Recipients)

Table 20: SMS destination syntax examples

All the above strings are valid. Concerning the three last examples in the list, the last "," is not mandatory as there is no password.

Important: Password is case sensitive.

When defining a phone number with a modem the "," is often used to insert a pause during the dialing operation. As the eWON uses the coma as a separator, the pause dial sign is replaced by a +.
For example the 0+0407886633 would dial a 0, then insert a 1 second pause, then dial 0407…
The gsm protocol attribute can be used in order to send the SMS directly through the GSM network, not using an SMS server. In this case, there is no server needed. This is valid only if the eWON embeds a GSM or GPRS modem.
BENELUX only: SEMASCRIPT
It is possible to send Semascript/ SemaDigit to a Semaphone inside of the Benelux area, by using the Belgacom server.
Example:
You want to send a semadigit to number 0498373101...
You must call the server at phone number 0458500001 (0+0458500001 if you must first dial a 0 and wait a pause)

Keep only the last 7 digits of the semaphone destination number, and use TAP protocol with "7e1":

```
sendsms "8373101,tap7e1,0458500001","0498373101"
```

if eWON is behind a PABX and 0 must be dialed first use:

```
sendsms "8373101,tap7e1,0+0458500001","0498373101"
```

FRANCE only: ALPHAPAGE

As for SEMASCRIPT, it is possible to send ALPHAPAGE messages to ALPHAPAGE pagers in France, by using the emessage server: the server is managed by a German firm called emessage, (http://www.emessage.de/en/index.html). As for the SEMASCRIPT users, the ALPHAPAGE users have chosen to keep on using a pager, with which the broadcasting coverage is better than with the GSM network (the users are sure to receive the message, that is not always the case with SMS).
The used protocol is TAP. The operating mode is the same as for SEMASCRIPT:
You want to send an ALPHAPAGE message to number 0612345678...
You must call the server at phone number `0836601212` (0+0836601212 if you must first dial a 0 and wait a pause)

Keep only the last 7 digits of the alphapage destination number, and use TAP protocol with "7e":

```
sendms "2345678,tap7e,0836601212"
```

if eWON is behind a PABX and 0 must be dialed first use:

```
sendms "2345678,tap7e,0+0836601212"
```

Note: How to specify the Message Service Center on a GSM modem?

To send out an SMS, the modem will send the message to the short message service center (SMSC) of the operator. The Service Center address (dial number) is normally automatically detected by the modem.
If needed, you can also force the Message Service Center address using the following syntax in the SMS Destination field:
`"phone number,gsm,message service centre number"`
Instead of "0407886633,gsm,0" it will be "0407886633,gsm,**0032123456789**"
where **0032123456789** is the address (dial number) of the Service Center.

Warning: For the Service Center address do not use the + prefix syntax. eWON will replace the "+" sign by a ',' sign and thus will fail. So instead of using "+32123456789" use "0032123456789".

4.4.8.4 Character encoding for SMS

Since firmware version 6.4 S1, eWON uses for all GSM modem types the character encoding GSM 03.38 to send out an SMS.

You will find more details and the character encoding matrix in the dedicated § "SMS Character set GSM 03.38" on page 246

4.4.8.5 FTP on alarm configuration

Alarm action Properties	Description
	Checks the alarm states triggering the Put FTP (ALM, ACK, RTN, END)
	Name of the file to create on the FTP server. The name can contain path specification.
	The file content can be static or dynamic (see below)

Table 21: alarm action properties

4.4.8.6 File content:

If a standard text is put in the File Content field, the file built will receive that static text as content. If the File content has the following form, one or more file(s) will be written with a dynamic content:
[EXPORT_BLOC_DESCRIPTOR_1] [EBD_2]…
The number of EXPORT_BLOC_DESCRIPTOR is not limited. The EXPORT_BLOC_DESCRIPTOR syntax is described in chapter "Export Block Descriptor" on page 202
If the ***$fn*** field is used with multiple Export blocks, the "Destination File Name" property MUST be empty.

4.4.8.7 SNMP Trap on alarm configuration

If a trap has to be sent on an alarm, the checkbox corresponding to triggering an event has to be selected.
The edit box allows entering a specific text that will be displayed in the Trap event of the SNMP manager. The text string is limited to 256 chars.
All of the hosts that have been defined in the ***SNMP Setup*** menu (see chapter "SMTP (mails) setup" on page 65) will receive the generated alarm Trap.

4.5 Pages List

Page definitions are used in eWON for two purposes:
• **Restrict user rights to specific directories in the user definable web site.**
See also chapter "Users Setup" on page 32
• **Organize Tags in pages to ease viewing and restrict user access to specific Tags.**
See also chapter "Users Setup" on page 32

The *Pages list* setup that is accessed from the configuration navigation bar of the eWON looks as follows:

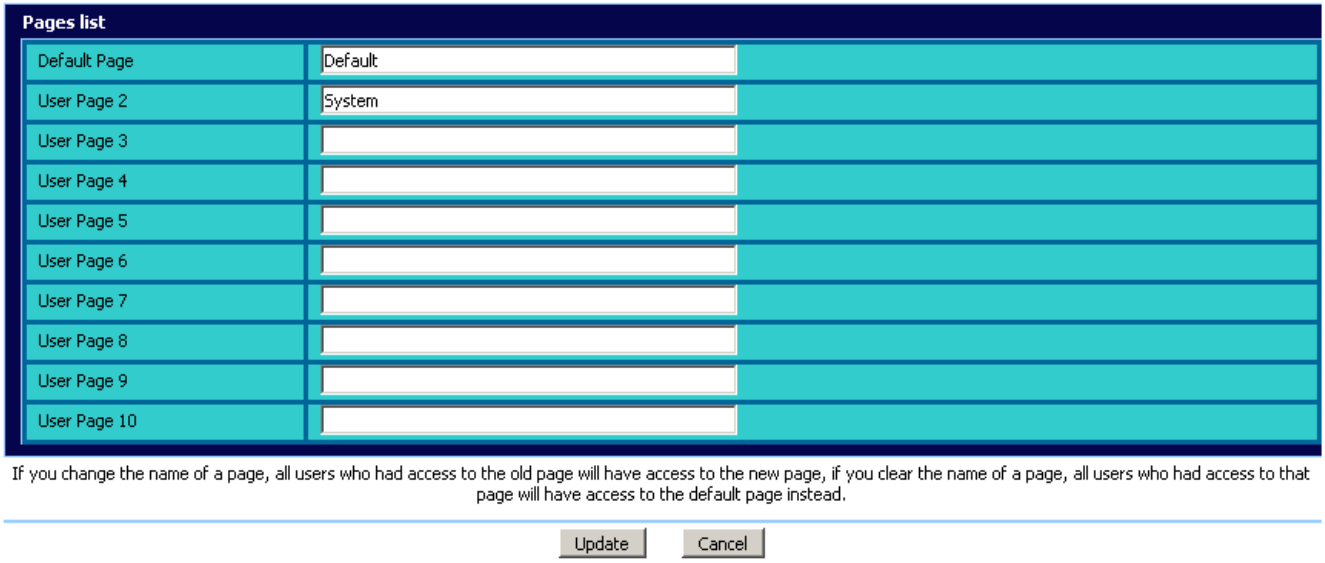


Figure 46: Pages list setup

You may enter up to 10 user defined pages.

When Tags are defined in a specific page and the name of the page is modified, then the same Tags will belong to the renamed page. In other words, the Tag actually belongs to a page number, **EXCEPT** if the name of the page is changed to <nothing> (empty field). In that case, all the Tags that belonged to the previous page will return in the default page. All the users who had access to that page only will have access to "All pages".

Any text can be entered for the page name, but if a page name is used for directory restriction, it must comply with the directory syntax.

4.6 IO servers config

Please refer to chapter "The eWON IO Servers" on page 124 for a complete description of IO server and their configuration.

4.7 Script Setup

The *Script setup* page that you can reach by clicking on the ***Script Setup*** link from the configuration navigation bar is used to create, modify or erase the scripts in the eWON and to test them.

Basic is the language that is used to write these scripts.

Further information about the structure and the syntax of this language is given in "eWON Programming Manual".

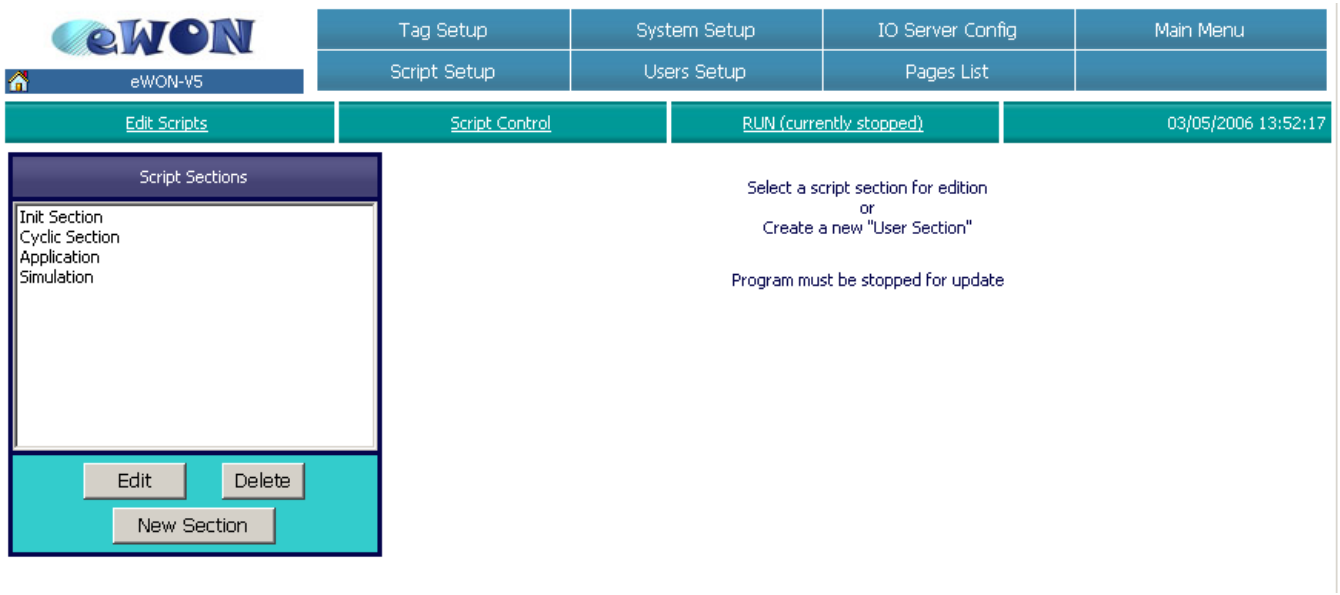


Figure 47: eWON script section page

The 3 available links in the script setup page are:

- **The Edit Scripts link: to create, modify or delete the scripts**
- **The Script Control link: to test the scripts and enter one-shot commands**
- **The Run/Stop link: to run or stop the Basic scripts**

4.7.1 The Edit script link

The 2 predefined scripts that are present in the eWON are:

- **The Init section, which is executed once at the startup of the eWON.**
- **The Cyclic section, which is executed cyclically by the eWON.**

This page is used to create, delete or edit script sections.

- **The cycle time of the eWON BASIC is not pre-determined!**
- **This cycle depends on script itself.**
- **If well programmed, you can achieve the cycle time within one second.**

To edit a script section:

Select the script that you want to display the code of from the ***Script Sections*** list, and then click on the ***Edit*** button, in order to display it in the edition window:

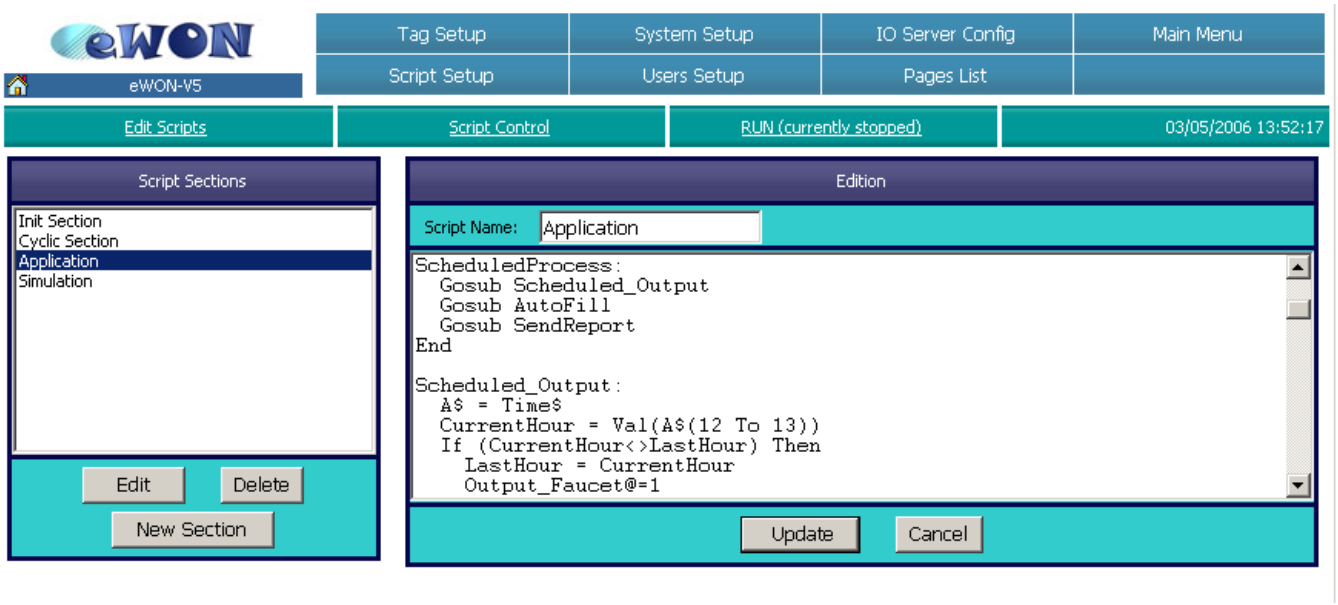


Figure 48: eWON Edit script section page

Click on the ***Update*** button to validate your modifications or on the ***Cancel*** button to quit without saving.

- **To erase a script section:**
  Select the script section to delete and click on the *Delete* button.
- **To create a new script section:**
  Click on the *New Section* button.

Enter the name of the script in the ***Script Name*** field and the code to execute in the blank edition area.

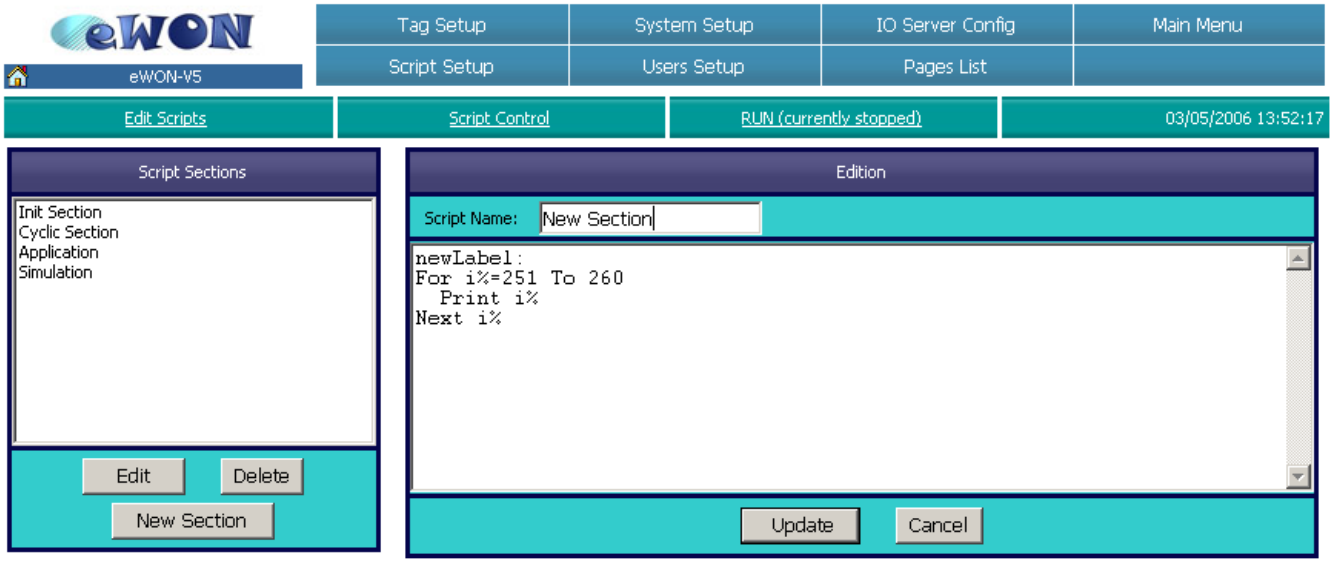


Figure 49: eWON new script section page

Click then on the ***Update*** button to validate your script, or on the ***Cancel*** button to quit without saving.

4.7.2 The Script control link

This page is used to monitor the result of the script execution and to execute some commands manually. You can use this page to easily debug your program.

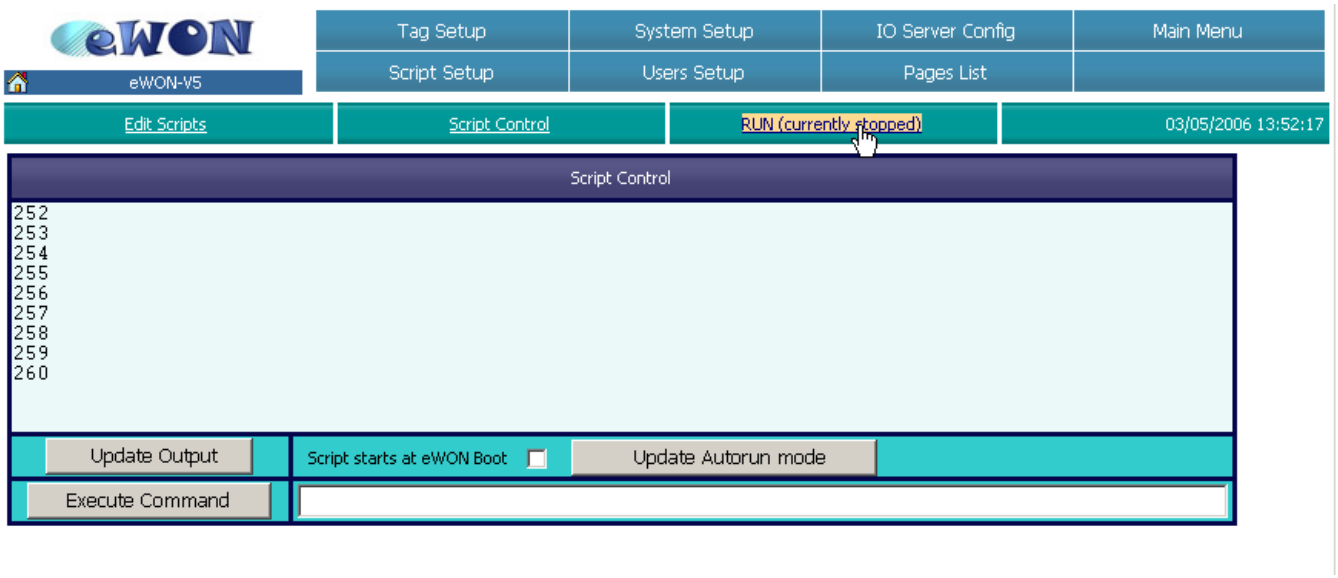


Figure 50: eWON script control page

To display the result of the script execution, 2 actions must be performed:

- **Start the script execution by clicking on the *RUN* link.**
- **Click on the *Update Output* button to update the display of the result screen.**

It's also possible to execute one-shot commands. Just fill in the blank field with the command to execute and then click on the ***Execute Command*** button.

Validate the ***Script starts at eWON Boot*** checkbox to start the script automatically when the eWON boots. This change will be validated after you have clicked on the ***Update Autorun mode*** button.

4.7.3 The RUN/STOP link

This link is used to start or stop the script execution.

4.8 Wizards

To help you quickly and easily configure some features, eWON provides you some wizards.

Use the  logo to display the available wizards on your eWON.

Figure 51: Wizards list

Wizard	Description
Configure INTERNET Connection	Use this wizard to configure your eWON for Internet connection. You can choose between Modem or WAN, encode your PIN code, APN (for GPRS), choose if the connection will be permanent or OnDemand, ... *Only available for eWON with modem.*
Test INTERNET Connection	Use this wizard to test your Internet connection. *Only available for eWON with modem.*
Configure Talk2M connectivity	Use this wizard to add your eWON to your Talk2M-Free or Talk2M-Pro account. *Only available for eWON with VPN.*
Configure "eFive" connectivity	Use this wizard to configure your eWON to connect to an eFive (or Endian) VPN Server. *Only available for eWON with VPN.*
Configure mdex connectivity	Use this wizard to configure your eWON to connect to a MDEX account. *Only available for eWON with VPN.*

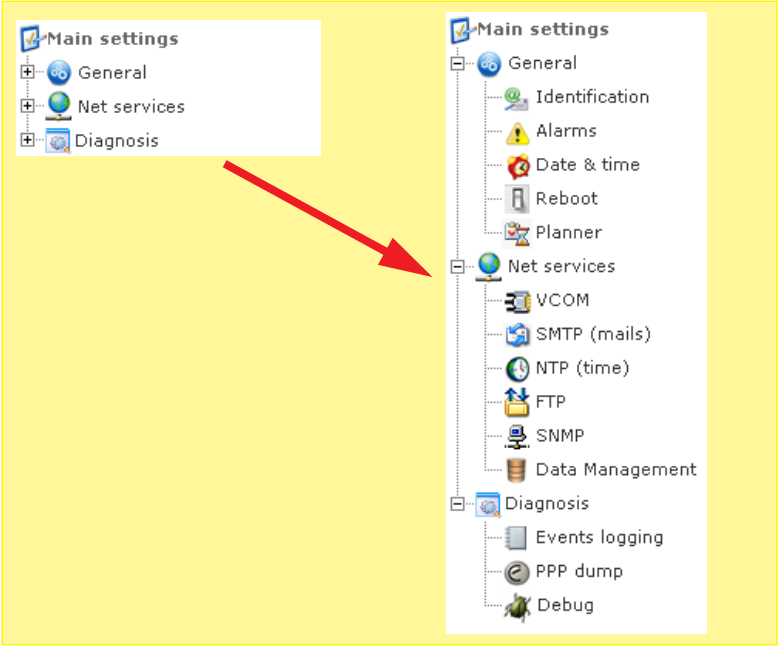
Table 22: Wizards list

Depending on its type, the eWON will show you only the wizard corresponding to its hardware.

5 System Setup - General Setup

5.1 General Setup

The General system setup page is presented by a tree with icons (see below).



5.1.1 eWON identification

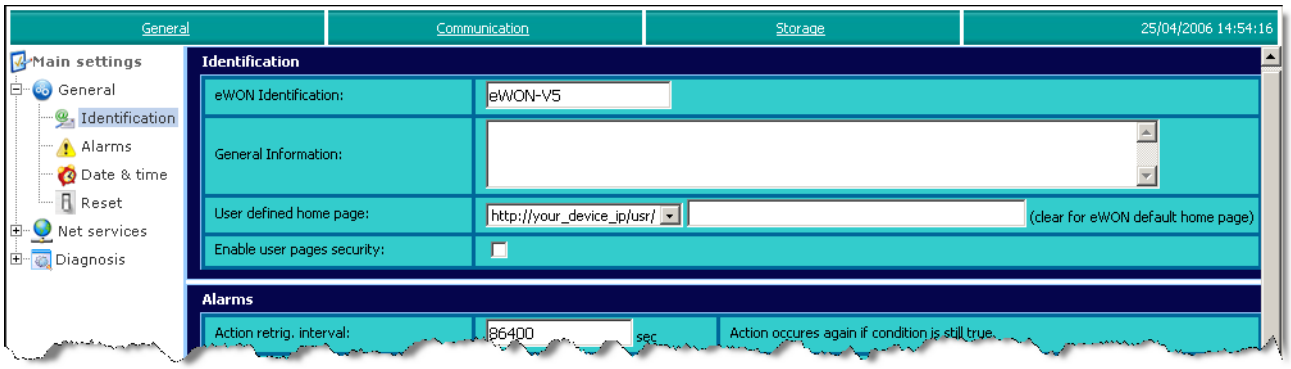


Figure 52: eWON system general setup – eWON identification

Control	Description
eWON Identification	The name of the eWON. This information is added in each eWON e-mail alarm notification. Check that this identification and the next one allow you to identify your eWON without any doubt.

Table 23: eWON Identification controls

General Information	As for the eWON identification, you can put a free text. But it can be very useful to indicate here the eWON geographical location and phone number.
User defined home page	When a user defined web site is used, the home page of the eWON web site can be replaced by a user defined web page. If your default home page is a viewON synopsis, you need to select "viewON synopsis" in the Combo box and enter the name of the synopsis in the Text box. If your default home page is a classical HTML page, you need to select "http://your_device_ip/usr" in the Combo box and enter the name of the page in the Text box.
Enable user page security	If a user web site is defined, then default user logon page is not displayed and there is no session, but using Basic Authentication can also ensure security. This checkbox will enable the security when the user wants to access a user-defined page.

Table 23: eWON Identification controls

After having encoded your parameters, go to the bottom of the page to Update .

5.1.2 Alarms (generic parameters)

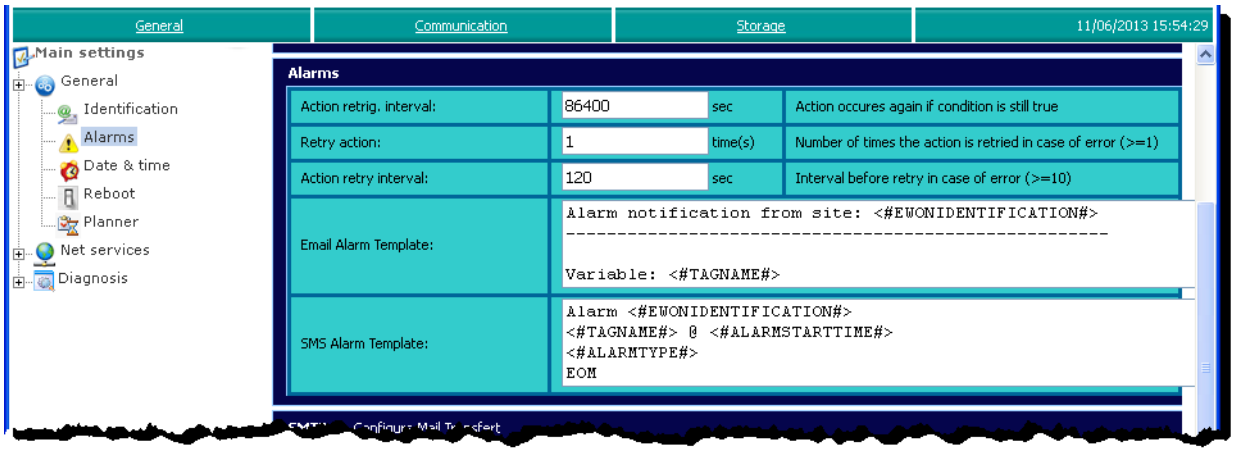


Figure 53: eWON system general setup – Alarms

Control	Description
Action retrig interval	The alarm action (eMail, SMS, PutFTP, trap SNMP) is retriggered permanently after specified interval as long as the alarm state is ALM (the retrig is stopped by an Acknowledge or a ReturnToNormal). The default value for this parameter is 86400 seconds (1 day). The value 0 disable the retriggering feature.
Retry action	This parameter defines the number of times the action will be retried in case of errors. The value of this number must be greater than 1.
Action retry interval	This parameter defines the interval (in seconds) between two retry attempts if an error occurs. The value for this parameter must be greater than 10.
Email Alarm Template	Field where both free text AND functions can be introduced to customize the contents of the emails used during alarm notifications. The default email layout is ignored as soon as a single character is present in this field. The template will be applied to the alarm notification of all tags. Note: The template is not applied if the checkbox ***Format as Short Message*** is selected for the email notification. That's why this function is not available if SMS are sent using the Talk2M *email* notification service.
SMS Alarm Template	Field where both free text AND functions can be introduced to customize the contents of the SMS. The default SMS layout is ignored as soon as a single character is present in this field. The template will be applied to the alarm notification of all tags.

Table 24: global alarms controls

v

5.1.3 Date & time

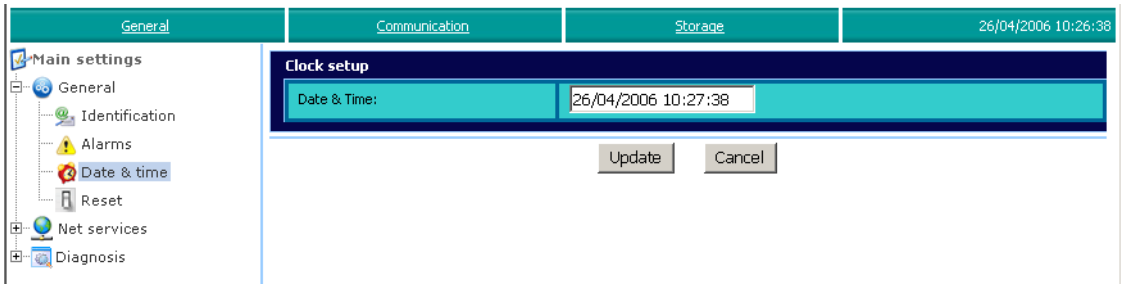


Figure 54: eWON system Date & time setup

The eWON's real time clock can be updated manually with this dialog window. Fill in the edit box with date and time and click on Update .

An event will be added to the event log indicating the time update and the time offset between old and new time.

> **Important: Updating the time may result in duplicate points stored in non-chronological order in the eWON files (alarms, events and historical).**

5.1.4 Reboot

Rebooting eWON is sometimes necessary (i.e. to validate some configuration changes).

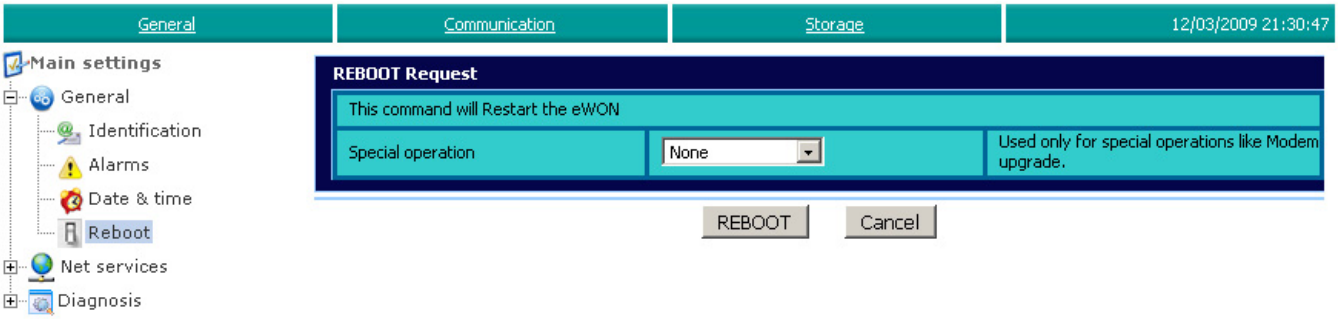


Figure 55: eWON system Reboot

eWON version 5 offers three ways to perform a reboot:

- **From the *Reboot* menu from *General* configuration page**
- **By using the "REBOOT" Basic command (see eWON programming Manual).**
- **From the *Reboot* menu from *Storage* configuration menu (page 123)**

You will have to wait that the eWON comes back to its normal state after restarting to get access to it again.

Some special operation like "Upgrade the firmware of the Modem" requires a reboot with the BootOp parameter set to a specific value. Use the Special operation field to select the BootOperation to do. Now, only the *Modem Upgrade* value is available.

5.1.5 Task Planner

Since Firmware 5.7, you can use this *Task Planner* to do some actions at fixed time or fixed interval.
These actions are the same as Tag Alarm actions, and are:

- **Send an eMail**
- **Send a SMS**
- **Put a file on a FTP server**
- **Send a SNMP Trap**

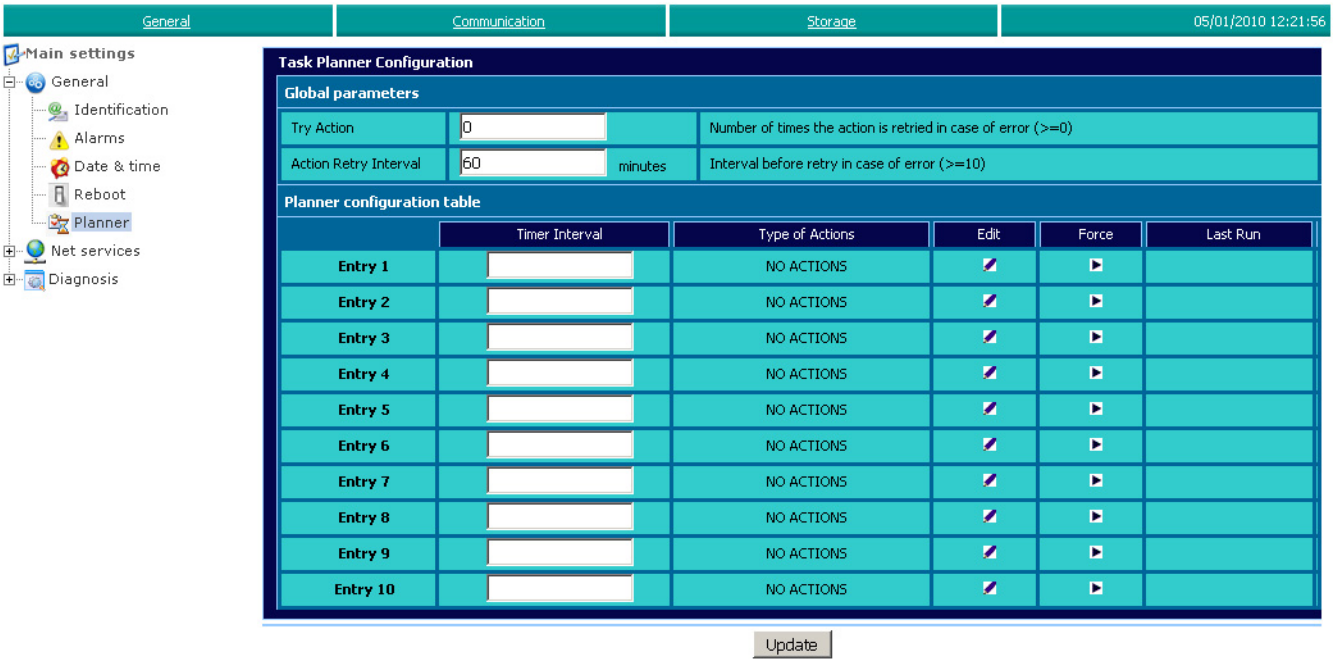


Figure 56: eWON Task Planner

Control	Description
Global parameters	
Try action	This parameter defines the number of times the action will be retried in case of errors. The default value is 0.
Action retry interval	This parameter defines the interval between two actions attempts if an error occurs. The value for this parameter must be greater than 10.
Planner configuration table	
Timer Interval	Defines when the action will be executed. The syntax is the following: **mm hh dd MMM DDD** The action will be triggered when the time of the eWON matches the 5 parameters. See "Timer Interval settings" on page 61
Type of Actions	Information about the types of Action defined on this Entry. Will be one or several info amongst EMAIL, SMS, FTP or TRAP.
Edit	Click on the *Edit Button* to open the Edit Action Page.
Force	Click on the *Force Button* to force the execution of the configured Action(s).
Last Run	Time information about the last execution of the Action(s).

Table 25: Task Planner parameters

5.1.5.1 Timer Interval settings

The syntax is the following: **mm hh dd MMM DDD**

Field	Settings
mm	This is the Minute parameter. A number between 0 to 59
hh	This is the Hour parameter. A number between 0 to 23
dd	This is the Day parameter. A number between 1 to 31
MMM	This is the Month parameter. A number between 1 to 12 Or the month name abbreviation in english (jan, feb, mar, apr, may, jun, jul, aug, sep, oct, nov, dec)
DDD	This is the Day Of Week parameter. A number between 1 to 7 with 1=monday, 2=tuesday, ..., 7=sunday Or the day name abreviation in english (mon, tue, wed, thu, fri, sat, sun)

Task Planner: Timer Interval syntax

Important: These 5 parameters are all required!
When used together, the dd and DDD parameters make an OR operation (every dd of the month or DDD).

In addition, there are some operators to specify multiple date/time.

Operator	Description
*****	The * (asterisk) operator specifies all possible values for a field from Table 8 on page 20. For example, an * in the hh time field would be equivalent to 'every hour'.
,	The , (comma) operator specifies a list of values, for example: "1,3,4,7,8" (space inside the list must not be used)
-	The - (dash) operator specifies a range of values, for example: "1-6", which is equivalent to "1,2,3,4,5,6".
/	The / (slash) operator (called "step"), which can be used to skip a given number of values. For example, "*/3" in the hour time field is equivalent to "0,3,6,9,12,15,18,21".

Table 26: Task Planner: Timer Interval Operators

Examples:

Example	Meaning
*** * * * ***	will do an action every minutes.
0 * * * *	will do an action every hour.
0 0 * * *	will do an action on every day at midnight (00:00).
***/15 * * * ***	will do an action every 15 minutes.
15 7 1 1 *	will do an action at 7:15, the first of january. Equal to '15 7 1 jan *'
15 8 * * 1	will do an action at 8:15, each monday. Equal to '15 8 * * mon'
0 8-18 * * 1-5	will do an action at every hour between 8:00 and 18:00 on every working day (monday to friday)
0 6,7,8,17,18,19 * * *	will do an action at 6, 7, 8, 17, 18 and 19 o'clock on every day.
*** * 13 * fri**	will do an action at every minutes on each friday OR the 13th of the month (and not only on the friday 13th).

Table 27: Task Planner: Timer examples

5.1.5.2 Edit Action page

When you clicked on the *Edit Button* , you open the Action page.

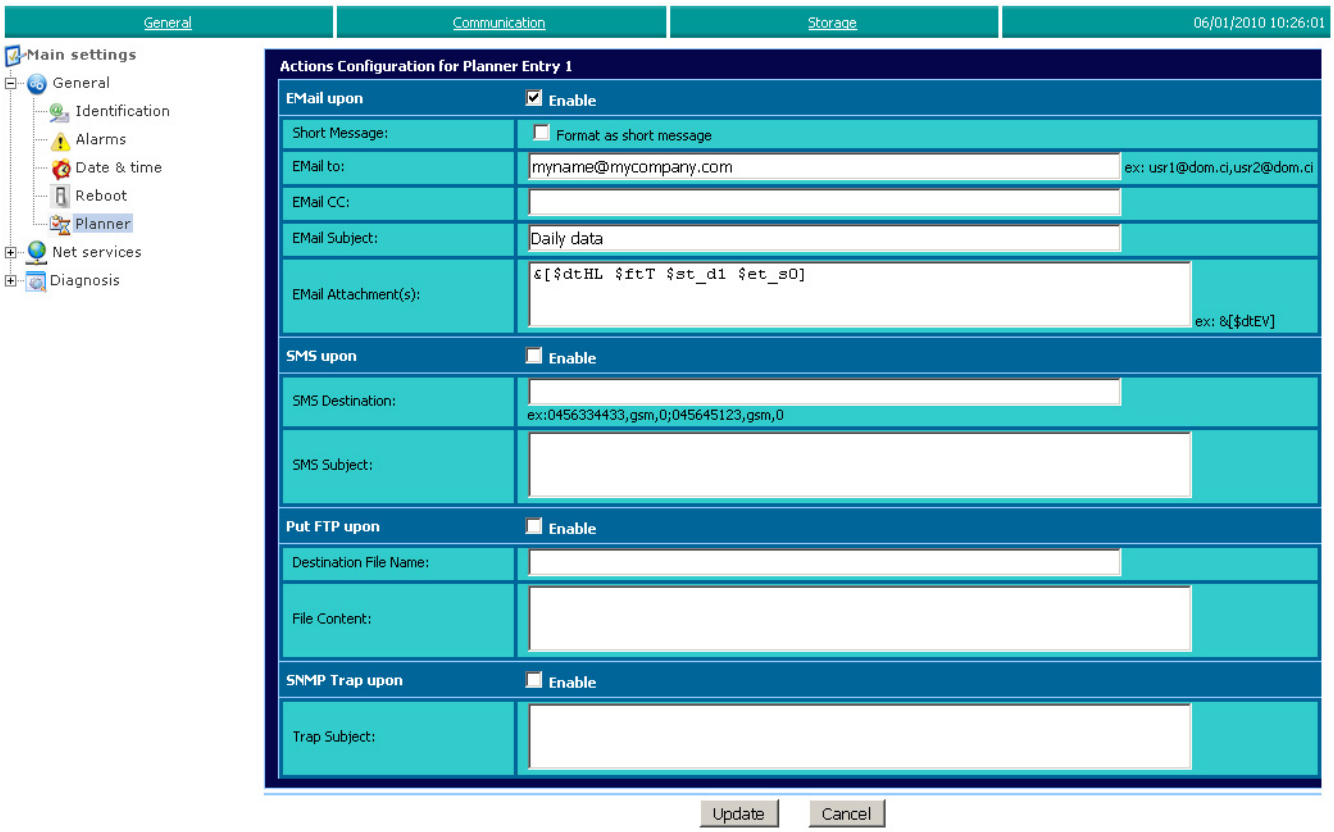


Figure 57: Task Planner: Action page

This page is the same configuration page as for TagAlarm.
See"Tag "Alarm Action" edit window" on page 46to find all parameters explanations.

5.2 Net services setup

Regarding its Internet connectivity features, the eWON has basically two modes of operation:
• A server mode (Web server and FTP server)
• A client mode (Email client, FTP client and NTP client)
In the server mode, the eWON is waiting for a client to connect with its Web browser or with its FTP client.
In the client mode, the eWON needs to connect to a server. For this connection, you should at least know the IP address of the server and the Port number for the required service. Sometimes a username and a password are also required.

> **Note: Except in some special cases, the Port number is usually the default value proposed by the eWON. This setup section is used to define the eWON's CLIENT MODE configuration.**

5.2.1 Virtual Com Port Setup (VCOM)

VCOM (or more precisely « Virtual COM port ») is a technology that consists in using the eWON's serial port as if it was a standard COM port of a PC running Windows.

Actually, a software is installed on the PC; this software is a kind of driver that simulates additional COM ports on your PC. The PC is communicating with the eWON and the eWON serial port outputs all data transferred through the PC virtual serial port. The PC virtual port receives all data received by the eWON's serial port.

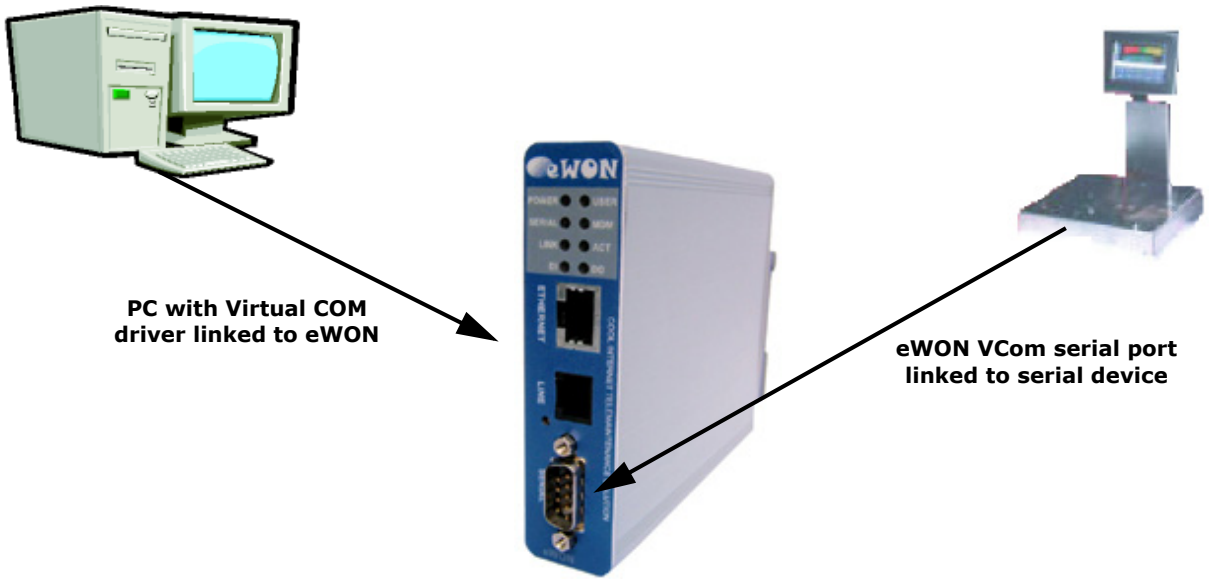


Figure 58: Virtual COM Port link used to read data on serial devices through eWON

The eWON supports two kinds of VCOM mode and an additional mode which is not exactly classified as a VCOM mode although it has the same purpose.

5.2.1.1 RAW TCP

The first mode is called RAW TCP. This is a basic mode thanks to which the PC opens a TCP/IP socket to the eWON on a predefined port. This socket is used to exchange data from and towards the eWON's serial port.

The Serial port configuration (baud rate, parity, etc.) must be defined in the eWON's configuration. The serial port signals (RTS, DTR, etc.) are not exchanged between the PC and the eWON.

This mode can also be used to create simple TCP/IP applications that need to communicate through the eWON's serial port, as the only requirement is to open a TCP/IP socket on the eWON.

5.2.1.2 TELNET RFC2217

This is a more complex communication protocol between the PC and the eWON. In addition to the RAW mode this mode allows to control remotely the eWON's serial port. Every configuration change that is made to the PC virtual COM port is automatically applied to eWON serial port. For example if you open a HyperTerminal on the PC's virtual serial port and you change the serial port's baud rate, the eWON's serial port baud rate will change accordingly.

Another feature of the TELNET RFC2217 mode is its ability to change the modem line status. This means that the RTS/CTS, DTR, DCD (etc.) levels of the eWON's physical port are reflected to the PC virtual port and vice-versa.

This protocol is called TELNET RFC 2217 because it has been standardized and described in an RFC specification. It means that any client supporting the RFC2217 protocol can use the eWON as a virtual port server.

5.2.1.3 MODBUS/TCP MODBUS/RTU Gateway

Although it is possible to use this technology to transfer almost any type of data through the virtual serial port, some protocols require special handling for efficient operation. ModbusRTU is one of these protocols and VCOM technology does not apply well to that protocol. For Modbus RTU communication it is recommended to use the MbsTcpCOM software and use the eWON as a ModbusTCP to ModbusRTU gateway.

5.2.2 PC Virtual COM Port driver

There are different options for creating virtual serial ports on the PC side.

5.2.2.1 eVCOM software

This software provided by eWON s.a. is used to create multiple virtual COM port on the PC.

This software is downloadable for free from http://support.ewon.biz.

More eVCOM information on the eVCOM-Getting Started document.

5.2.2.2 Other software

Tactical Software provides Serial-IP, http://www.tactical-sw.com
This software is not for free. It can be purchased directly from the Tactical software website.
An 30 days-evaluation version is available for download from this site.
The software supports both RAW TCP and Telnet RFC 2217 modes and works on all Windows version from Windows 95 to Windows XP.
The software can create up to 256 virtual serial ports that communicate with multiple eWONs.

5.2.3 eWON VCOM Configuration

All serial ports can be used for VCOM.

Depending on the eWON type, you have 1, 2 or 4 serial ports.

The COM1 is always the serial port 1 of the eWON.
The COM2 is always the MODEM port (even if there is no modem present on your eWON, the COM2 exists but is useless).
The COM3, if present, is linked to the serial port 2 (SER2), the full RS-232 port on eWON4002.
The COM4, if present, is linked to the serial port 3 (SER3).

As COM2 is the modem, it should only be used for debug purposes because when the port is used by VCOM it is not available to PPP or SMS communication.

5.2.3.1 Web configuration

You get access to the COM1 (or COM2) VIRTUAL PORT CONFIGURATION page by following this path from the ***Main Menu*** navigation bar: ***Configuration/System Setup/General/Net services/Virtual Com*** :

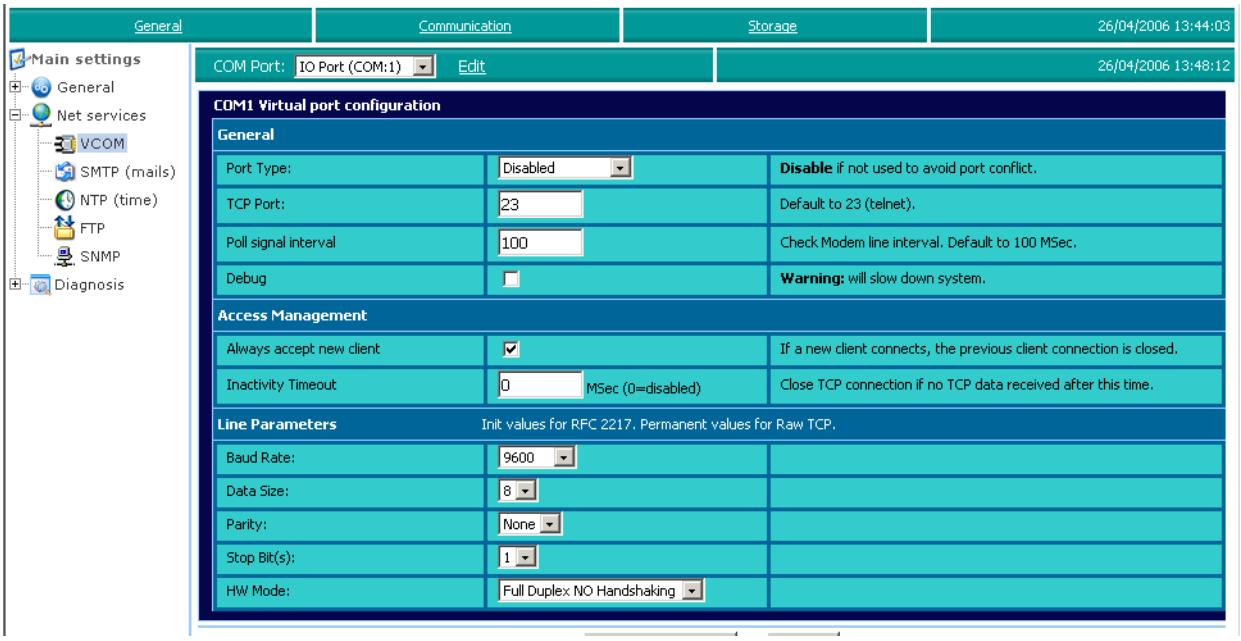


Figure 59: eWON Virtual COM port configuration page

You may first choose the COM port you want to configure in the ***COM Port**:* scrolling menu. You can then define the following parameters:

Control	Description
Port Type	Choose the port type between RawTCp, Telnet RFC2217 or Disabled.
TCP Port	The PC will have to connect to that TCP/IP port to communicate through the eWON serial port. REM: if multiple VCOM are defined on the same eWON, they must all use a different TCP/IP port.
Poll Signal Interval	This parameter is only used in TELNET RFC2217 mode. In that mode the eWON will scan the modem port for changes in modem line input levels (CTS, DSR, DCD, RING) thus this parameters defines the scan rate. The default value of 100msec should be fast enough for most applications.
Debug	Activate the recording of debug info for VCOM. When activated, this function slows down the overall perfomance of the eWON. All debug info will be accessible in the ***Diagnostic->Real Time Log*** menu.
Always accept new clients	When a PC is connected to the eWON, then a socket is opened by the PC to the eWON. If for example the PC suddenly switches off, the eWON will not know that the socket should be closed, and when the PC will try to connect again, the eWON will refuse the connection. This option is provided in order to avoid that situation; when checked, the eWON will always be ready for a new connection, and the new connection will replace the previous connection. This means also that if one PC is connected to the VCOM port, and that another PC tries to connect with this option checked, the new PC connection will be accepted and the existing PC connection will be closed.
Inactivity Timeout	There is another way to avoid that an unused but opened socket prevents access to the eWON (if the previous option has NOT BEEN checked). If you set this option with a value different of 0, then the eWON will close its VCOM socket if there is no communication for a given amount of time. If serial communication is supposed to occur all the time this option can be useful, but if silence in communication is expected, then this option will obviously not apply.
Line parameters	Except for **HW Mode**, which is an "hardware parameter" (only configurable in the eWON), these parameters are only used when the port is configured in **RAW TCP** mode, because in TELNET RFC2217 mode the PC virtual port will usually change them. In any case, this will define the initial or default values.
HW Mode	Hardware Mode represents the hardware behavior of the serial link. Available values are : • **HalfDuplex** • **FullDuplex with HardWare handshaking (default)** • **FullDuplex with NO handshaking** REM: This mode cannot be controlled remotely by RFC 2217

Table 28: eWON virtual COM port configuration controls

When using modem port for VCOM, the following must be considered:

- **Modem serial port is normally owned by PPP:**
- **If an SMS transfer is in progress and a VCOM client tries to connect, the VCOM connection will fail.**
- **If a VCOM client is connected, and an SMS must be sent, the SMS sending will fail.**
- **When an SMS transfer or a VCOM connection ends, the PPP is again the owner of the modem serial port.**

5.2.4 SMTP (mails) setup

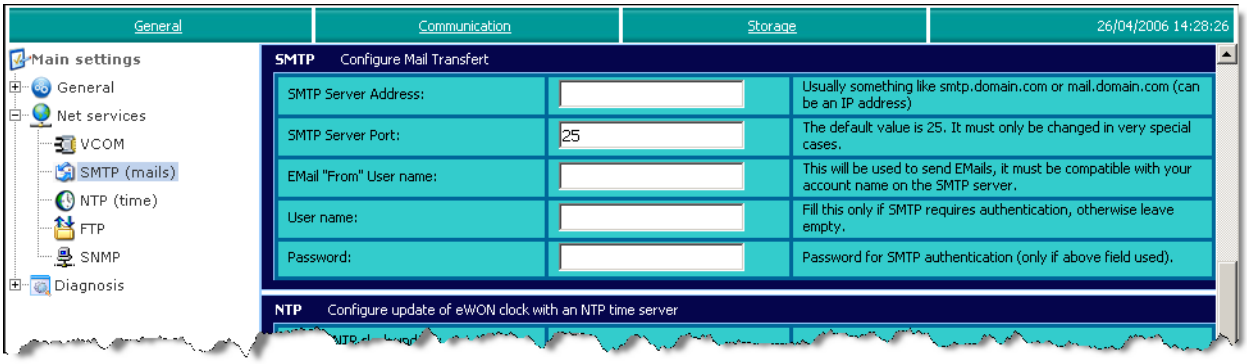


Figure 60: eWON setup SMTP page

Control	Description
SMTP server address	The IP address of the SMTP server which the Email notification will be sent to. Put SMTP server IP address. If you only know the name of the SMTP server (like smtp.domain.com) see the chapter "Finding the IP address of a given host" on page 238. Note that it is possible to send mails towards an Exchange server when eWON is located inside an Intranet, providing the IMC (Internet Mail Connector) ad-in is installed on the Exchange Server, and this service is configured to accept incoming mails sent by the eWON.
SMTP Server port	Usually the value is 25. In case of doubt, contact your Internet provider or your Network Administrator to check it.
Email "From" User name	The name of the eWON Email account. For instance: ewon@compuserve.com. Will appear in the FROM field of the message sent.
User name	SMTP AUTHENTICATION: insert here the user name. (**leave empty** if no authentication is required)
Password	SMTP AUTHENTICATION: enter here the password. (**leave empty** if no authentication is required)

Table 29: eWON SMTP controls

After having encoded your parameters, go to the bottom of the page to Update Cancel.

5.2.5 NTP (time) setup

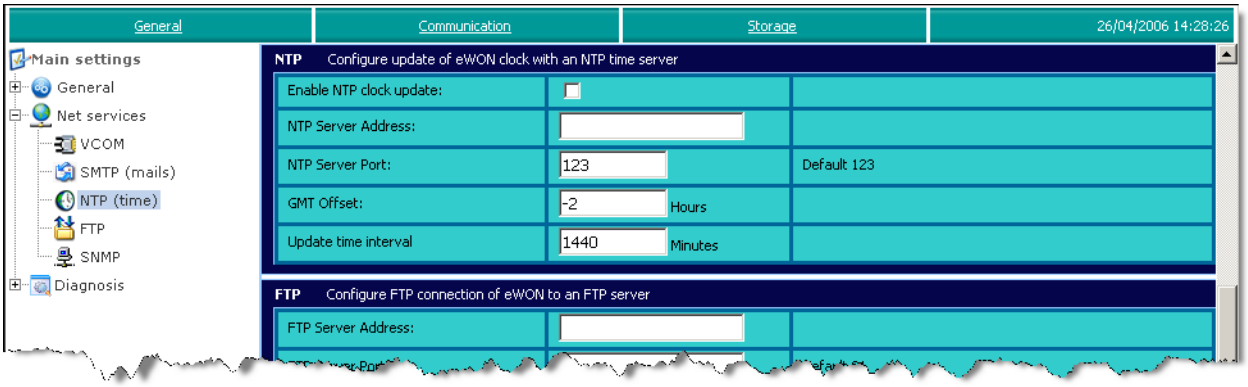


Figure 61: eWON NTP setup page

Control	Description
Enable NTP clock update	To update the eWON date & time the eWON is able to make a connection automatically on a NTP (Network Time Protocol) timeserver. If you want to use that functionality, check the box and fill the next edit boxes in.
NTP server address	The IP address of the NTP (Network Time Server Protocol) server. You can easily find a list of NTP servers by using any Web search engine. If you only know the name of the NTP server (like canon.inria.fr) see the chapter "Finding the IP address of a given host" on page 238. Note: eWON does not consider the DST data (Daylight Saving Time).
NTP Server Port	Usually 123. In case of doubt, contact your Internet provider or your Network Administrator to check it.
GMT Offset	Enter here the offset in hours between your local time zone and the GMT time zone. This information is required for correct automatic time update.
Update Time Interval	Interval in minutes for automatic connection to the NTP Server. Default is 1440= 1 day.

Table 30: eWON NTP controls

After having encoded your parameters, go to the bottom of the page to Update Cancel.

5.2.6 FTP setup

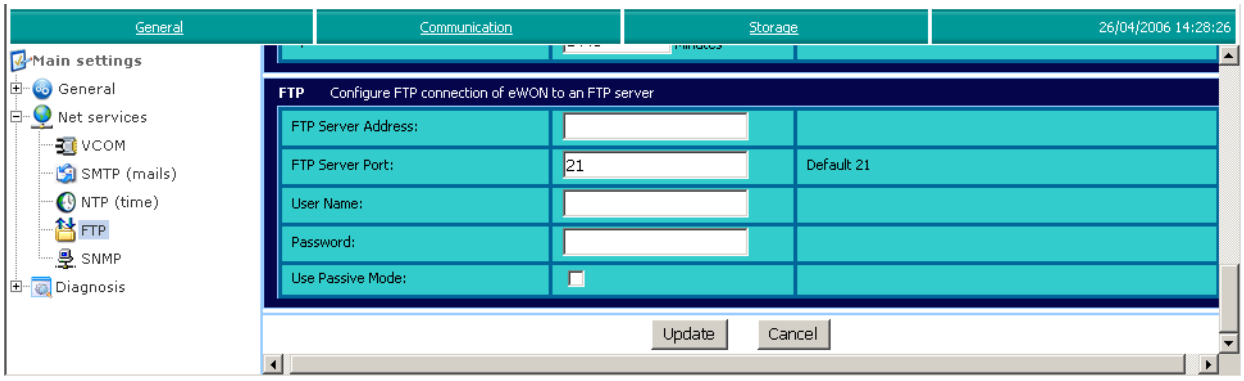


Figure 62: eWON FTP setup page

Control	Description
FTP server address	The name of the FTP server where the Put FTP command will be issued (from alarm action or Script direct PUTFTP command). Enter FTP server IP address. If you only know the name of the FTP server (like domain.com) see the chapter "Finding the IP address of a given host" on page 238
FTP server port	Usually the value is 21. In case of doubt, contact your Internet provider or your Network Administrator to check it.
User name	The FTP client user name defined on the FTP server.
Password	The password for the given FTP client.
Use Passive Mode	When checked, all FTP transactions are performed in passive mode.

Table 31: eWON FTP setup controls

After having encoded your parameters, go to the bottom of the page to Update Cancel .

5.2.7 SNMP Setup

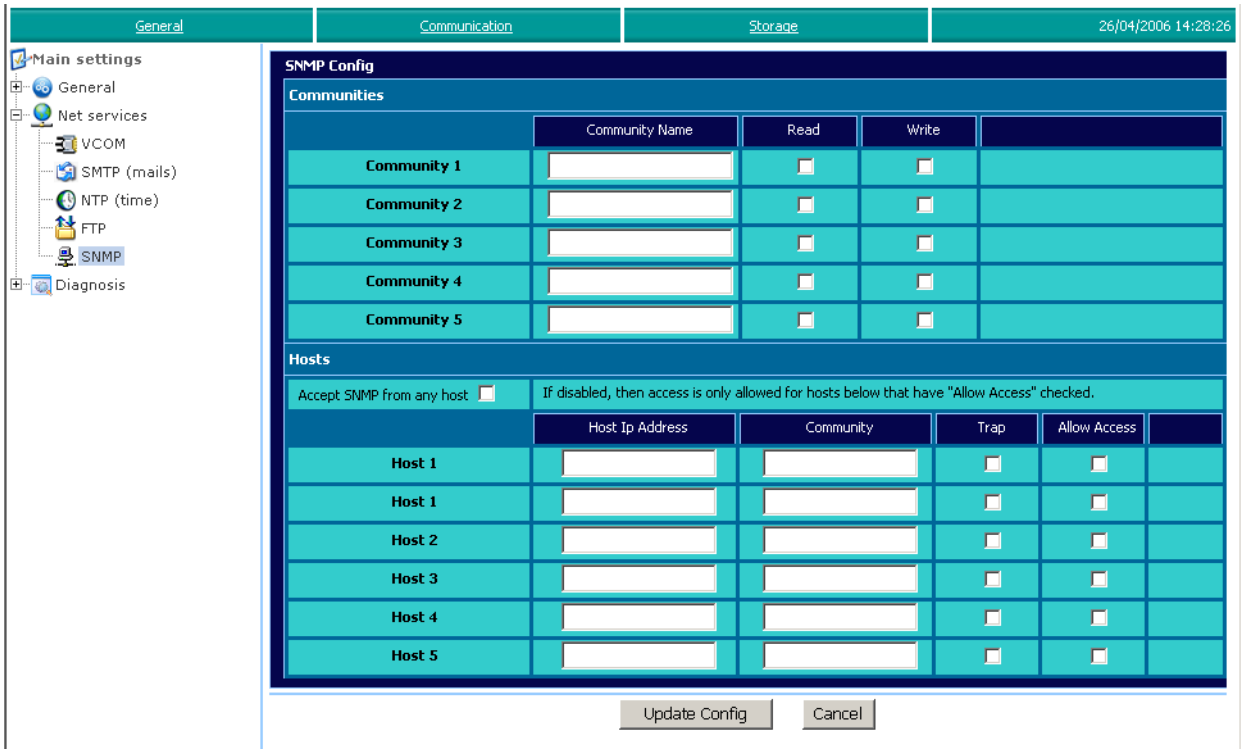


Figure 63: eWON SNMP setup main menu page

5.2.7.1 Communities

The communities are defined here. These are acting like a "login-password" feature. Please refer to the SNMP standard for detailed explanations. Up to five different communities can be set up in the eWON. Each community has different read and write attributes. In the eWON, each of them can be specified for read and/or write rights. The standard *public* community is defined as read-only.

5.2.7.2 Hosts

The hosts that can access the communities and/or receive the generated SNMP traps have to be specified. If the checkbox *Accept SNMP from any host* is selected, any IP address will be granted to browse the SNMP tree of the eWON.

The traps are always sent to know IP addresses defined in the following fields. Each host is determined by its IP address and by the community he is working on. For each host, the user can specify whether he can receive traps and/or browse the SNMP tree.

A MIB file describing the SNMP structure and OID of the eWON is available on our web site.

Traps can originate from three different events:

System traps	At cold boot and at soft reboot, the eWON sends system traps with identification 0 and 3 respectively.
Basic scripting traps	The ***sendtrap*** Basic function can send a trap at user request.
Alarm event traps	The eWON automatically sends a trap on alarm, containing alarm information.

Table 32: events that generate a SNMP trap

The parameters for Basic traps are as follows:

Param 0	Text string [0...255]
Param 1	Integer 32bits

Table 33: Basic SNMP traps parameters

The parameters for Alarm traps are as follows:

Param 0	Tag name	(Text [0..63])
Param 1	Alarm message	(Text [0..255])
Param 2	Value of the Tag in alarm	(Integer 32bits)
Param 3	Alarm status	(Integer)
Param 4	Alarm Type	(Integer)

Table 34: Alarm traps parameters

5.2.8 Data Management

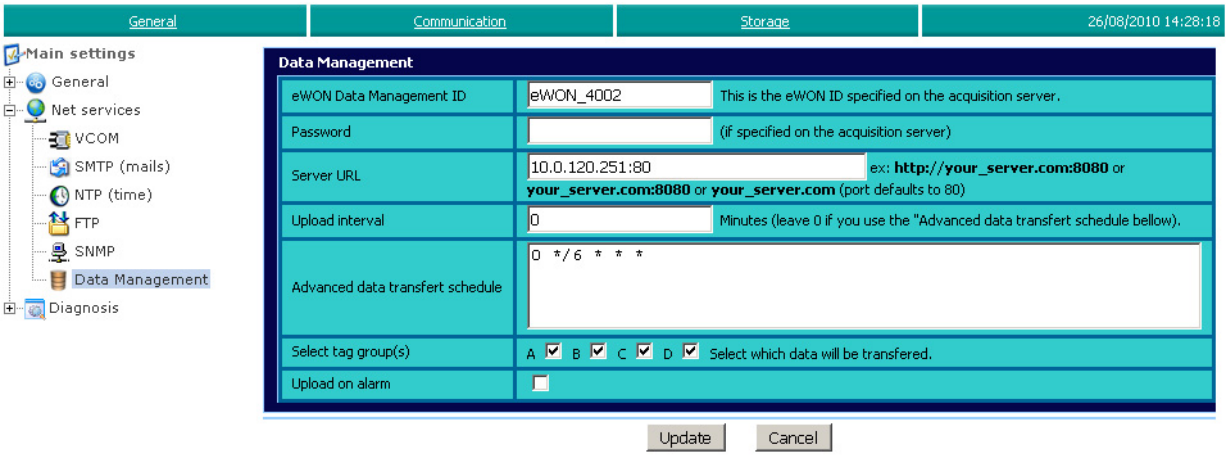


Figure 64: Data Management config page

eWON can upload automatically historical data to the eSyncDMserver.
The upload can occur:

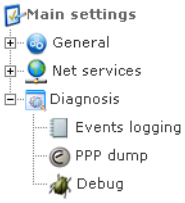
- on a defined interval
- on a complex schedule
- on alarm
- on a trigger from the Basic program

Control	Description
eWON Data Management ID	eWON Identifier specified on the eSyncDM server (mandatory)
Password	Password to access the eWON account on the server (may be empty)
Server URL	Address and port of the eSyncDM. Could be an IP address or an URL If port is omitted, 80 will be used. ex: 10.0.120.251 or data.myserver.com:8080
Upload interval	The interval in minutes between each upload of data Set to 0 if you want to use the "Advanced data transfert schedule" or upload upon alarm
Advanced data transfert schedule	Schedule the upload the same way as "Task Planner" see "Task Planner" on page 18 to complete syntax description ex: 0 */6 * * * will upload every 6 hours (at 0, 6, 12 and 18 o'clock)
Selected Group(s)	Data management sends only tags belonging to group. Select which group(s) you want to upload.
Upload on alarm	When selected, the upload will be triggered also when one of the tags of the selected groups rises an alarm.

Table 35: Data Management parameters

5.3 Diagnosis

5.3.1 Overview



This part of eWON configuration allows you to fine-tune the way you monitor the eWON, concerning the **events**, that gives the user the ability to diagnose quickly and efficiently any trouble that could happen.

The second choice in the ***Diagnostic*** menu is ***PPP Dump***, which allows you to log the history of any PPP communication to and from eWON.

Since Firmware 5.4s4, a **Debug** page allows the activation of debug information for Serial Ports or ADSL.

5.3.2 Events logging

Event logging Configuration gives you the ability to define the reporting level you want to get a diagnostic from most important part from eWON's features.

The three different reporting levels that can be defined are:

Trace	The events with level "Trace", "Warning" and "Error" will be logged
Warning	The events with level "Warning" and "Error" will be logged
Error	Only the critical events will be logged

Table 36: reporting levels - explanations

Warning: If for example you define the "Error" reporting level for "IP communication", then you won't be able to retrieve the reporting information concerning the "Warning" and "Trace" levels in the events log file. This means that you have to know exactly what are the eWON features you want to keep an eye about potential issues or not.

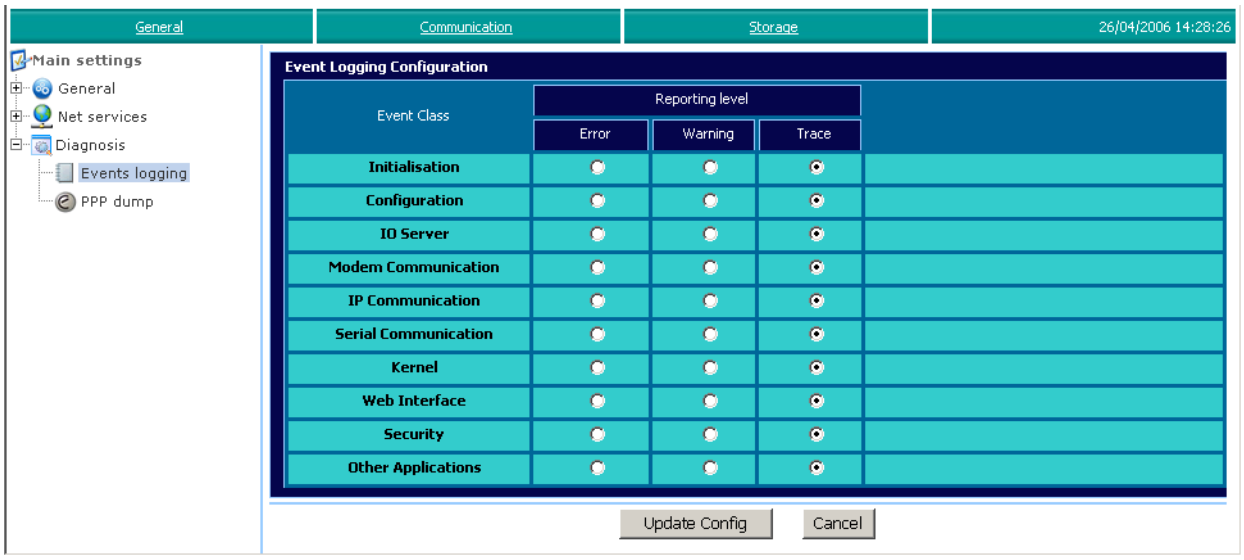


Figure 65: Event logging configuration page

Control	Description
Initialisation	Allows you to define the level of monitoring about the events concerning the eWON boot.
Configuration	Allows you to define the level of monitoring about the events concerning the eWON configuration.
IO Server	Allows you to define the level of monitoring about the events concerning the IO Servers that eWON manages.
Modem Communication	Allows you to define the level of monitoring about the events concerning the eWON's modem communications (incoming and outgoing).
IP Communication	Allows you to define the level of monitoring about the events concerning the eWON's IP communications.
Serial Communication	Allows you to define the level of monitoring about the events concerning the eWON's serial communications.
Kernel	Allows you to define the level of monitoring about the events concerning the eWON's kernel.
Web Interface	Allows you to define the level of monitoring about the events concerning the eWON's Web Interface.
Security	Allows you to define the level of monitoring about the events concerning the eWON's security
Other Applications	Allows you to define the level of monitoring about the events concerning the eWON's features that are distinct from all the one that are listed above in this table.

Table 37: events logging configuration controls

5.3.3 PPP Dump

WARNING: depending on the eWON's version ("eWON Version" on page 244)

WARNING: this configuration is volatile, which means that the dump.ppp file will be cleared each time that the eWON is rebooted.

The *dump.ppp* file containing the logged data can be used in the following ways:

- **it can be sent as an attachment to an e-mail or by using the $dtPP Export Block Descriptor**
- **it can be found in the eWON FTP root and then downloaded locally or on another FTP folder**
- **it can be opened and analyzed by using EtherReal, which is a tool used to analyze TCP frames (http://www.ethereal.com/)**

5.3.3.1 PPP Dump Configuration

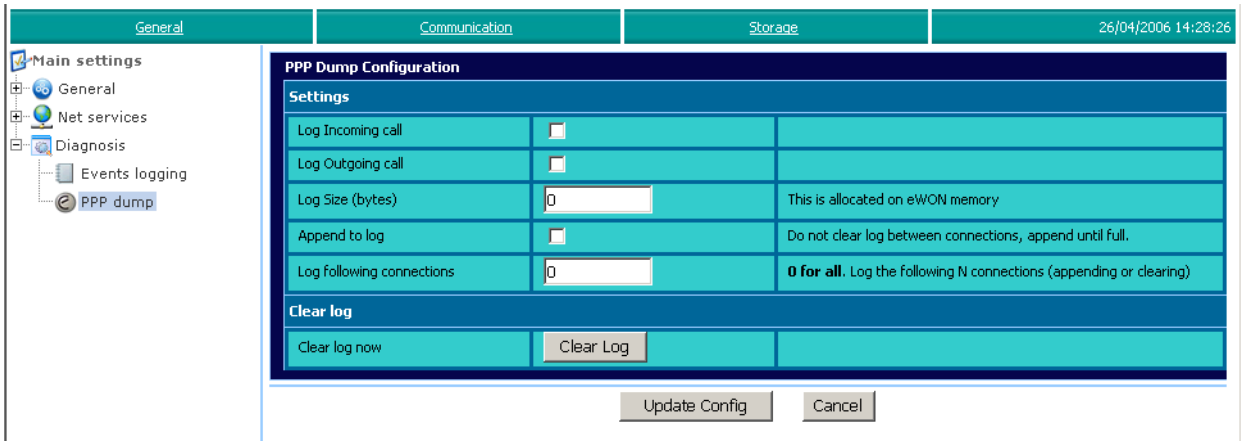


Figure 66: PPP Dump configuration page

Control	Description
	Logs communications when the eWON is acting as a PPP server
Log Outgoing call	Logs communication when the eWON is acting as PPP Client (connects to a server)
Log Size (bytes)	Number of bytes allocated for logging PPP communications. When the log is full, logging stops (this does not prevent communication from continuing) Maximum log size is 1MByte (Log Size between 50000 and 100000 are sufficient for debug purpose)
Append to log	Prior to append to log, you must clear log manually using the **Clear Log** button in the PPP Dump configuration page
Log following connections	The eWON will log only the N next connections, the number of connections will be decreased each time a new connection is logged. When the last connection has been logged, then the counter will be set to -1 (to prevent further connections to be logged). When the value of this counter is 0, then all connections are logged. You can manually set the counter to -1, in order to suspend connection logging, but if you want to release the log buffer, then you should disable the ***Log Incoming call*** and the ***Log Outgoing call*** options. In case you want to log multiple connections, you can choose to Append data to the log or not.
clear log now	Clicking on this button will clear the PPP dump log.

Table 38: PPP dump configuration controls

5.3.4 *Debug*

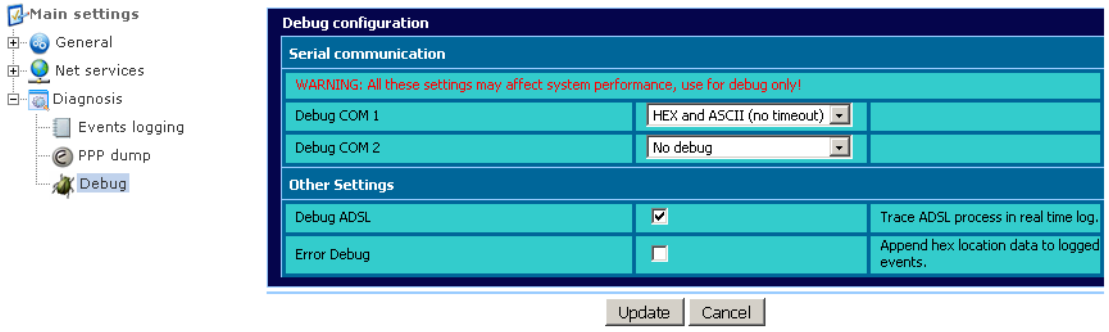
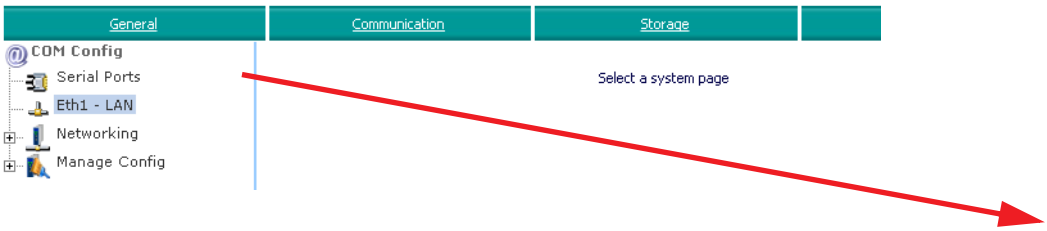


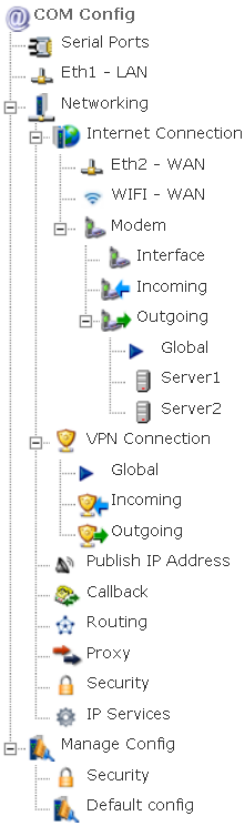
Figure 67: Debug configuration page

Control	Description
	Set the debug mode of the Serial COM ports (1 to 4 depending of the eWON type). All the debug information will be available in the Real Time Log page (See "Real Time Log" on page 187) Choose between following mode: • **No debug:** no debug information logged (default) • **HEX on RX/TX:** Log hexadecimal data received and transmitted • **HEX and ASCII on RX/TX:** Log hexadecimal and ASCII data received and transmitted • **HEX and ASCII (no timeout):** Log hexadecimal and ASCII data received and transmitted, without timeout information (clearer log)
Debug ADSL	Only available on eWON2104 or eWON4104. Log ADSL trace in the ADSL log page (See "ADSL Log" on page 30
Error Debug	Append hex location data to logged events. For debugging purpose only

Table 39: Debug configuration controls

6 System Setup – Communication





The second link of the **System setup** is the communication setup.

All Ethernet, modem, VPN and PPP TCP/IP connectivity parameters are defined here.

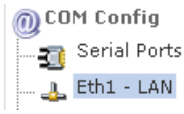
The tree menu is divided into 3 sections: ***Local Interfaces config, Networking*** and ***Manage Config***.

Once totally expanded, the tree menu looks like the one shown on the right.

> **Warning: The displayed interfaces inside the menu will depend on your eWON type. ("eWON Version" on page 244) For Flexy devices the menu will be automatically updated to reflect the detected extension cards at eWON boot.**

6.1 Local interfaces configuration

The first part of the Com Config menu allows to configure the local interfaces.

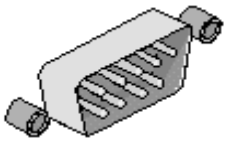


- **the Serial Ports (if available)**
- **the Ethernet-LAN (always present)**

6.1.1 Serial port

All serial ports detected by the eWON are listed here.
It allows to configure the hardware communication mode of the serial communication port.

A “Physical COM port of an eWON can be reconfigured as:



- **A RS232 Port**
- **A RS485 Port**
- **A RS422 Port**

Different types of serial ports:

6.1.1.1 Serial communication ports

The COM port setting is to do in the menu COM Config\ Serial Ports
These parameters are automatically adjusted depending of the eWON type or if other extension cards (**FLA3301**) are added.

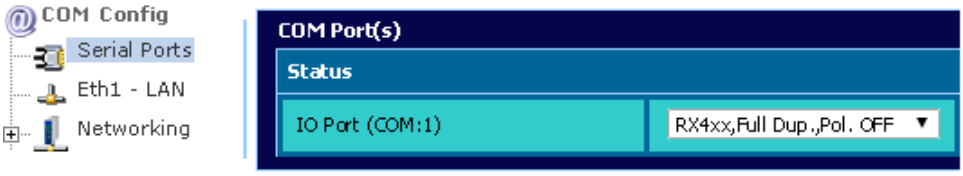


Figure 68: Flexy serial base unit (Flexy 202) without extension cards.

Control	Description
Status	
IO Port (COM: #)	Serial communication port for PLC or device connection **RS232 Full Dup. Pol. OFF:** Config as RS232 port in Full-Duplex & polarization disabled **RX4XX Full Dup. Pol OFF:** Config as RS485/422 port in Full-Duplex & polarization disabled **RX4XX Half Dup. Pol OFF:**Config as RS485/422 port in Half-Duplex & polarization disabled **RX4XX Half Dup. Pol ON:** Config as RS485/422 port in Half-Duplex & polarization enabled **Don't Setup:** No configuration will be applied **Note:** A "*" behind an option means it must be configured manually using dip switch.

Table 40: COM Port(s) settings

Note: Serial port detection order are from left to the right.

After having encoded your parameters, go to the bottom of the page to 

Example:

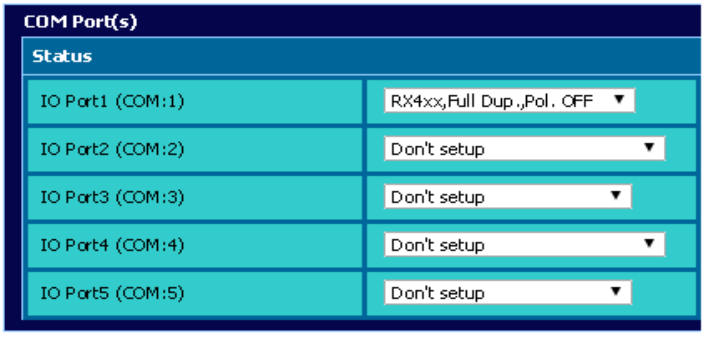
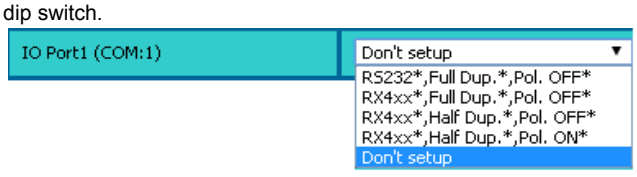


Table 41: Flexy serial base unit (Flexy 202) with 2 FLA3301 extension cards (2 Serial ports).

IO Port 1 = Serial port of the base unit
IO Port 2 = Serial port (named S1on your extension card) of the most left 2 serial ports extension card.
IO Port 3 = Serial port (named S2 on your extension card) of the most left 2 serial ports extension card.
IO Port 4 = Serial port (named S1on your extension card) of the less left 2 serial ports extension card.
IO Port 5 = Serial port (named S2 on your extension card) of the less left 2 serial ports extension card.

Several serial port types require that the port configuration must be done by dip switch.
In this case the dip switch settings will overrule the software configuration.
Serial ports which must be configured using Dip switches:

- **Serial port of eWON CD family**
- **Port1 of a 2 serial port Extension card (FLA3301)**



A "*" behind an option means it must be configured manually (dip switch)
Note: The second port of the 2 serial port Extension card, is always RS232.

6.1.1.2 PPP port

PSTN/ISDN/GPRS Modem use PPP Port, this is an internal serial port and it is not configurable

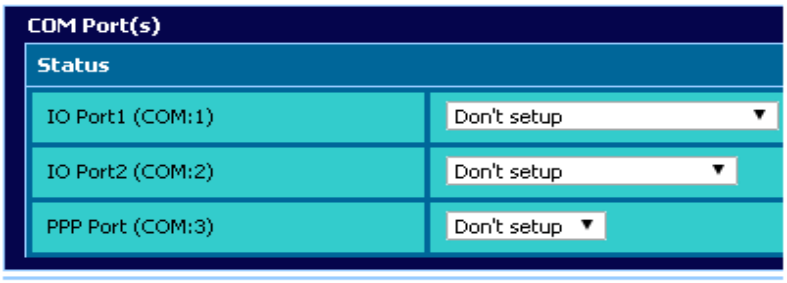


Figure 69: COM Port(s) settings on a eWON with a modem

Control	Description
Status	
PPP Port (COM:#)	Serial port used for modem internal communication **Don't Setup:** No configuration required

Table 42: COM Port(s

6.1.2 Ethernet LAN interface

This tab contains the Ethernet setup of the eWON LAN interface.

The MAC address of this interface is displayed on the first line of the setup page

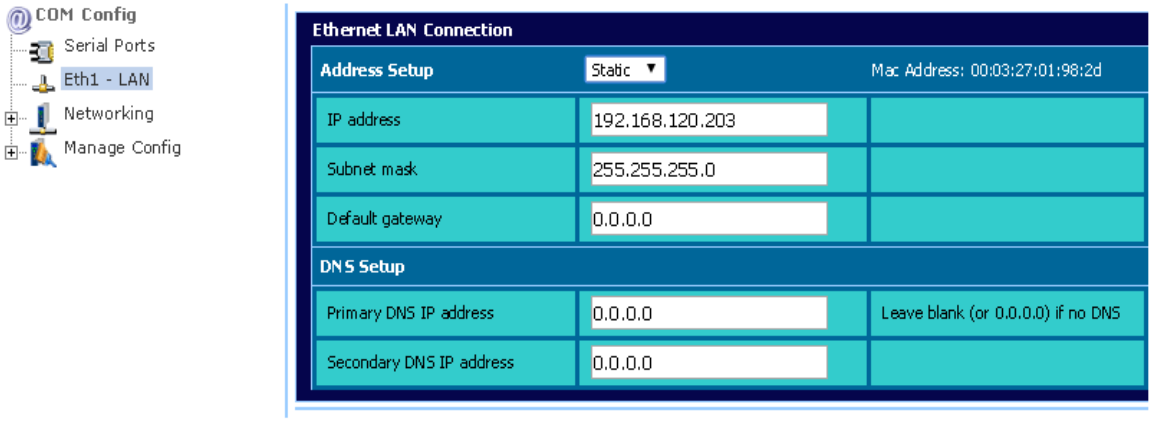


Figure 70: Ethernet LAN interface setup:

After having encoded your parameters, go to the bottom of the page to 

:

Control	Description
Address Setup	
Combobox "Address Setup"	- Static: enter manually all network parameters - BootP: a BootP server provides some parameters - DHCP: a DHCP server provides all parameters Note: eWON LAN side usually configured in "Static" address setup mode
IP address	IP address of the eWON on the LAN side. The IP can only be change in the "Static" adress setup mode
Subnet mask	eWON Ethernet subnet mask, used to determine the address range of the LAN connection (your network).
Default gateway	The IP address of the Ethernet server gateway used to forward information to other networks. Note: See also "Routing" on page 69
DNS Setup	
Primary DNS IP address	IP address of the primary Domain Name Server of your network or ISP provider.
Secondary DNS IP address	IP address of the secondary Domain Name Server of your network or ISP provider.
DHCP config	
Network Name **(Only displayed with DHCP Config)**	On the DHCP network, you can also access your device by name instead of IP address. Thanks to the DNS Synchronization (RFC 4702), this *Network Name* (also called Fully Qualified Domain Name, or FQDN) is sent to the DHCP server during DCHP request negotiation and will trigger an update of the DNS server. *Network Name* can only contains characters a-z,-,0-9 **Note:** The Network Name is common to all network interface (LAN,WAN,WIFI,...)

Table 43: Ethernet LAN setup configuration page

6.1.2.1 Address Setup Mode

The Ethernet LAN interface can receive its IP address configuration from various mechanisms:

- **Static: the user enters all parameters**
- **BootP: a BootP server provides some parameters**
- **DHCP: a DHCP server provides all parameters**

You select the IP address configuration mechanism with the combo box 

Example of LAN configuration

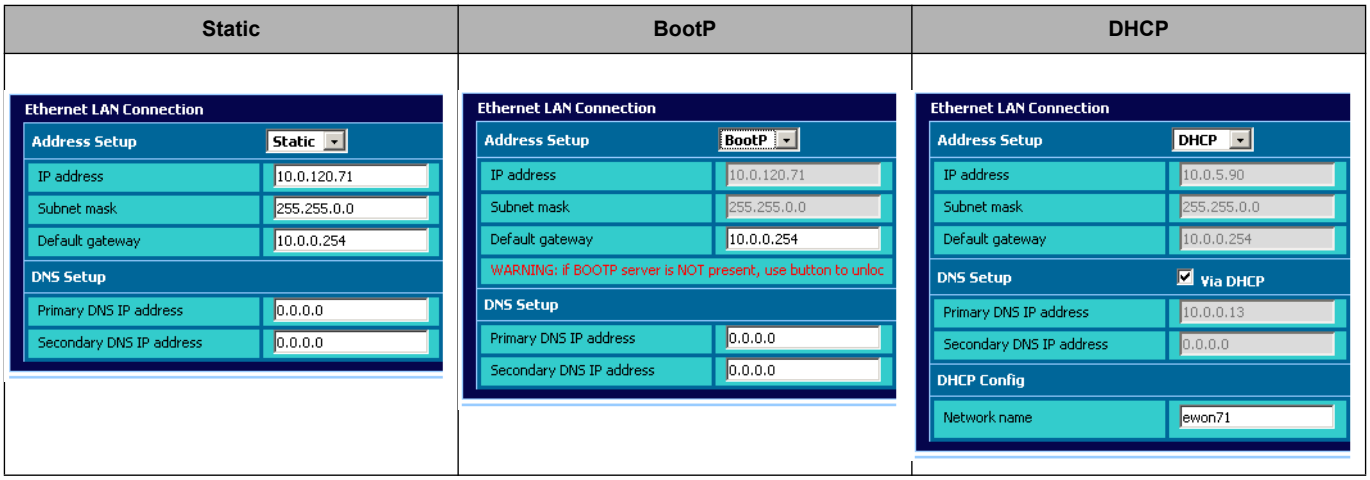


Figure 71: LAN configuration on eWONs without a WAN interface

Each mechanisms provides you all or some of the IP parameters.

IP parameters	Static	BootP	DHCP
IP Address	X	X	X
IP Mask	X	X	X
Default Gateway	X	(*)	X
DNS (primary and secondary)	X	(*)	X (optional)
Network Name	not applicable	not applicable	X

Table 44: IP parameters provided by IP configuration mechanisms

(*) this parameter must be configured statically.
(optional) this parameter can be configured by the server or statically

Example of LAN configuration with WAN

The LAN configuration page will be modified if a WAN interface is detected

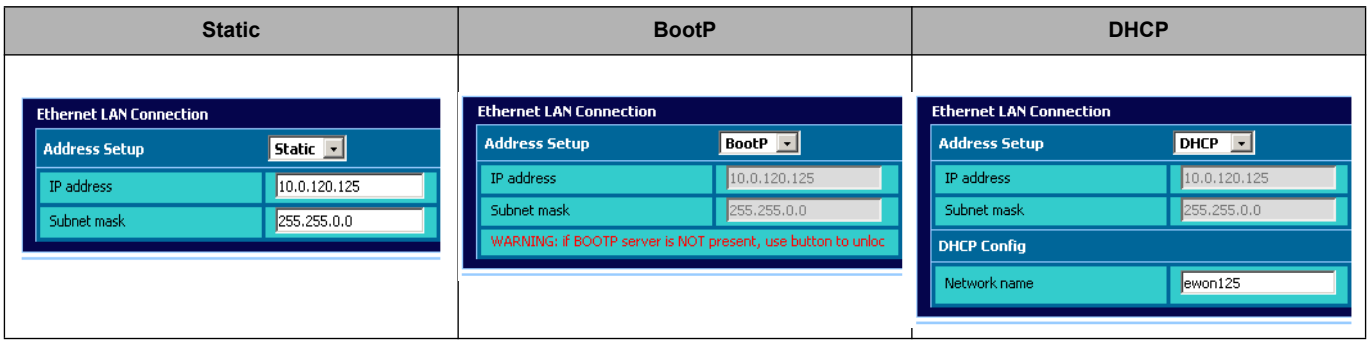


Figure 72: LAN configuration on eWONs having a WAN interface

Note: In this case the default gateway and DNS settings are to perform inside the WAN interface.

6.1.2.2 BootP : TCP/IP Bootstrap Protocol

You can force eWON to ask its IP address to a BootP Server.
Only the IP address and network mask are given by the BootP server (server must be comply with the RFC-1048).

At each startup, the eWON will asks its IP address to the BootP Server.

If the eWON didn't receive an IP from the BootP server, a new attempt will be performed at increasing interval (1 minute interval max.) endlessly.

While waiting for its IP address, the eWON is in startup phase and thus it is not functioning! During this time, the USER LED will blink continuously with the following pattern:

short red light + pause + long green light + pause

Fixing a BootP error:

Method 1:
Pushing on the Reset button (on the front side of the eWON) will skip the BootP request.
The eWON will then use the IP address which is configured in the Ethernet configuration page

The Duplicate IP test is skipped too!

Method 2:
Make a Second Level Reset (see chapter"Second level reset" on page 239 to force eWON to 10.0.0.53 IP address
The reset also disable the BootP mechanism (Be careful: all configuration will be lost)

eWON is now accessible.

6.1.2.3 DHCP : Dynamic Host Configuration Protocol

Configured on DHCP, the eWON gets all the IP parameters from the DHCP server.
These parameters are: the IP address, network mask, default gateway and the 2 DNS servers. The DNS servers can optionally be defined statically.

At the end of the DHCP request, the User Led will blink with the following pattern during 2 seconds:

short green light + short pause

Note: If the eWON doesn't find any DHCP server, after 45 seconds, it will set:

On WAN interface, the IP 169.254.0.53 with mask 255.255.0.0
On LAN interface, the IP 169.254.1.53 with mask 255.255.0.0

Fixing a DHCP error:

Method:

Use eBuddy to set another IP to your eWON
This action disable the DHCP mechanism and put the eWON on the "Static" address setup mode

6.2 Networking

The Networking section allows to configure the network parameters of the eWON.
It allows defining the eWON Internet connection, the VPN connection, define routing, NAT etc.
The displayd items inside the tree menu depend on the eWON type or the detected extension cards.

eWON with a second communication Interface (WAN, Wifi, Modem, etc.)	eWON with only 1 LAN interface
Networking Internet Connection VPN Connection Publish IP Address Routing Proxy Security IP Services	Networking IP Services

Table 45: Networking Menu

6.2.1 *Internet Connection*

Note: eWON embeds wizards that simplifies the Internet connection configuration. For a standard use of the eWON, it will be enough to run this wizard.The required fields will be automatically filled in. ("Wizards" on page 55)

The Internet Connection submenu allows to configure and define how the eWON will connect to the Internet.

The upper page of the windows displays the status of the Internet connection.

Note: This page will be refreshed every 15 seconds

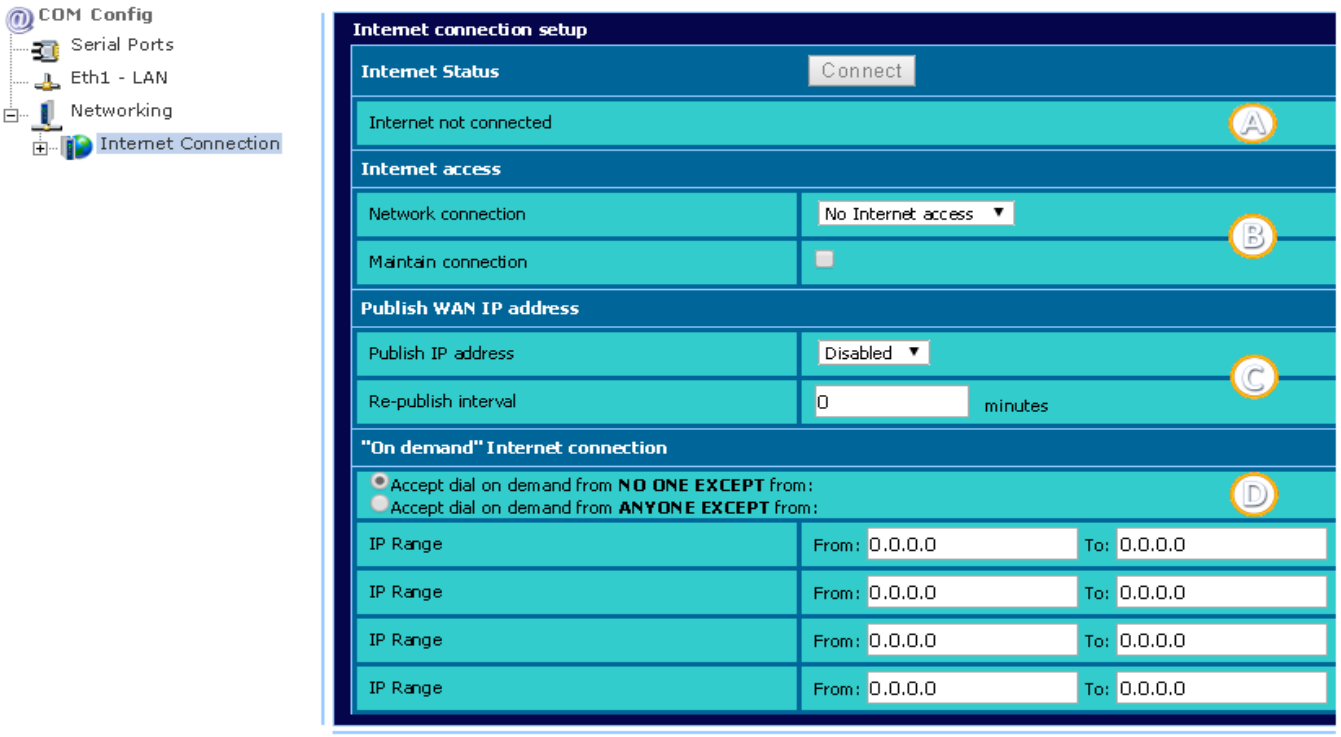


Figure 73: Internet Connection Setup

After having encoded your parameters, go to the bottom of the page to Update

A) Internet Status:

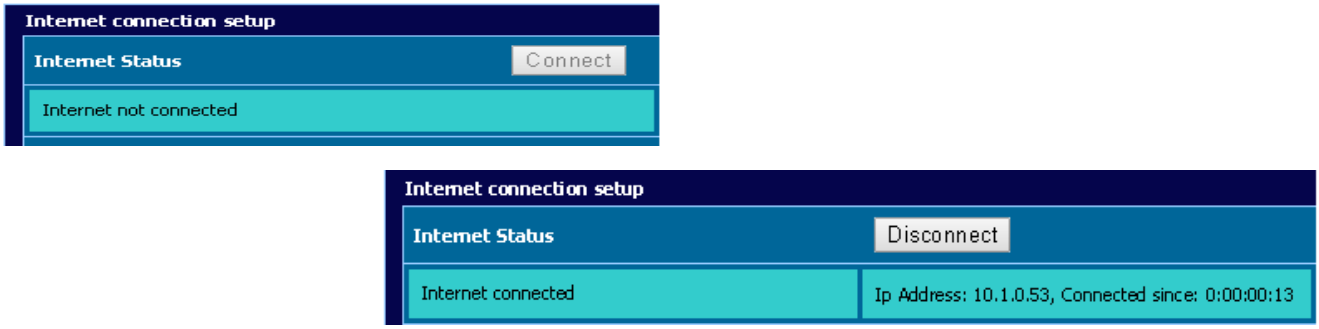


Figure 74: Internet Connection Status

Control	Description
Internet Status	
Button "Connect / Disconnect"	The label of the button next to the Internet Status can be: • **Connect (greyed):** Displayed if no Internet access has been defined No action can be performed • **Connect:** Displayed if the Internet access is configured, but is currently not connected. A click on the"Connect" button, will trigger a connection. • **Disconnect:** eWON is currently connected. Clicking the "Disconnect" button will trigger a disconnection **Note:** If the "maintain connection" option is active, the eWON will re-establish the connection
Connection Status	The connection status will be displayed in this field. As for example: - Internet not connected - Internet Connected IP Address: 10.1.0.53, Connected since: 0:00:00:13

Table 46: Internet Connection Setup

B) Internet access:
You can define which network card to use for the Internet access.

Figure 75: Network connection access

Control	Description
Internet access	
Network connection	Set here how eWON will connect to the Internet. • **No Internet access** • **Modem Connection** • **Ethernet WAN connection (or ADSL)** • **WIFI WAN connection**
Maintain connection	Set this checkbox if you want a **permanent** connection to Internet. The eWON will monitor the connection and re-establish it if interrupted.

Table 47: Internet access setup

C) Publish WAN IP address:

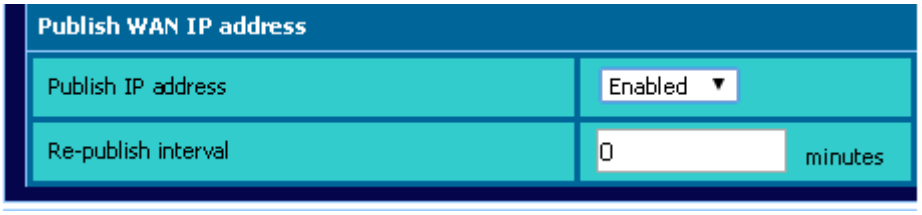


Figure 76: Publsih IP Setup

Control	Description
Publish WAN IP address	
Publish IP address	Enable or disable the publication of the WAN IP address of the eWON. See "Publish IP address" on page 66 for configuration parameters.
Re-publish interval	Set the time interval for the re-publication of the WAN IP address.

Table 48: Publish WAN IP Setup

D) "On demand" Internet connection:

If your eWON has a modem or a WAN extension card, then it is possible to establish remote connections towards the ISP by using the Dial On Demand feature.

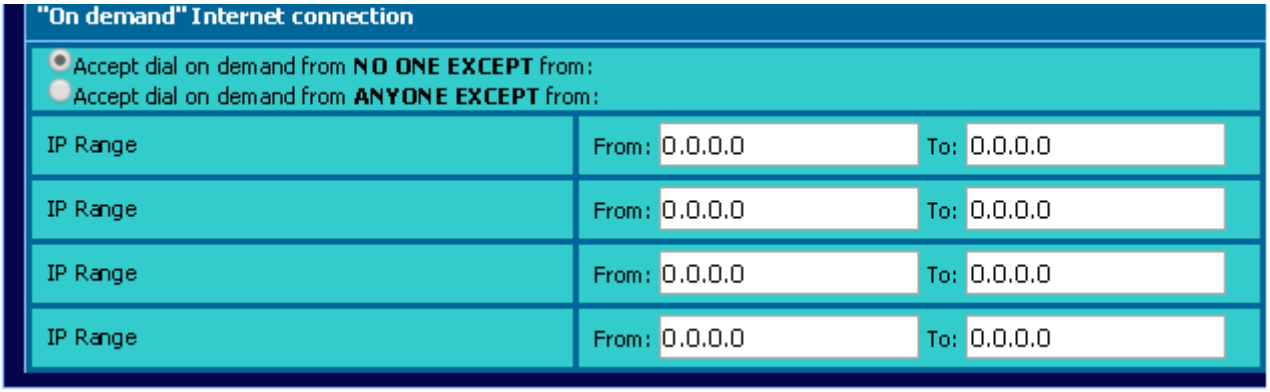


Figure 77: "On Demand" Parameters

Control	Description
"On demand" Internet connection	
Dial On Demand	If selected, the eWON will try to connect to the Internet each time a connection will be required (i.e. packets to send). Those fields allow you EITHER to exclude OR to select IP addresses ranges that are allowed or refused for Dial On Demand. Four different IP addresses ranges can be defined.

Table 49: "On Demand" Internet Connection Setup

Note: By default, the Dial On Demand is configured to refuse all connections.

6.2.1.1 ETH2- WAN

This tab contains the Ethernet setup of the eWON WAN interface.

The MAC address of this interface is displayed on the first line of the setup page

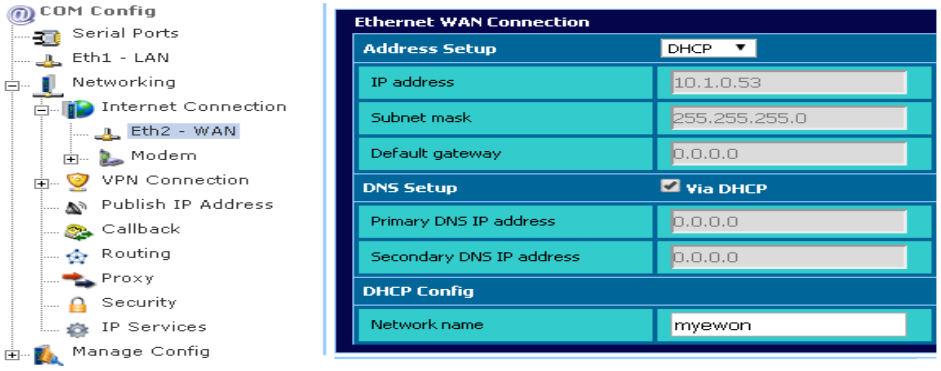


Figure 78: Ethernet WAN Connection

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
Address Setup	
	- Static: enter manually all network parameters - BootP: a BootP server provides some parameters - DHCP: a DHCP server provides all parameters
	IP address of the eWON on the WAN side. The IP can only be change in the "Static" address setup mode
Subnet mask	eWON Ethernet subnet mask, used to determine the address range of the WAN connection
Default gateway	The IP address of the Ethernet server gateway generally used to connect to the Internet. **Note:** See also "Routing" on page 110
DNS Setup	
	IP address of the primary Domain Name Server of your network or Internet provider.
Secondary DNS IP address	IP address of the secondary Domain Name Server of your network or Internet provider.
DHCP config	
Network Name **(Only show with DHCP Config)**	On the DHCP network, you can also access your device by name instead of IP address. Thanks to the DNS Synchronization (RFC 4702), this *Network Name* (also called Fully Qualified Domain Name, or FQDN) is sent to the DHCP server during DCHP request negotiation and will trigger an update of the DNS server. *Network Name* can only contains characters a-z,-,0-9 **Note:** The Network Name is common to all network interface (LAN,WAN,WIFI,...)

Table 50: Ethernet WAN Connection Configuration Page

The Ethernet WAN interface can receive its IP address configuration from various mechanisms:

- **Static: the user enters all parameters**
- **BootP: a BootP server provides some parameters**
- **DHCP: a DHCP server provides all parameters**

Each mechanisms provides you all or some of the IP parameters.

IP parameters	Static	BootP	DHCP
IP Address	X	X	X
IP Mask	X	X	X
Default Gateway	X	(*)	X
DNS (primary and secondary)	X	(*)	X (optional)
Network Name	not applicable	not applicable	X

Table 51: IP parameters provided by IP configuration mechanisms

(*) this parameter must be configured statically.
(optional) this parameter can be configured by the server or statically

6.2.1.2 WIFI - WAN

The WIFI WAN Connection submenu allows to configure the settings of the WIFI extension card.

.

The MAC address of the WIFI extension card is displayed on the second line of the configuration page.

Figure 79: WIFI WAN Connection Interface

After having encoded your parameters, go to the bottom of the page to 

The upper page of the windows displays the status of the wireless connection
When connected, the network name of the current connection is displayed.
You can also see the signal strength of this network and if it's hosted on a secured WIFI.

This page will be refreshed every 60 seconds

Control	Description
Network Selection	
Combobox "Network Selection"	**List:** Displays the names of all available WiFi networks **Manual**: Enter manually the name of a WIFI Network
Network Name	SSID Name of all available networks  Its also displays if the Wireless network is protected (padlock) and the signal strength

Table 52: WIFI WAN Setup

Wireless Icons	
	**Security:** If a padlock is present on the right of the SSID Name, the network is protected No icon means that the network is seen as open network without security **Note:** MAC Filtering is not seen as a WIFI Security, icon is not relevant for it.
	**Signal Strength:** This icon symbolizes the signal strength of the wireless network The more it is filled (in black), the better your connection is.

Table 53: WIFI Icons Explaination

Control	Description
Address Setup	
Combobox "Address Setup"	- Static: enter manually all network parameters - BootP: a BootP server provides some parameters - DHCP: a DHCP server provides all parameters **Note:** eWON WIFI interface usually configured in "DHCP" address setup mode
IP address	IP address of the eWON on the WIFI interface. The IP can only be change in the "Static" address setup mode
Subnet mask	eWON Ethernet subnet mask, used to determine the address range of the WIFI connection.
Default gateway	The IP address of the Ethernet server gateway generally used to connect to the Internet. **Note:** See also "Routing" on page 110
DNS Setup	
Primary DNS IP address	IP address of the primary Domain Name Server of your domain or Internet provider.
Secondary DNS IP address	IP address of the secondary Domain Name Server of your domain or Internet provider.
DHCP config	
Network Name **(Only show with DHCP Config)**	On the DHCP network, you can also access your device by name instead of IP address. Thanks to the DNS Synchronization (RFC 4702), this *Network Name* (also called Fully Qualified Domain Name, or FQDN) is sent to the DHCP server during DCHP request negotiation and will trigger an update of the DNS server. *Network Name* can only contains characters a-z,-,0-9 **Note:** The Network Name is common to all network interface (LAN,WAN,WIFI,...)

Table 54: Wireless Address Setup

6.2.1.3 Modem - GPRS

Note: for PSTN/ISDN Modem see "Modem - PSTN/ISDN" on page 93

6.2.1.3.1 Interface

***Warning:* Submenu depend on detected modem type**

On an eWON with a GPRS modem, this submenu allows you to configure or verify the connection with GPRS Service Provider

The upper page of the window displays the status of the GPRS connection

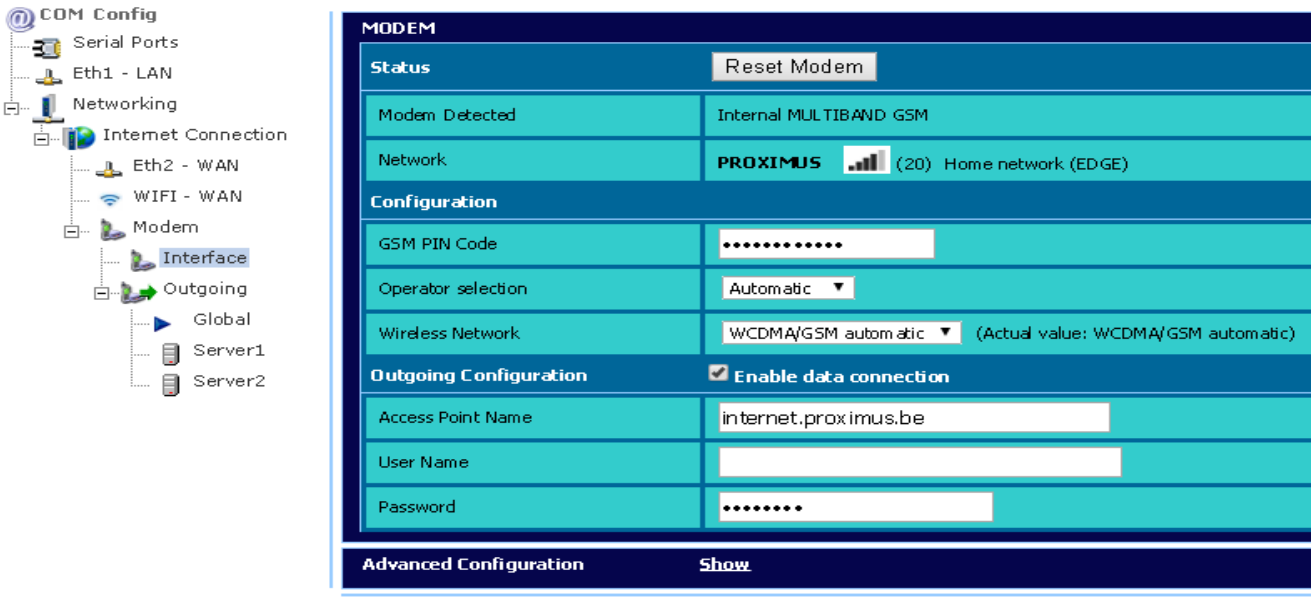


Figure 80: Modem Configuration Interface (for GPRS/GSM)

After having encoded your parameters, go to the bottom of the page to Update

Note: This page will be refreshed every 15 seconds
Refresh is running when the text "Status updating ..." appears on the top left corner of the submenu.

Control	Description
Status	
Button "Reset Modem"	Resets the modem. After reset, the modem detection is relaunched
Modem Detected	Textual description of the detected modem The text: "*Internal*", followed by the modem type or speed (i.e. "Internal MUTLIBAND GSM" in the screenshot above).
Network	This field indicates if you are registered to the GSM/GPRS network You can see in this field: The name of the joined network and signal strength. The type of connection: "Home network" or "Roaming".  It's also displays (if information is available) the type of technology used for this connection (i.e. EDGE)
Configuration	
GSM PIN Code	Enter here the PIN code of the SIM card that you have inserted in eWON. Let empty if your SIM card doesn't require a PIN code. If the Pin Code is false, an error appears in the Network Status 
Operator selection	The combo box will show all the available GSM operators and an "Automatic" settings: **Automatic:** It will connect with the default settings of the SIM card **Others "Operators":**It will force a connection with the selected operator. If the choosen operator is not available, no connection will be triggered. **Note:** Default is Automatic.
Wireless Network	Combo box to choose (force) the GSM network type. This is useful if the user want to force the modem in a specific mode, either for contract reason of for reception level improvement (sometimes the modem will lock on the 3G network with a poor reception while the GSM reception would be excellent – with a slow connection though). Possible selections are: • **WCDMA/GSM (automatic)** • **WCDMA only (only):** setting allows only connection with 3G networks (UMTS and HSUPA). • **GSM only (Only):** setting allows only connection with 2G networks
Outgoing Configuration	
"Enable Data Connection" Box	Allows to enable the Data connetion (2G or 3G)
Access Point Name	APN used for your Mobile Network access
User Name	Depending of your Mobile Network Provider (default value empty)
Password	Depending of your Mobile Network Provider (default value empty)
Advanced Configuration	**Show Link**
Displays all Advanced Modem Configurations as Modem String, QoS, ...	

Table 55: GSM Modem configuration controls

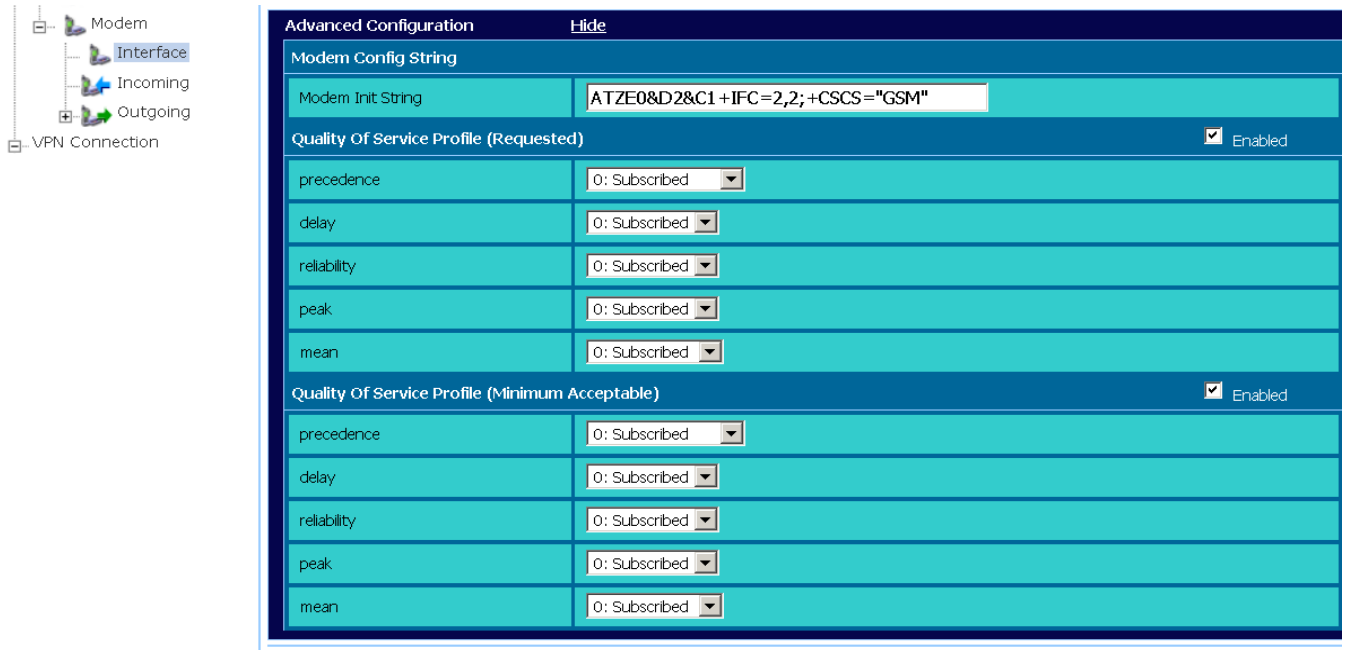


Figure 81: Advanced (Modem) Configuration

Control	Description
Modem Config String	
	This string is used to configure and to initialize the modem. Any change in this string could prevent communications to succeed, only qualified users should modify it. **Note:** Clearing this string will result in applying a well known default initialization string
"Quality Of Service Profile" (Requested) Checkbox	Check with your network operator before changing any of the QoS (Quality of Service) settings. The settings are all set by default to "Subscribed", which means that your operators default QoS (Quality of Service) values will be applied.
precedence	a numeric parameter which specifies the precedence class
delay	a numeric parameter which specifies the delay class
reliability	a numeric parameter which specifies the reliability class.
peak	a numeric parameter which specifies the peak throughput class
mean	a numeric parameter which specifies the mean throughput class
"Quality Of Service Profile" (Minimum Acceptable) Checkbox	Check with your network operator before changing any of the QoS (Quality of Service) settings. The settings are all set by default to "Subscribed", which means that your operators default QoS (Quality of Service) values will be applied.
precedence	a numeric parameter which specifies the precedence class
delay	a numeric parameter which specifies the delay class
reliability	a numeric parameter which specifies the reliability class.
peak	a numeric parameter which specifies the peak throughput class
mean	a numeric parameter which specifies the mean throughput class

Table 56: Advanced Configuration Settings

6.2.1.3.2 Incoming (Data connection)

Warning: **Submenu depend on detected modem type**
Only displayed if the wan modem allows incoming "data" connection protocol.

This group contains the PPP(Point to Point) setup of the eWON that sets up the PPP settings for the server function of the eWON

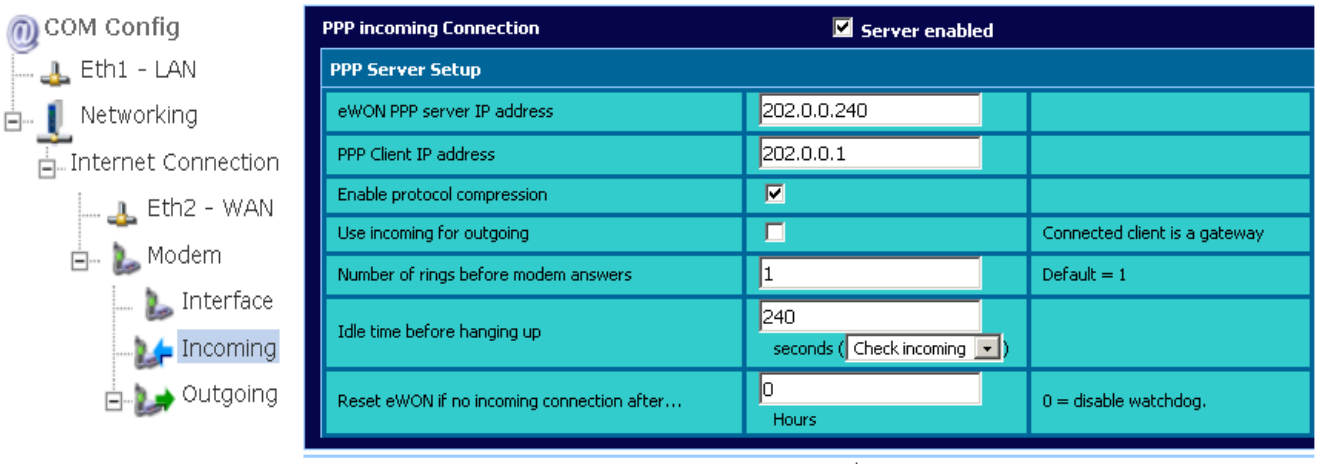


Figure 82: Modem Incoming Interface

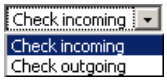
Control	Description
	Allows incoming data connection
PPP Server Setup	
	PPP server Internet protocol (IP) address of the eWON. Use this IP address to connect to the eWON using a RAS connection.
PPP client IP address	Type the IP address that the eWON will allocate to the RAS client to establish the communication.
Enable protocol compression	Enables the compression negotiation request when an incoming call occurs. This includes all the compression modes known by the eWON PPP engine (Van Jacobson, header compression,…).
Use incoming for outgoing	When checked, this ensures that when an incoming call is undergoing, no external event, such as alarm Email, will drop the line in order to initiate a new connection. If an alarm has to be sent through the PPP connection (FTP, Email, …), the current PPP link will be used. Be aware that SMS alarms will always drop the line, whatever the value of this checkbox. On the other hand, if this box is unchecked and an Email has to be sent while the connection has been established by a user to browse the eWON, if the Email can be sent through the Ethernet link, the PPP link will NOT be dropped. **note:** See also "Routing" on page 110
Number of rings before modem answers	You can fix the number of rings before the eWON answers. Default value is 1.
Idle time before hanging up	After this amount of time without data transfer on the PPP link between the eWON (any type of PPP packet) and a remote host (Computer), The eWON will drop the line.  Select between *Check incoming* or *Check outgoing* to select the monitored traffic. **Note:** this is the same parameter as for outgoing connection.
Reset eWON if no incoming connection after ...	Consider this parameter like a Watchdog parameter. To avoid eWON to stay stucked due to any modem reason or other, you can use this parameter to force an eWON to reboot if no incoming connection was performed after xxx Hours since the last connection.

Table 57: PPP Incoming Connection Setup

6.2.1.3.3 Outgoing (Data connection)

This group contains the PPP(Point to Point) setup of the eWON that sets up the PPP settings for the client function of the eWON.

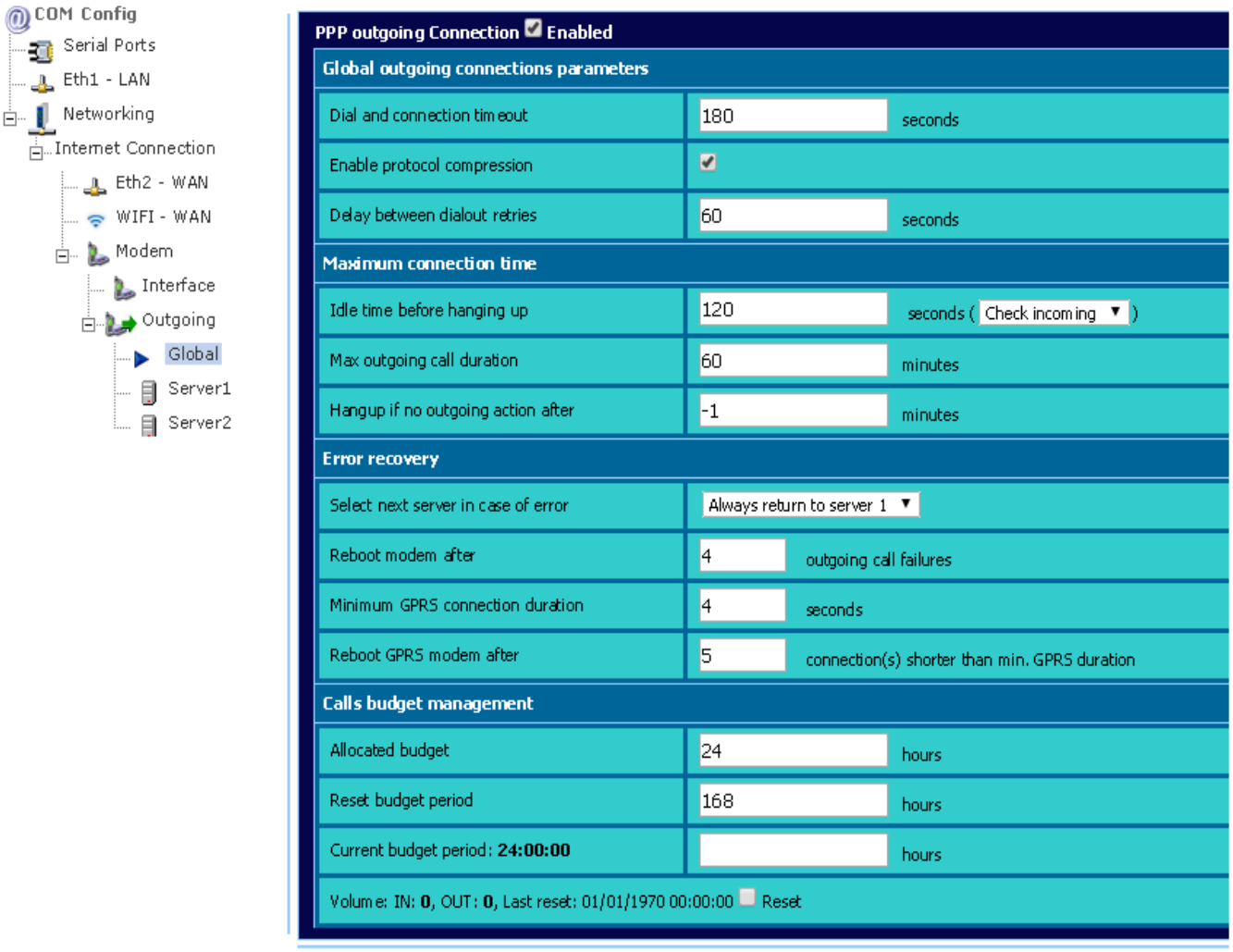
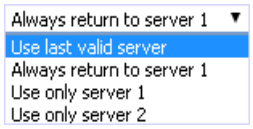


Figure 83: Global Modem Outgoing Interface

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
"PPP Outgoing Connection" Checkbox	Allows outgoing data connection
Global Outgoing Connection Parameters	
Dial and connection timeout	Time allowed for the whole establishment of the PPP link to be up. This means modem call, modem negotiation, PPP negotiation and logon. This time includes all trials on each server. This is thus a global time.
Enable protocol compression	Enable the compression negotiation request when an outgoing call occurs. This includes all compression modes known by the eWON PPP engine (Van Jacobson, header compression,…).
Delay between dialout retries	In case of an unsuccessful attempt to establish the outgoing communication, then eWON will retry to establish it again. This parameter will allow you to define the amount of time the eWON will wait to try and establish again the outgoing action.
Maximum Connection Time	
Idle time before hanging up	eWON will hang up after this amount of time if no data transfer occurs on the PPP link between the eWON (any type of PPP packet) and a remote host (Computer).  Select between *Check incoming* or *Check outgoing* to select the monitored traffic. Note: this is the same parameter as for incoming connection.
Max outgoing call duration	The maximum amount of time of the outgoing call. When this amount of time is reached, then the eWON stops the PPP communication.
Hang up if no outgoing action after	When a PPP link is triggered by an outgoing action (not by DialOnDemand), you can force the interruption of the line immediately after the actions (set 0) or let the PPP active for an amount of time (set >0). The PPP link will be shut down after the x minutes even if transfers are in progress. The *Idle time before hanging up* is always active.
Error Recovery	
Select next server in case of error	When the call to a server failed, you can choose the behavior of the next call. eWON will be configured to: 
Reboot modem after	Consider this parameter like a Watchdog parameter. To avoid eWON to stay stucked due to any modem reason, you can use this parameter to force anew detection of the modem after xxx outgoing calls failure.
Minimum GPRS connection duration	*Only available on eWON with GPRS modem.* Time in seconds: if the GPRS dial-out connection is shorter than this time, the connection is considered as ERROR. If set to "-1", this time is not tested (default value = 4). *See* "Outgoing (Data connection)" on page 89
Reset GPRS modem after	*Only available on eWON with GPRS modem.* Maximum number of GPRS connection ERROR accepted before the modem is reset (default value = 5). *See* "Outgoing (Data connection)" on page 89.

Call Budget Management	
Allocated Budget	This is the allocated time budget for outgoing calls. When a communication initiated by the eWON is in progress, the current period budget (remaining time) is reduced. When all the time budget is used, the eWON will drop the outgoing call.
Reset budget period	This is the time allowed in order to use the budget. After the call period is over, a new period is started and the new period timer is reset to this value. In the above example, this means that the current budget period is reset to 24 hours each 168 hours. The reset period is restored to its value each time one of the three configuration fields is modified.
Current period budget	This is the remaining call budget for the current period, expressed in hours:min:sec. A new budget can be provided; this restarts a new reset period. For example, in the above example 24 hours are remaining, if we force 100 hours as call budget, the reset period is reset. This means that for the newly started period, 100 hours are allocated. A new period will start again in a delay of 168 hours.
Current VOL IN/OUT info Reset	Information: counters the volume of bytes transmitted (IN and OUT) You can reset the counters by checking the 'Reset' box.

Table 58: GPRS Modem Outgoing connection

6.2.1.3.3.1 GPRS modem connection error management:

The *"Minimum GPRS connection duration"* and the *"Reset GPRS modem after"* parameters have been added to monitor problems with GSM-GPRS connection.

In case these problems occur, the result can be a short or unsuccessful PPP connection. In that case the Dialout Out to server works (CONNECT message received from the modem), then the PPP negotiation starts and then:

1. either the PPP connection starts
2. or the LCP negotiation fails

but in any case the connection is short (less than 2 to 4 seconds).
In the first case above, a message is logged in the events.txt file saying:

```
eppp-Open client connection
eppp-Close client connection (Cnxtime: 0 S. [2])
```

In the second case, the PPP connection does not start,
but a message is logged in the events.txt file saying

```
eppp-PPP negociation failed. (user/password/pap-chap)
```

The problem may be due to a bad configuration of APN,user,password, authentication mode (CHAP, PAP), but it can also be due to a GSM problem for doing an "Attach" to the GPRS.

In that case, it may be required to reset the modem to help it recover.

REMARQUE 1:

These test only apply to GPRS connection, if username or password is invalid for another type of dial-out, the modem will not be reset.

REMARQUE 2:

```
eppp-PPP negociation failed. (user/password/pap-chap)
```

The above message is generated for any type of dial-out that fails before PPP connection goes online.

6.2.1.3.3.2 Primary & secondary servers

Two different servers can be set up: the following parameters are the same for both servers.

That's ensure that the eWON can find a way out for PPP link if a server is down.

By default, the primary server is always dialed first. (see Global Modem Outgoing Interface to change that setting)

If the connection cannot be established, the eWON tries the second server. If it fails, then it toggles back to the primary server.

This is done until the dial-out timeout is reached.

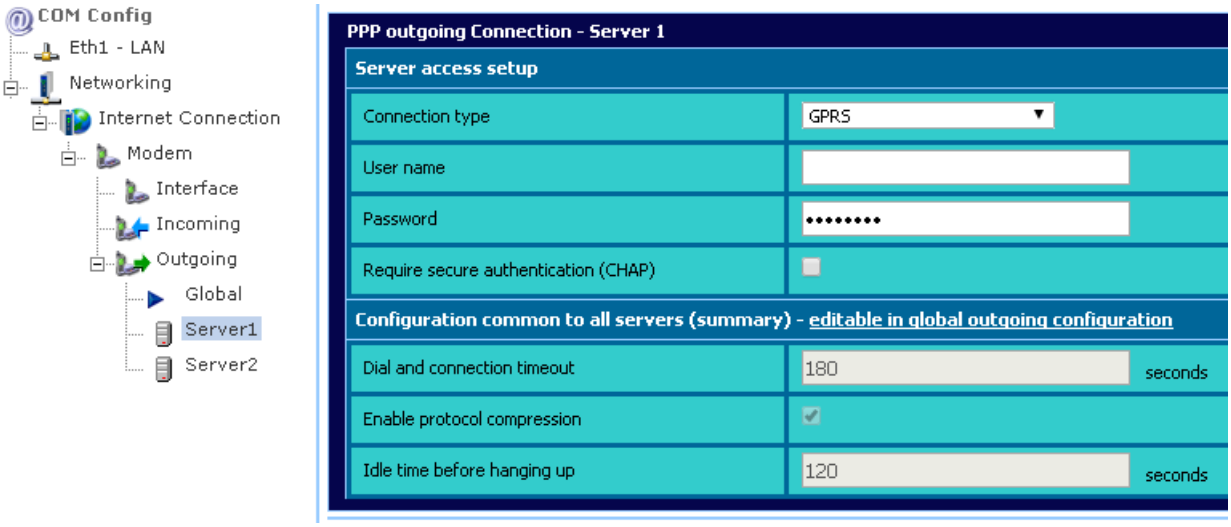


Figure 84: PPP Outgoing Connection Server Interface

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
PPP Outgoing Connection (Server 1 or 2)	
	Only present in GSM/GPRS modems. Select the dial-Up type: *Remote access connection* or *GPRS*. With GPRS, the Server phone number will be hidden (unused).
User Name	The login for the modem connection establishment.
Password	The Password linked to the above login for the modem connection establishment.
Require secure authentication (CHAP)	If this box is checked, then the eWON explicitly requests CHAP authentication for the modem connection. If the other side cannot do CHAP, no connection will be made. If this box is left unchecked, then PAP (clear text password) is used.
Configuration Common to all servers	
Clicking on "editable in global outgoing configuration" send you to the ""Global Modem Outgoing Interface" on page 48" **Note:** The settings are greyed, their configuration depends on another section.	

Table 59: PPP Outgoing Connection Setup

6.2.1.4 Modem - PSTN/ISDN

6.2.1.4.1 Interface

Warning: **Submenu depend on detected modem type**

The Modem submenu allows to configure your internal modem or extension modem card.

On an eWON with a PSTN/ISDN modem, this submenu allow you to configure or verify the Dial-up connection.

The upper page of the windows displays the status of the Modem connection.

Note: This page will be refreshed every 15 seconds, displaying "Status updating ..."

For an eWON with a PSTN Modem

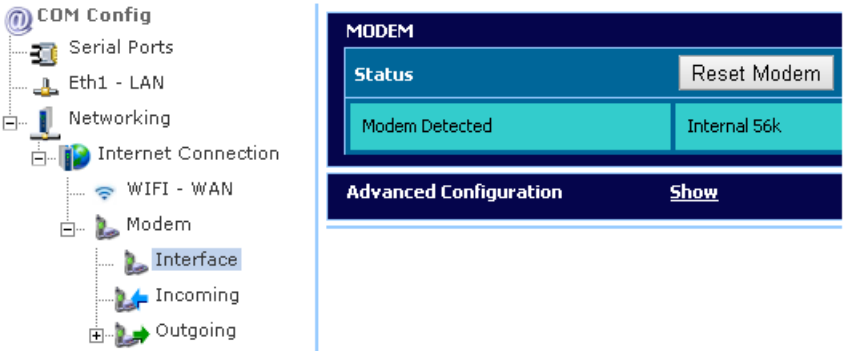


Figure 85: PSTN Modem Interface

After having encoded your parameters, go to the bottom of the page to Update

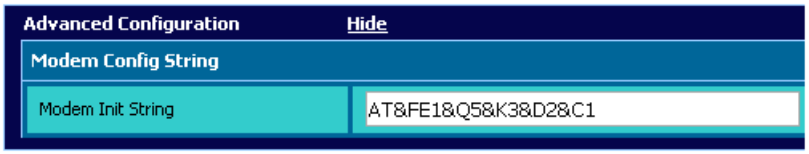
Control	Description
Status	
	Reset the modem. After reset, the modem detection is relaunched
Modem Detected	Textual description of the detected modem The text: "*Internal*", followed by the modem type or speed (i.e. "Internal 56k" in the screenshot above).
Advanced Configuration	
	Displays Advanced Modem Configuration
Modem Config String 	
	This string is used to configure and to initialize the modem. Any change in this string could prevent communications to succeed, only qualified users should modify it. Clearing this string will result to applying a well known default initialization string (after you have validated your choice by clicking on the ***Update*** button).

Table 60: PSTN Modem Interface Setup

For an eWON with a ISDN Modem

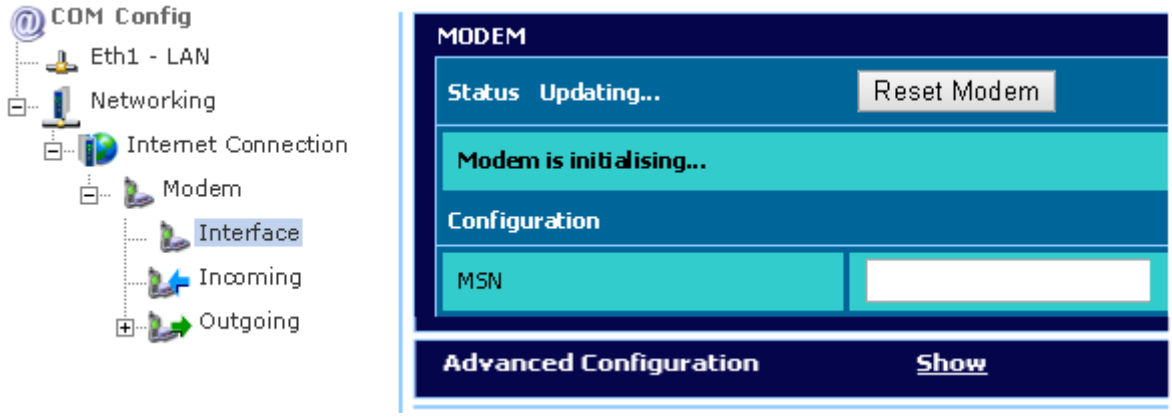


Figure 86: ISDN Modem Interface

After having encoded your parameters, go to the bottom of the page to Update

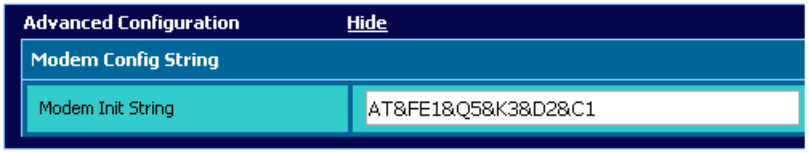
Control	Description
Status	
	Reset the modem. After reset, modem detection is relaunched
Modem Detected	Textual description of the detected modem The text: "*Internal*", followed by the modem type or speed (i.e. "Modem is initialising" in the screenshot above).
Configuration	
	Multiple Subscriber Number: The ISDN modem will "ring" (provide an alerting signal) to the MSN entered to establish connection. If no MSN is entered it will "ring" for all incoming voice calls on the line.
Advanced Configuration	
	Display all Advanced Modem Configuration
Modem Config String  	
	This string is used to configure and to initialize the modem. Any change in this string could prevent communications to succeed, only qualified users should modify it. Clearing this string will result to applying a well known default initialization string

Table 61: ISDN Modem Interface Setup

6.2.1.4.2 Incoming (PPP Data connection)

This group contains the PPP(Point to Point) setup of the eWON that configures the PPP parameters for the server function of the eWON.

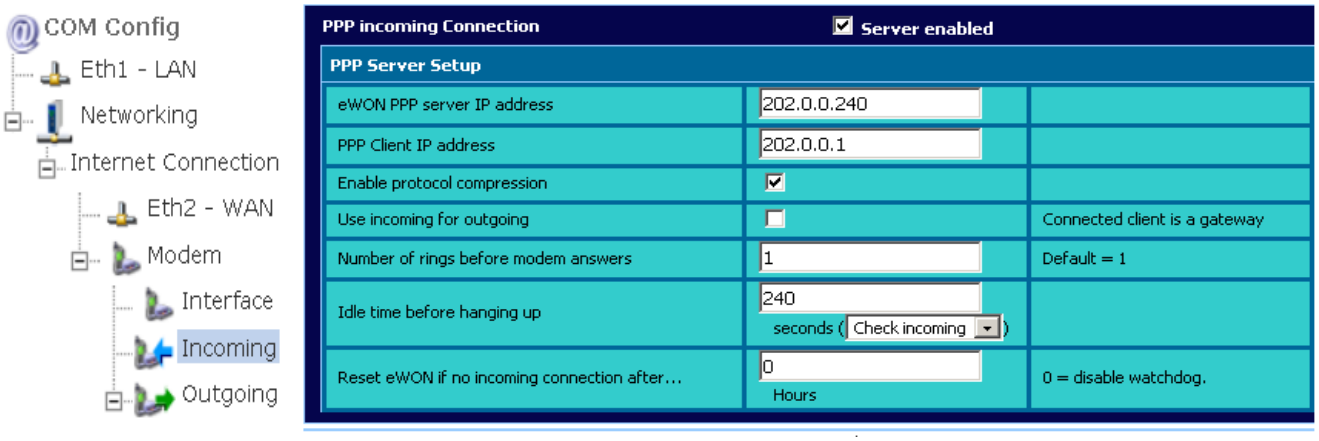


Figure 87: PPP Incoming Connection Interface

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
PPP incoming Connection	
"Server Enabled" Checkbox	Allows incoming PPP connections
PPP Server Setup	
eWON PPP server IP address	PPP server Internet protocol (IP) address of the eWON. Use this IP address to connect to the eWON using a RAS connection.
PPP client IP address	Type the IP address that the eWON will allocate to the RAS client to establish the communication.
Enable protocol compression	Enables the compression negotiation request when an incoming call occurs. This includes all the compression modes known by the eWON PPP engine (Van Jacobson, header compression,…).
Use incoming for outgoing	When checked, this ensures that when an incoming call is undergoing, no external event, such as alarm Email, will drop the line in order to initiate a new connection. If an alarm has to be sent through the PPP connection (FTP, Email, …), the current PPP link will be used. Be aware that SMS alarms will always drop the line, whatever the value of this checkbox. On the other hand, if this box is unchecked and an Email has to be sent while the connection has been established by a user to browse the eWON, if the Email can be sent through the Ethernet link, the PPP link will NOT be dropped. **note:** See also "Routing" on page 110
Number of rings before modem answers	You can fix the number of rings before the eWON answers. Default value is 1.
Idle time before hanging up	After this amount of time without data transfer on the PPP link between the eWON (any type of PPP packet) and a remote host (Computer), eWON will drop the line. Check incoming / Check incoming / Check outgoing Select between *Check incoming* or *Check outgoing* to select the monitored traffic. Note: this is the same parameter as for outgoing connection.
Reset eWON if no incoming connection after ...	Consider this parameter like a Watchdog parameter. To avoid eWON to stay stucked due to any modem reason or other, you can use this parameter to force an eWON to reboot if no incoming connection was performed after xxx Hours since the last connection.

Table 62: PPP Incoming Connection Setup

6.2.1.4.3 Outgoing (PPP Data connection)

This group contains the PPP(Point to Point) setup of the eWON that configures the outgoing ppp connection to a server.

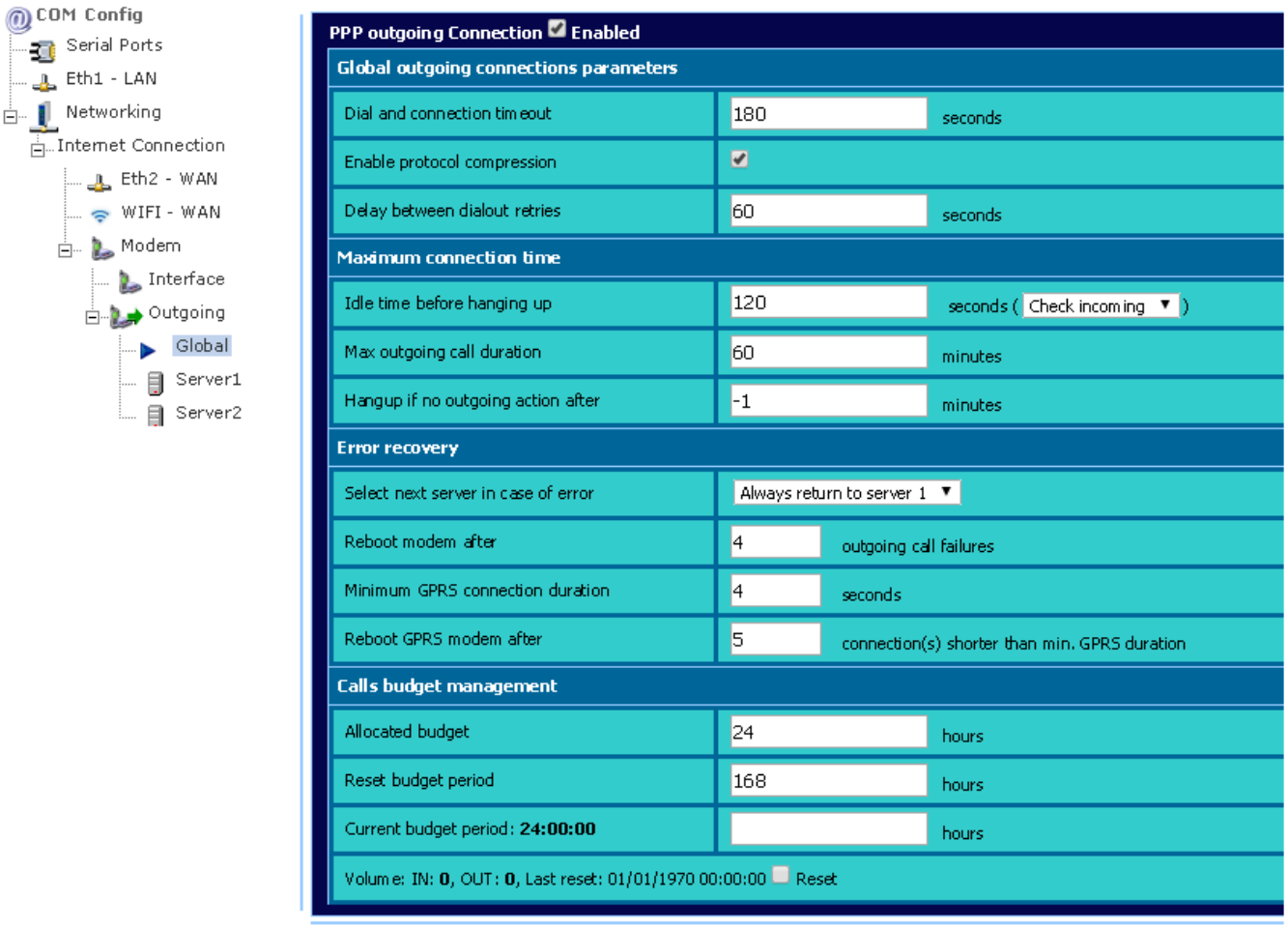


Figure 88: Global Modem Outgoing Interface

After having encoded your parameters, go to the bottom of the page to Update

Table 63: Outgoing Calls Configuration Controls Se

Control	Description
"PPP Outgoing Connection" Checkbox	Allows outgoing PPP connections
Global Outgoing Connection Parameters	
Dial and connection timeout	Time allowed for the whole establishment of the PPP link to be up. This means modem call, modem negotiation, PPP negotiation and logon. This time includes all trials on each server. This is thus a global time.
Enable protocol compression	Enable the compression negotiation request when an outgoing call occurs. This includes all compression modes known by the eWON PPP engine (Van Jacobson, header compression,…).
Delay between dialout retries	In case of an unsuccessful attempt to establish the outgoing communication, then eWON will retry to establish it again. This parameter will allow you to define the amount of time the eWON will wait to try and establish again the outgoing action.
Maximum Connection Time	

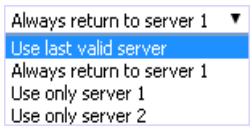
Idle time before hanging up	eWON will hang up after this amount of time if no data transfer occurs on the PPP link between the eWON (any type of PPP packet) and a remote host (Computer).  Select between *Check incoming* or *Check outgoing* to select the monitored traffic. Note: this is the same parameter as for incoming connection.
Max outgoing call duration	The maximum amount of time of the outgoing call. When this amount of time is reached, then the eWON stops the PPP communication.
Hang up if no outgoing action after	When a PPP link is triggered by an outgoing action (not by DialOnDemand), you can force the interruption of the line immediately after the actions (set 0) or let the PPP active for an amount of time (set >0). The PPP link will be shut down after the x minutes even if transfers are in progress. The *Idle time before hanging up* is always active.
Error Recovery	
Select next server in case of error	When the call to a server failed, you can choose the behavior of the next call. eWON will be configured to: 
Reboot modem after	Consider this parameter like a Watchdog parameter. To avoid eWON to stay stucked due to any modem reason, you can use this parameter to force a new detection of the modem after xxx outgoing calls failure.
Allocated Budget	This is the allocated time budget for outgoing calls. When a communication initiated by the eWON is in progress, the current period budget (remaining time) is reduced. When all the time budget is used, the eWON will drop the line.
Reset budget period	This is the time allowed in order to use the budget. After the call period is over, a new period is started and the new period timer is reset to this value. In the above example, this means that the current budget period is reset to 24 hours each 168 hours. The reset period is restored to its value each time one of the three configuration fields is modified.
Current period budget	This is the remaining call budget for the current period, expressed in hours:min:sec. A new budget can be provided; this restarts a new reset period. For example, in the above example 24 hours are remaining, if we force 100 hours as call budget, the reset period is reset. This means that for the newly started period, 100 hours are allocated. A new period will start again in a delay of 168 hours.
Current VOL IN/OUT info Reset	Information: counters the volume of bytes transmitted (IN and OUT) You can reset the counter by checking the 'Reset' box.

Table 64: Call Budget Management Setup

6.2.1.4.3.1 Primary & secondary servers

Two different servers can be set up: the following parameters are the same for both servers.

That's ensure that the eWON can find a way out for PPP link if a server is down.

By default, the primary server is always dialed first. (see Global Modem Outgoing Interface to change that setting)

If the connection cannot be established, the eWON tries the second server. If it fails, then it toggles back to the primary server.

This is done until the dial Out timeout is reached.

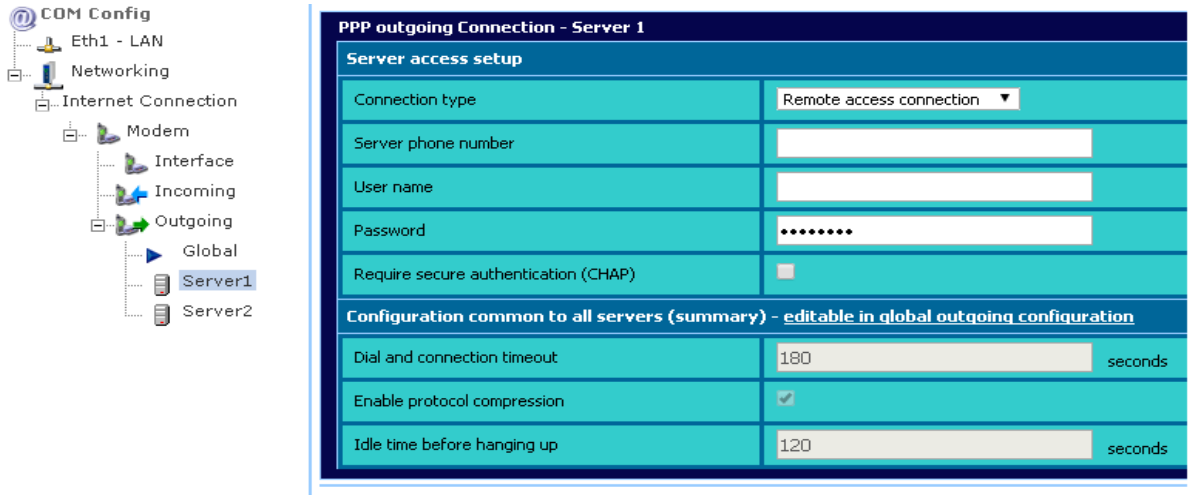


Figure 89: Modem Outgoing Server Interface

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
PPP Outgoing Connection (Server 1 or 2)	
Connection type	For PPP, select Remote access connection. **Note:** Only present if the eWON has also another kind of modem (GSM)
Server phone number	The complete phone number of the server. A coma (,) can be used to insert a pause (can be useful i.e. if you have to go through a pabx).
User Name	The User name of your ISP login for PPP link establishment.
Password	The Password linked to the above login for PPP link establishment.
Require secure authentication (CHAP)	If this box is checked, then the eWON explicitly requests CHAP authentication for the PPP link. If the other side cannot do CHAP, no connection will be made. If this box is left unchecked, then PAP (clear text password) is used.
Configuration Common to all servers	
Clicking on "editable in global outgoing configuration" send you to the ""Global Modem Outgoing Interface" on page 48" **Note:** The settings are greyed, their configuration depends on another section.	
Dial and Connection Timeout	You can define a waiting delays before connection or dial attempt expire Default value is 180 seconds
Enable Protocol Compression	Allow the modem to transmit data faster than its basic rate would imply Activate by default
Idle Time Before Hanging Up	You can use this setting to configure how long the eWON will allow a dial-up connection to remain idle before it disconnects the call Default value is 120 seconds

Table 65: PPP Outgoing Connection Setup

6.2.1.5 ADSL

The eWON ADSL modem supports the ADSL2+ standard.
The configuration is very simple and provides compatibility with PPPOE and PPPOA with VCMux and LLCMux implementations.

When the ADSL modem is connected, the eWON will have a WAN interface connected to the Internet.
It will be able to act as a gateway on the Internet and will be accessible from Internet on any port.

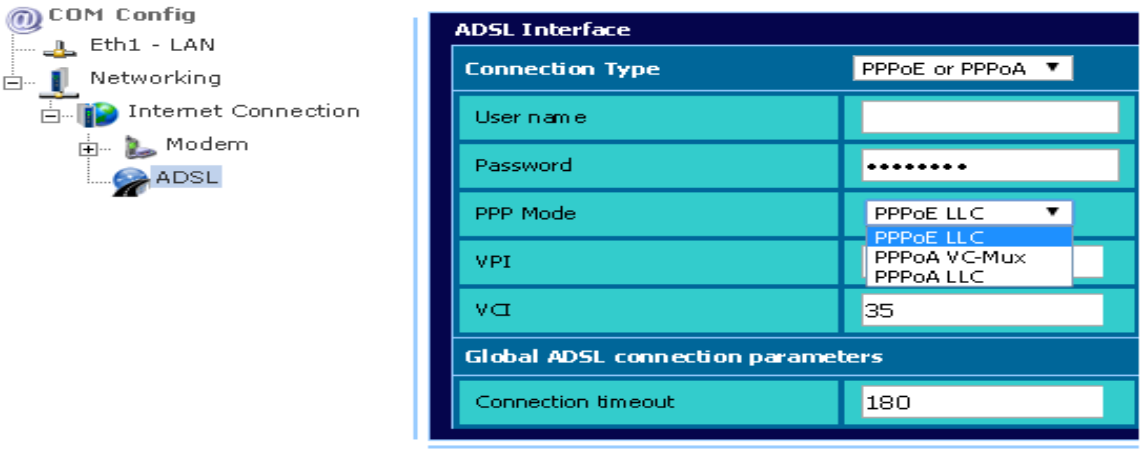


Figure 90: ADSL Interface

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
Connection Type	
Combobox "Connection Type"	Always "PPPoE or PPPoA" PPPoE: Point-to-Point Protocol over Ethernet PPPoA: Point-to-Point Protocol over ATM
Username	Provided by the operator with your ADSL account
Password	Provided by the operator with your ADSL account
PPP Mode	Provided by the operator with your ADSL account. Choose between: • **PPPoE LLC** • **PPPoA VC-Mux** • **PPPoA LLC**
VPI	Virtual Path Identifier is provided by operator (default: 8)
VCI	Virtual Channel Identifier is provided by operator (default: 35)
Global ADSL connection parameters	
Connection Timeout	The maximum time the eWON will wait for the ADSL WAN to be established. After this time, the connection will fail. If Maintain Connection is selected, then the eWON will retry continuously. See Figure 31: "Internet connection setup"

Table 66: ADSL InterfaceSetup

6.2.2 VPN

The VPN Connection Setup submenu allows to configure your eWON as a VPN Client or a VPN Server

Note: eWON embeds wizards simplifies the VPN configuration. For a standard use of the eWON, it will be enought to run this wizard. The required fields will be automatically filled in.

The upper page of the windows displays the status of the Modem connection.

Note: This page will be refreshed every 15 seconds, displaying "Status updating ..."

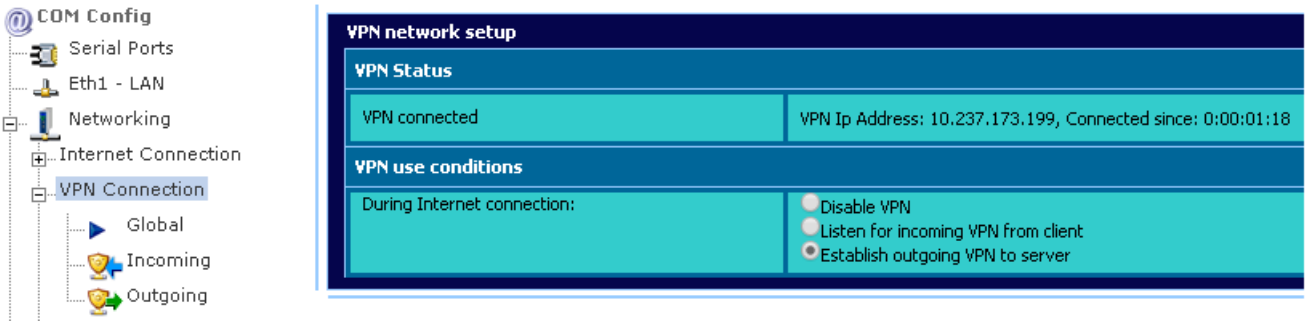


Figure 91: VPN Network Setup

Control	Description
VPN Network Setup	
VPN Status	Displays Status of the VPN connection: **- Not connected** **- VPN Ip Address + elapsed time since connected**
VPN Use Conditions	During an Internet connection the eWON can: **• Disable VPN Capacity** **• Listen for incoming VPN from client (Act as a VPN server)** **• Establish outgoing VPN to server (Act as a client of a VPN server)**

Table 67: VPN ConnectionParameters

6.2.2.1 VPN Global

This submenu allows to configure your general VPN settins as In/Out port or type of VPN

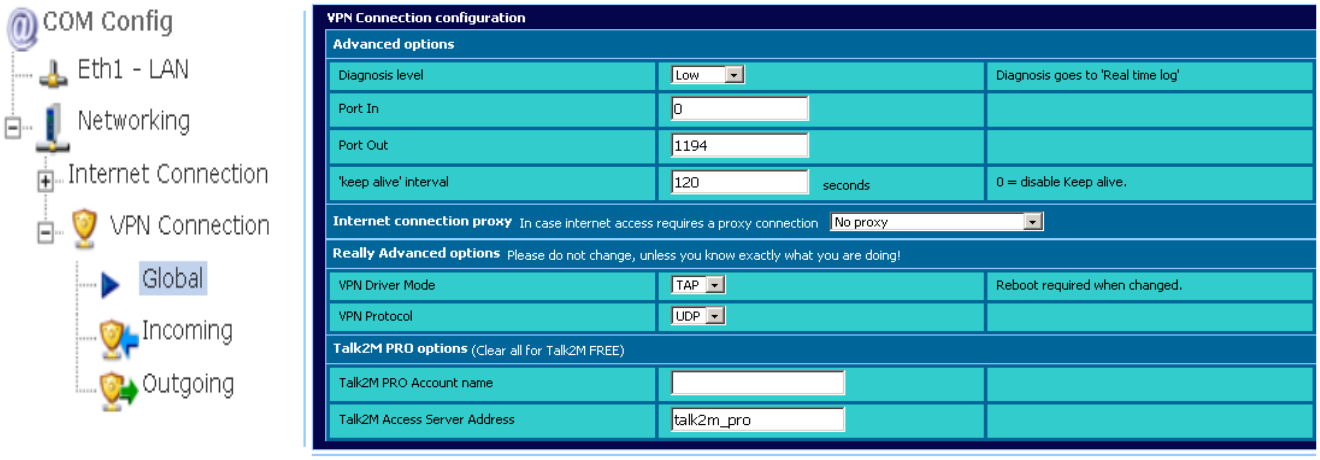


Figure 92: VPN Global setup page (without Internet connection Proxy)

After having encoded your parameters, go to the bottom of the page to 

Control	Description
Advanced Options	
Diagnosis level	Choose the level of diagnosis reported in the "Real Time Log" on page 187. Level possible: *None, Low, Medium* or *High* **Note:** High level will significantly slow down the general eWON behaviour. Only use for debugging purpose.
Port In	The TCP Port number where eWON will listen all incoming VPN traffic. **port <> 0** Only this port could be use for incoming VPN traffic. **0 = default VPN port (1194)**
Port Out	The TCP Port number where eWON will send all outgoing VPN traffic (default 1194)
'Keep alive' interval	Set at which interval (in second) the eWON send a short packet to maintain the connection opened.
Combobox "Internet Connection Proxy"	If the Internet access requires a proxy connection See "VPN Internet connection Proxy" on page 60 for more information
Really Advanced Options	
VPN Driver Mode	Select the VPN driver mode you need. Available mode are: • **TAP** • **TUN**
VPN Protocol	Select the VPN protocol you need. Available protocol are: • **UDP** • **TCP**
Talk2M Options	
Talk2M PRO Account name	Holds the Talk2M-Pro Account name used by eWON. **Note:** During the Talk2M wizard execution: if an activation key has been used, field will be empty.
Talk2M Access Server Address	Holds the name or IP address of the Talk2M Access Server you want to use. Some place holders names are defined: • **talk2m_pro:** To connect to Free+ or Pro Talk2M accounts • **talk2m_free_eu:** Legacy Talk2M Free Server Europe. • **talk2m_free_us:** Legacy Talk2M Free Server USA.

Table 68: VPN Connection Configuration

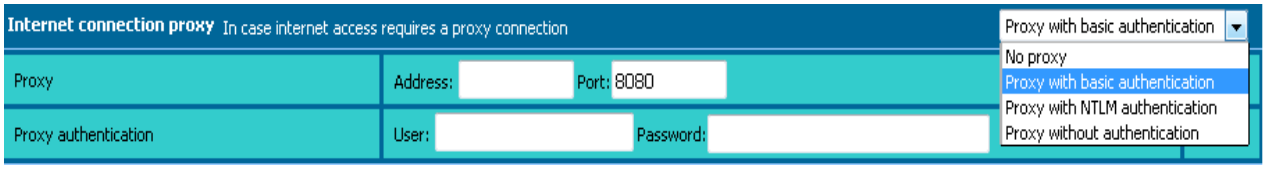


Figure 93: VPN Internet connection Proxy

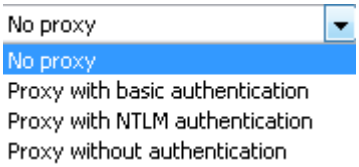
Control	Description
Advanced Options	
Internet connection Proxy	If the Internet access requires a proxy connection, the VPN (and only VPN) is able to use it. This Proxy could be of 3 types:  **Note:** Talk2M wizard will configure/detect the Proxy settings.
Proxy address	Enter the IP address of the Proxy server (not the name)
Proxy port	Enter the port of the Proxy server
Proxy authentication	Enter the User name and password required to access the Proxy server

Table 69: VPN Internet connection Proxy

6.2.2.2 VPN Incoming

The eWON can be set to "listen" for incoming connections, you can directly connect your computer (or another eWON) to the eWON and establish a secured VPN channel.

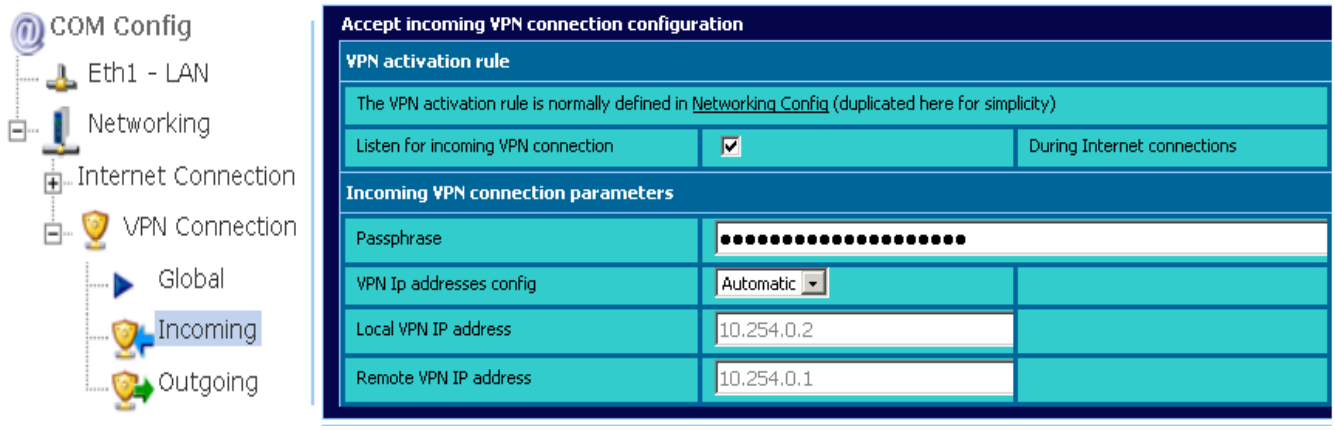


Figure 94: VPN Incoming setup page

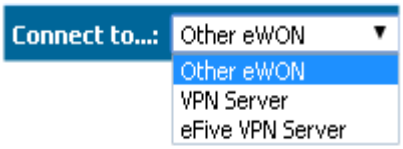
After having encoded your parameters, go to the bottom of the page to Update

Control	Description
"Listen for Incoming VPN Connection" Checkbox	Allows listening of incoming VPN connection when Internet connection is running.
Incoming VPN Connection Parameters	
Passphrase	Enter the passphrase that will be used as certification for the incoming connection.
VPN IP addresses config	Choose between **automatic/Manual** **Automatic**: the IP addresses used will be set automatically **Manual**: the IP addresses used are defined statically with the 2 following parameters.
Local VPN IP address	IP address taken by eWON (in manual config)
Remote VPN IP address	IP address taken by the remote device, PC or eWON, (in manual config)

Table 70: Accept incoming VPN configuration

6.2.2.3 Outgoing VPN

Outgoing VPN can work in three schemes:



- **build a VPN connection between two eWONs**
- **connect to a VPN Server to join a VPN Network**
- **connect to an eFive (*) VPN server**

6.2.2.3.1 VPN between two eWONs

In this case, the ***Remote VPN WAN address or name*** field has to be set to ***Defined manually***.
The "Talk2M defined" parameter is for Talk2M use only.

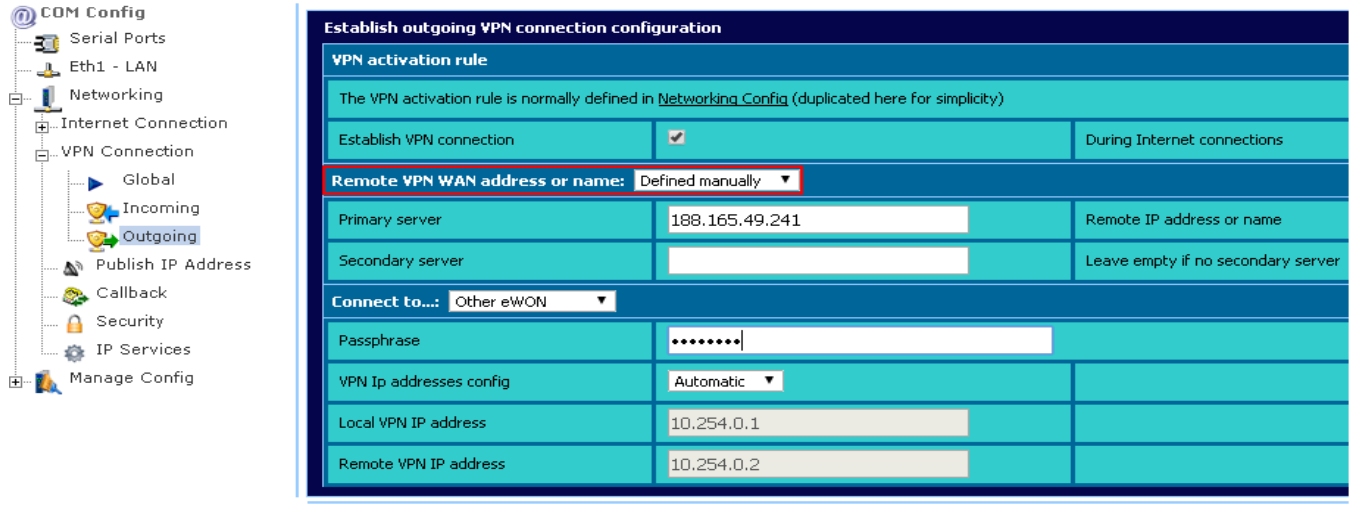


Figure 95: VPN Outgoing Setup Page (Connect to other eWON)

Control	Description
VPN activation rule	
"Establish VPN Connection" Chekbox	Allows to enabling Outgoing VPN connection.
Remote VPN WAN address or name	Field must be set to ***Defined Manually***
Primary Server	The address or Name of the primary VPN Server
Secondary Server	The address or Name of the secondary VPN Server (called if primary failed)
Connect to ...	Other eWON
Passphrase	Enter the passphrase that will be used as certification for the outgoing connection.
VPN IP addresses config	Choose between **automatic/Manual** **Automatic**: the IP addresses used will be set automatically **Manual**: the IP addresses used are defined statically with the 2 following parameters.
Local VPN IP address	The IP address taken by eWON (in manual config)
Remote VPN IP address	The IP address taken by the remote device, PC or eWON, (in manual config)

Table 71: Outgoing VPN with other eWON

6.2.2.3.2 VPN connection to a server

For Talk2M configuration you can skip this screenshot and go to the next one.
Without Taklk2M (Taklk2M wizard not executed) the screen looks like this:

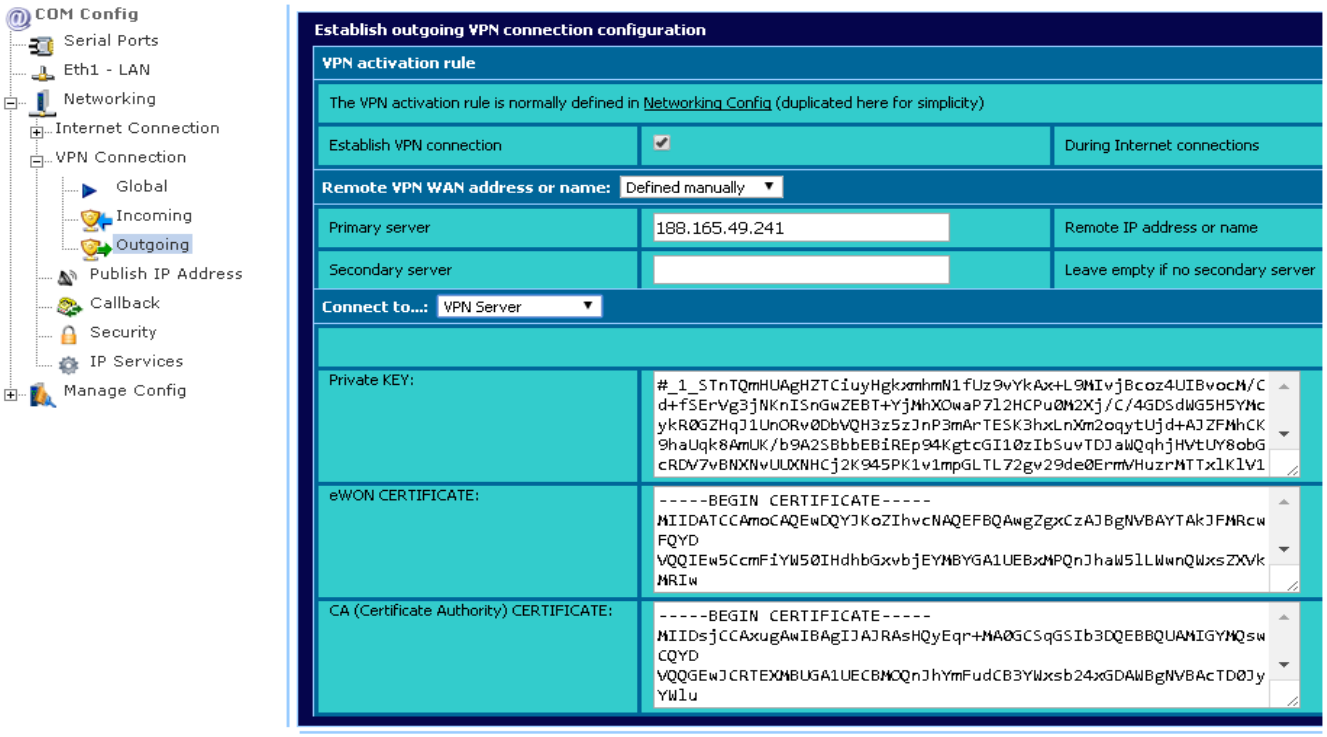


Figure 96: VPN Outgoing Setup Page (Connect to VPN Server)

Control	Description
Connect to...VPN Server	
Remote VPN WAN address or name	Field must be set to ***Defined Manually*** This field is for Talk2M use only.
Primary Server	The address or Name of the primary VPN Server
Secondary Server	The address or Name of the secondary VPN Server (called if primary fails)
Connect to ...	VPN Server
Private key	Place here your Private KEY
eWON Certificate	Place here your eWON CERTIFICATE
CA (Certificate Authority) CERTIFICATE	Place here your CA CERTIFICATE

Table 72: Outgoing VPN with VPN Server

Note for Talk2M users:

This is the interface *showing* the configuration parameters for a VPN connection through Talk2M. When the Talk2M wizard of the eWON is used, these fields are populated automatically and require no special attention.

Important!

The field ***Remote VPN WAN address or name*** is required. It is automatically set to ***Talk2M defined*** when running the Talk2M wizard.
This field is meant to have the possibility to change server afterwards either changing from free to pro account, for maintenance purposes, or for any reason that would make that the server would be temporarily unavailable.

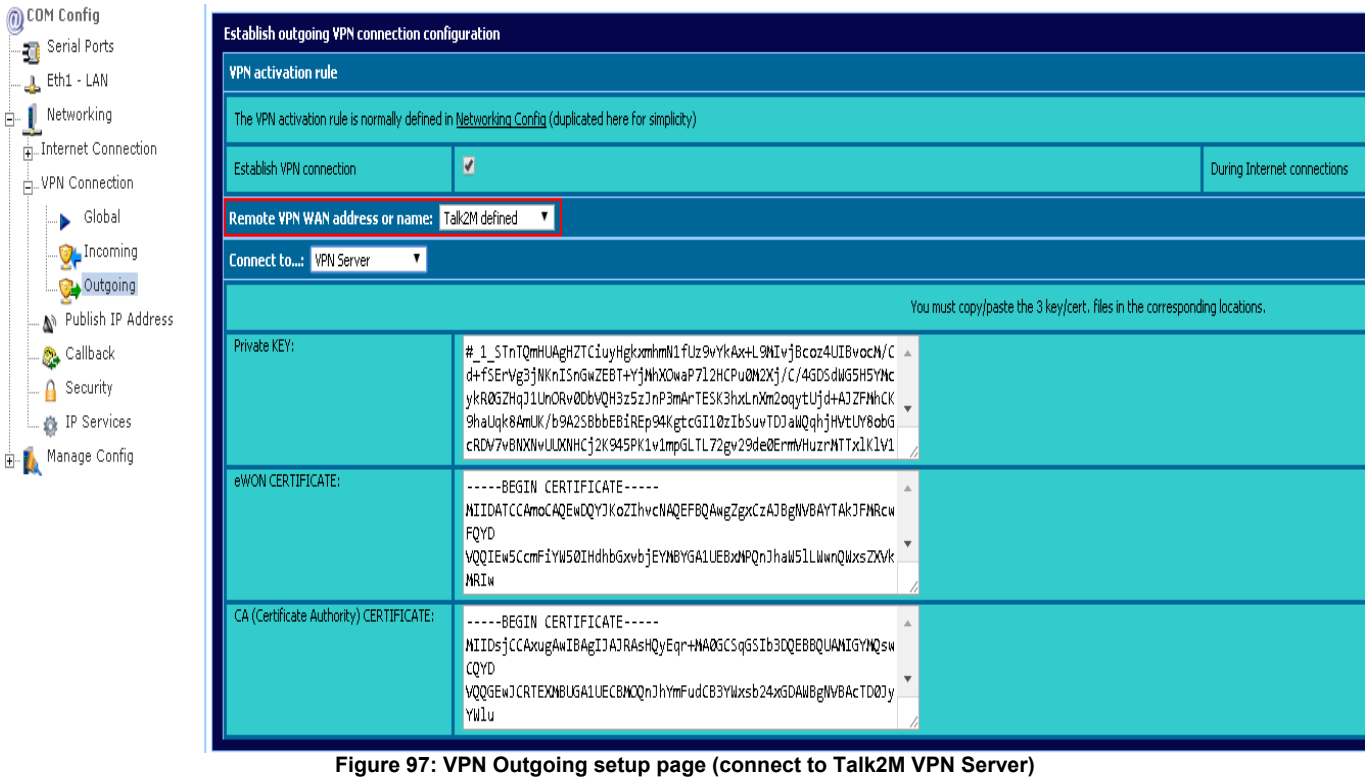


Figure 97: VPN Outgoing setup page (connect to Talk2M VPN Server)

Control	Description
Connect to...(Talk2M) VPN Server	
Remote VPN WAN address or name	Talk2M defined
Private key	Place here your Private KEY
eWON Certificate	Place here your eWON CERTIFICATE
CA (Certificate Authority) CERTIFICATE	Place here your CA CERTIFICATE

Table 73: Outgoing VPN with Talk2M VPN Server

6.2.2.3.3 VPN connection to an eFive Server

This is the interface *showing* the configuration parameters of a VPN connection to an eFive Server. When the eFive configuration wizard of the eWON is used, these fields are populated automatically and require no special attention. **Important!** The ***Remote VPN WAN address or name*** must be set to ***Defined manually***.

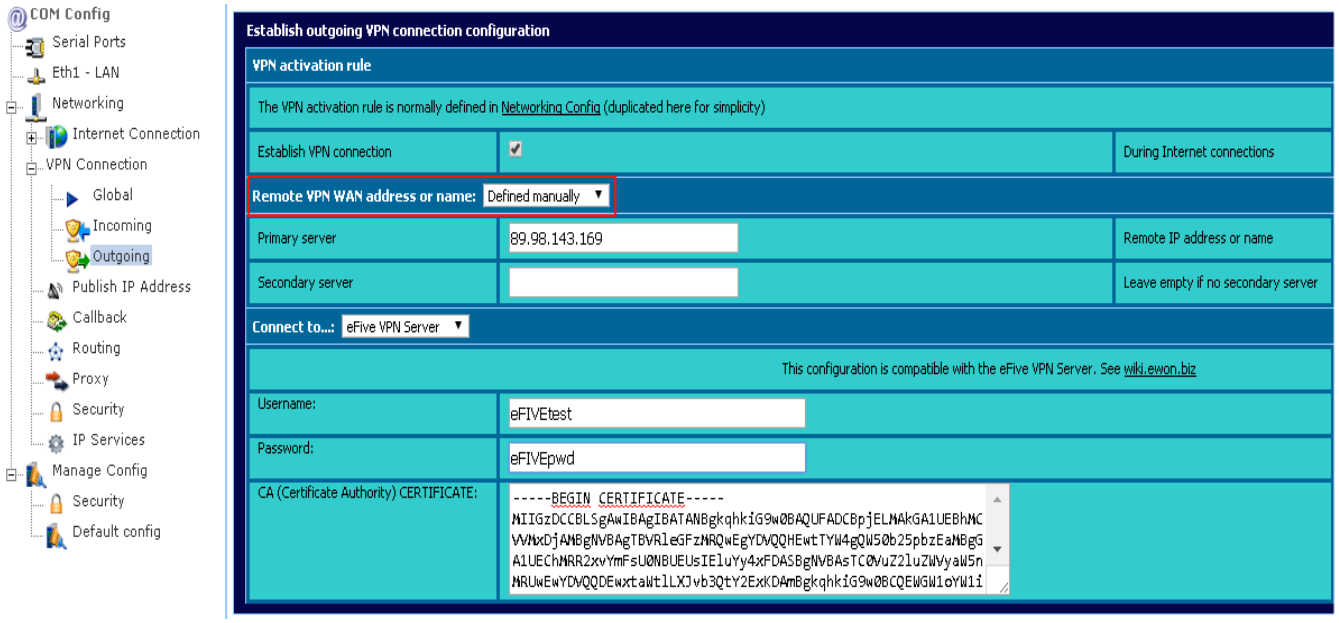


Figure 98: VPN Outgoing setup page (connect to eFive VPN Server)

Control	Description
Connect to...eFive VPN Server	
Remote VPN WAN address or name	Field must be set to ***Defined Manually***
Primary Server	The address or Name of the primary eFive VPN Server
Secondary Server	The address or Name of the secondary eFive VPN Server (called if primary failed
Connect to ...	eFive VPN Server
Username	Place here the user of the VPN account
password	Place here the password of the VPN account
CA (Certificate Authority) CERTIFICATE	Place here the CA CERTIFICATE of the eFive VPN Server

Table 74: Outgoing VPN with Talk2M VPN Server

6.2.3 Publish IP address

When the eWON connects to the Internet (automatically or by CallBack) , it probably receive a different IP address at each connection. It may be required to inform you of its new WAN address

Note: Not required for the Talk2M connections..

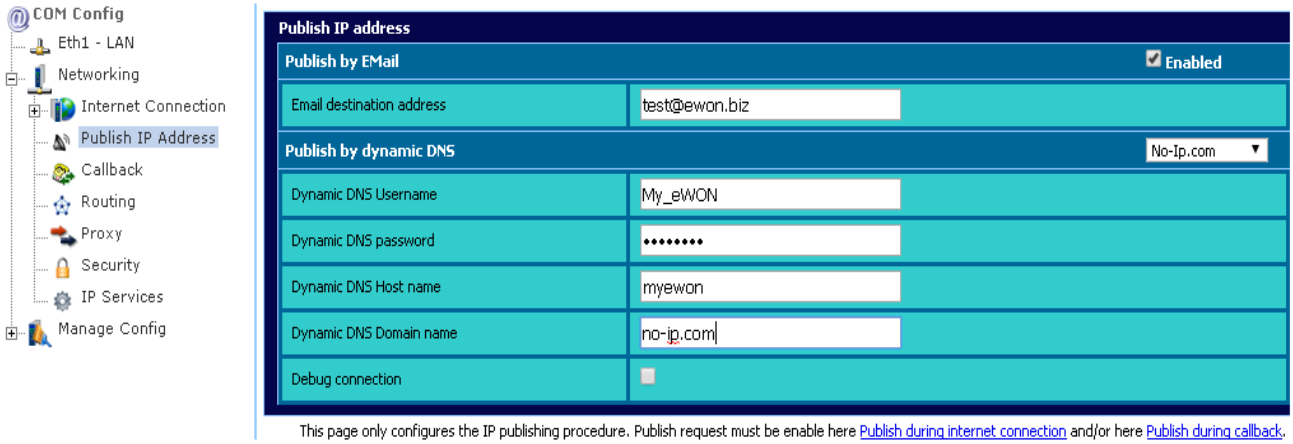


Figure 99: Publish IP address configuration

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
Publish by Email	
"Email destination address" Checkbox	This field allows you to define the destination address that will receive the notification.
Publish by dynamic DNS	
"Dynamic DNS Provider" Combobox	Choose your Dynamic DNS provider among the list beside: No-Ip.com Disabled No-Ip.com DynDns.org Ods.org Tzo.com EasyDns.com Dyns.cx ZoneEdit.com A Dynamic DNS provider are services that allows you to publish on the Internet a domain name that matches the IP address of your PC (fix or dynamic type).
Dynamic DNS Username	Put here your Username of the Dynamic DNS provider.
Dynamic DNS password	This field allows you to enter a valid password for the Dynamic DNS server you want to use.
Dynamic DNS Host name	This field allows you to enter a valid host name for the Dynamic DNS server that you want to use e.g. *myewon*.
Dynamic DNS Domain name	This field allows you to enter a valid domain name for the Dynamic DNS server you want to use e.g. *no-ip.com*. In our example, your eWON will be accessible at *http://myewon.no-ip.com*
Debug connection	Check it to record debug info about DynDns negotiation in the "Diagnostic->RealTimeLog" page.

Table 75: Publish IP address parameters

Note: This page configure the way you publish your IP address but the Publish IP address request must be enable on the Internet connection setup page See "Internet Connection" on page 79

6.2.4 Callback

Warning: depending on your eWON's version ("eWON Version" on page 244)

This menu contains the configuration controls that the eWON will use to perform callback operations.

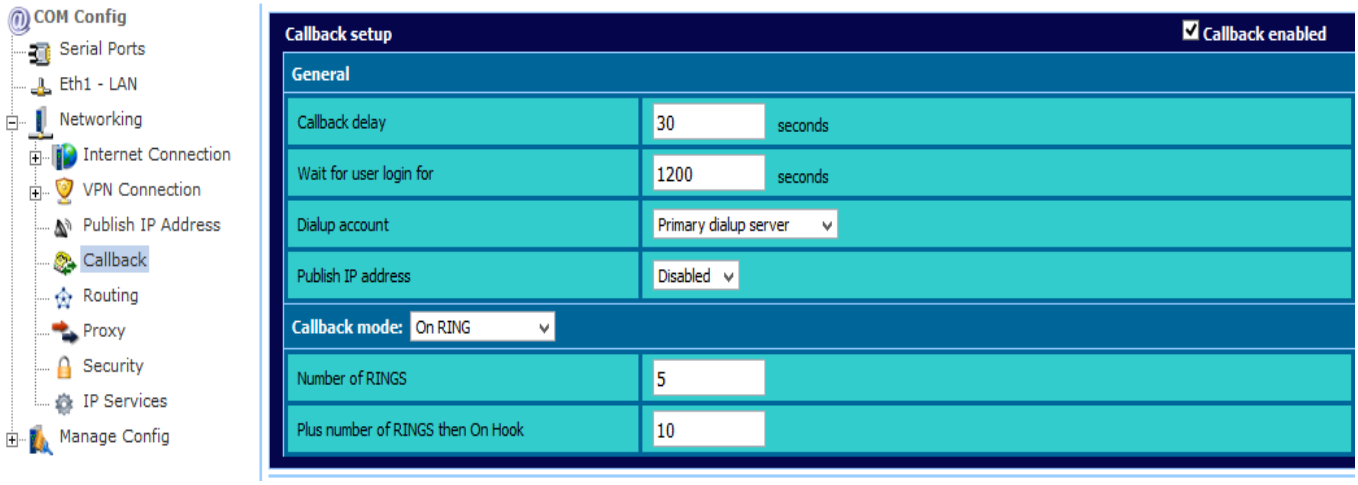


Figure 100: Callback configuration

Control	Description
General Callback Config	
	If this box is checked, then the eWON callback feature is enabled. This means that the eWON can be triggered by an external event in order to call a given phone number in order to establish a PPP link. This permits to let the eWON's phone line pay for the call, with a budget maintained by the eWON itself. This also ensures more security if you are calling back a private server. Do not forget to enable outgoing calls in the dialup configuration.
Callback delay	Once the eWON has been triggered, it will wait for this amount of time before dialing out. This is useful in order to release the phone line or perform any other action.
Wait for user login for	Once the eWON has been triggered, it will wait for this amount of time in order for the user to log-in. Otherwise, the call is dropped. It is clear that this delay has to be greater than the sum of the callback delay and the call establishment.
Dialup account	This list box permits to choose the server used for callback. The "User's request account" option can not be chosen when the trigger mode is "Ring", because the eWON does not know the server data at this time.
Publish IP address	Enables/Disables the publication of the IP address once the eWON is connected to the Internet. The publishing parameters are defined in the "*Publish IP Address*" menu (previous chapter).
Callback Mode	
ON RING	This is a mutual exclusive option with Callback on User's request. Selecting this option disables the User Callback mode. When the eWON sees an incoming call, it will trigger its callback task.
Number of RINGS	(minimum value is 2): This is the number of rings needed before the eWON callback function is triggered. Assuming that a value of 3 has been entered, the eWON will generate a callback if someone calls the eWON and lets the phone ring 5 times.
Plus number of RINGS then On Hook	(minimum value is 5): This is the number of rings that are necessary to avoid the callback trigger. Assuming that a value of 5 has been entered, if the user tries to call the eWON directly, this can be achieved by ringing the phone more than the sum from the two values. With the current example, the eWON will pick up the line after more than 3+5=8 rings are detected.

Table 76: general callback configuration controls

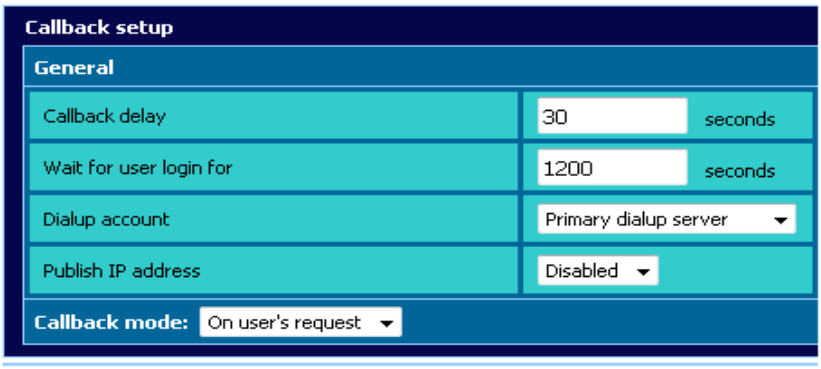


Figure 101: Callback configuration in user's request mode

Control	Description
Callback Mode	
ON User's request	When this option is selected, the eWON accepts the incoming calls and then the user can request a callback to a defined server. When connecting to an eWON with Callback on user's request, you will get the following webpage. You will start the callback by using the Callback button or abort (hang up the phone line) by using the "Close PPP Connection" button. The callback can be performed with the parameters specified in the user's configuration page. The delay the eWON will wait before initiating the callback can be specified.

Table 77: Callback User's Request Mode

Note: When connecting to an eWON with Callback on user's request, you will get the above webpage

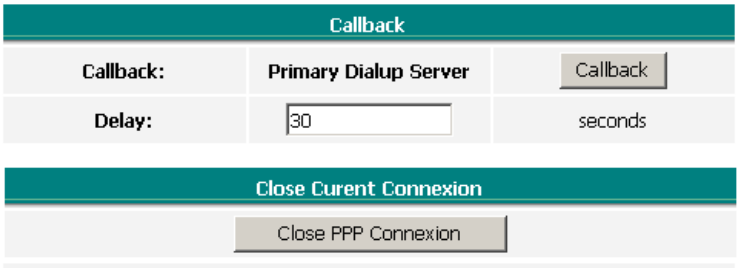


Figure 102: Callback on user's request at logon.

You will start the callback by using the Callback button or abort (hang up the phone line) by using the "Close PPP Connection" button.

Please check the callback configuration that has been defined in the user's configuration (see the below screenshot), especially if you enable the "Callback on user's request" checkbox in the callback configuration window.

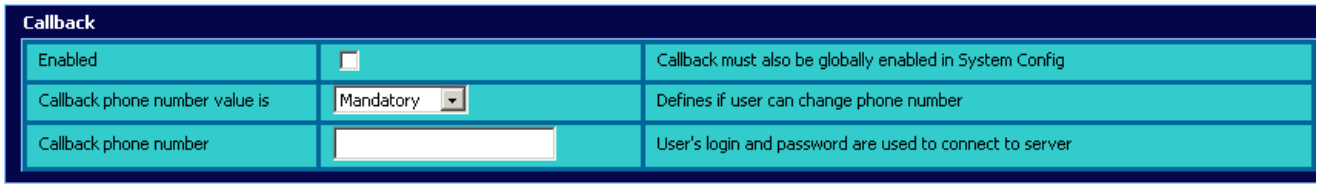


Figure 103: eWON User callback setup

6.2.5 *Routing*

Warning: The availability of routing features depends on the eWON versions (c.f. Table 10.5 on page 234)

This page contains the router configuration of the eWON..

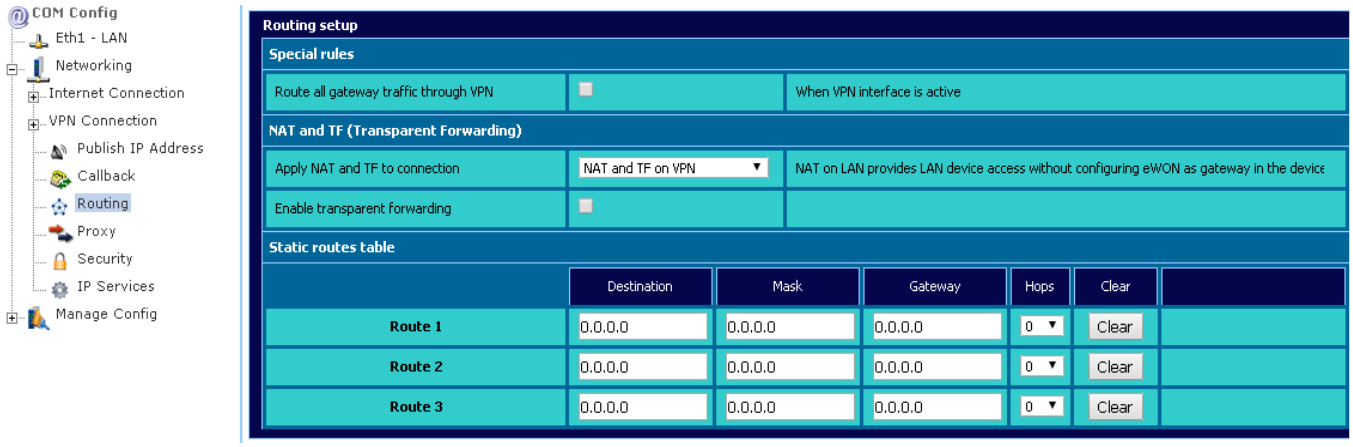


Figure 104: Routing setup page (on eWON CD Serie & Flexy 20x with WAN Extension)

After having encoded your parameters, go to the bottom of the page to Update

Note: Changes in this setup page will be effective from next WAN connection.

Control	Description
Special rules	
"Route all gateway traffic through VPN" Checkbox	Allows to route ALL gateway traffic (expect static routes) through the active VPN interface. If unchecked, the traffic could take the VPN route or the WAN route.
NAT and Transparent Forwarding	
Apply NAT and TF to connection	This feature enables the Network Address Translation (NAT) and Transparent Forwarding (TF).You can choose on which interfaces this NAT and TF will be used: • **LAN (Plug'n Route),** • **VPN,** • **WAN** • **Disable**
"Enable transparent forwarding" Checkbox	Allows the transparent forwarding feature of the eWON.

Table 78: Routing setup without transparent forwarding

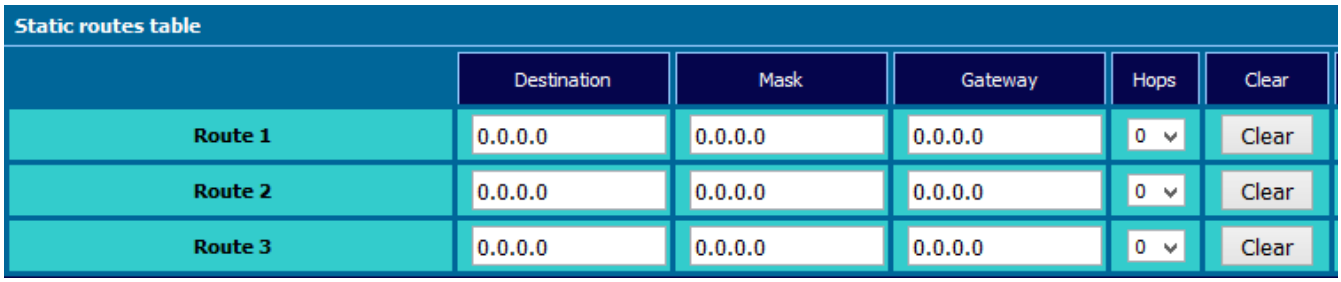


Figure 105: Static Routing Table

Control	Description
Static routes table	
Destination & Mask	The destination IP address and the mask represent a range of addresses that must be routed through a specific gateway. ex: Destination =192.168.1.0 & Mask=255.255.255.0 correspond to the range of address between 192.168.1.0 and 192.168.1.255
Gateway	This is the IP address of the gateway that must be used to route the range of address defined by Destination/Mask. **Important:** the Gateway address must be in the IP range of the eWON interface (Wan or Lan). In other words, the Gateway must be accessible by the eWON.
Hops	This is the number of hops to reach the destination using the given route. This parameter will define the priority of the routes. The eWON local routes (routes that do not require the emission of a packet through an interface) have a 0 hop metric. A route where the destination can be reached through the interface has a 1 hop metric. The higher the metric is, the lower the route's priority will be.
Clear (button)	The clear button can be used to invalidate the route entry content and remove the route.

Table 79: Static routing tables

6.2.5.1 *Special Routing setup on older eWON models*

Older eWON (like 4001,4002) don't have VPN feature, "Routing setup" will displays another kind of menu with an IP forwarding option.

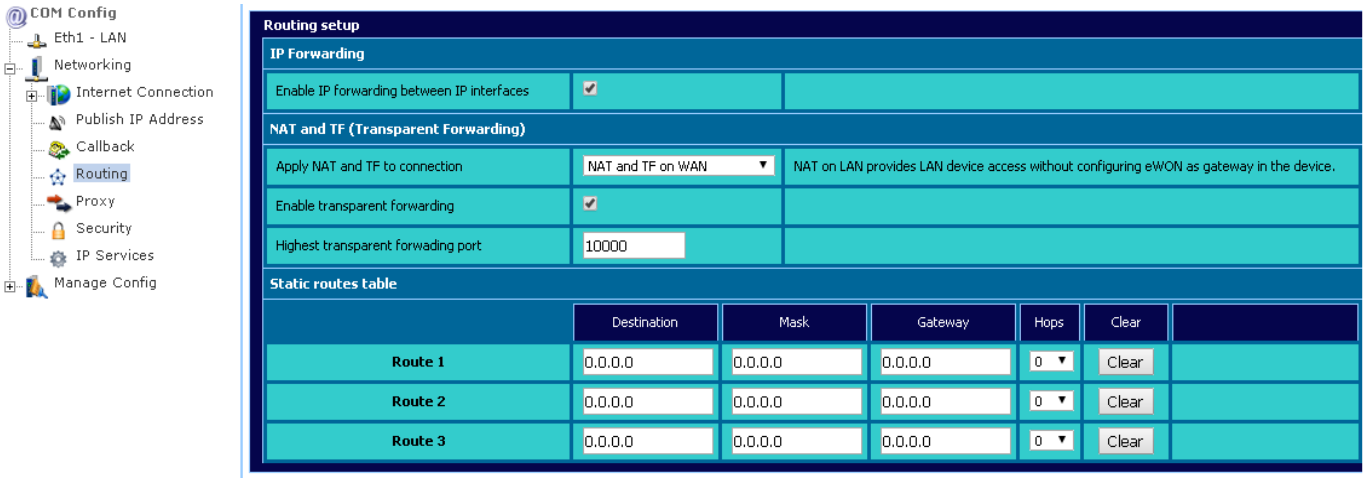


Figure 106: Routing setup page (on eWON 4001, 4002)

Control	Description
IP Forwarding	
"Enable IP Forwarding between IP interfaces" Checkbox	Allows forwarding between interfaces (LAN and PPP) **Note:** This means that a link can be performed between PPP and Ethernet IP packets. Please note that this is dangerous because it can connect your LAN directly to the Internet.
NAT and Transparent Forwarding	
Highest transparent forwarding port	Only a range of ports are forwarded transparently. You can control this range, from 0 to 32767 (Default is 10000). The above Ports will be directed to eWON itself. **Exception:** to allow to come back to the eWON website, the port 81 (by default) is excluded from this range.

Table 80: Routing setup with transparent forwarding

6.2.6 Proxy

6.2.6.1 Why a proxy feature?

Since firmware 5.2, the eWON has a built-in Proxy server.
The Proxy feature is similar to the transparent forwarding, with some advantages and some drawbacks.
To be precise, it is not exactly equivalent to the transparent forwarding that forwards all the ports (except the 81), but more like a "port forwarding" feature that would forward some ports.

The main advantage of the proxy implementation is that the *"proxy's destination device"* must NOT define the eWON as its gateway.

6.2.6.2 Comments on the proxy feature

- **Overhead**
  There is an important difference between a forwarded packet and a proxied packet . When the packet is forwarded, it is modified at a very low level of the stack, then it is immediately resent without any further interpretation, manipulation or storage.
  When the packet is proxied, the stack must first maintain storage for the proxied sockets, then every packet must walk the stack all way up to the proxy application, then all the way down to be resent.

  This means an additional load for the system.

- **Proxied ports must be known and configured**
  In "Forwarding" mode all ports are forwarded, there is no need to configure anything.
  In Proxied mode, the user must know what port(s) he wants to forward and what protocol (UDP,TCP, FTP) will flow on the port.

- **More intrusive content**
  As said before in "Forwarding" mode, the packet is resent "as received". If it contains 4 bytes, 4 bytes are resent. This is not true in the proxy mode as the received data are (at least may be) re-aggregated at the proxy level.
  Example: if the client sends a 4 bytes packet followed by a 2 bytes packet, then the proxy can resend a 6 bytes packet to the *"proxy's destination device"*. From a TCP point of view, there is no difference, but from a behavior point of view, there is a slight difference.

  One must check what protocol are considered here with the *"proxy's destination device"* and check if there is a chance that the proxy may disturb the client-*"proxy's destination device"* discussion.

6.2.6.3 Configuration.

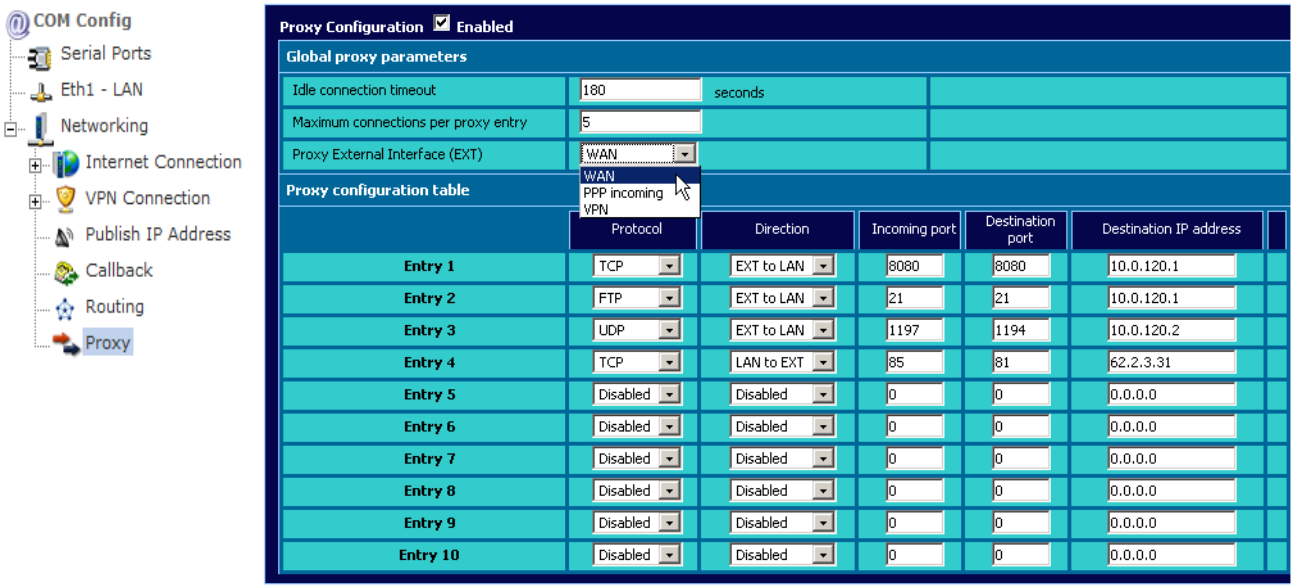


Figure 107: Proxy configuration page

All these parameters are in the comcfg.txt file:

Control *(param name in comcfg.txt file)*	Description
Global Proxy Parameters	
Proxy Configuration Enabled *(ProxyEnabled)*	Enables or disables the proxy feature. The proxy operation can be switched on or off at any time during the eWON operation without reboot. Any change in the configuration is applied as soon as the configuration is changed.
Idle connection timeout (ProxyIdleTO)	Each time a client opens a connection to the proxy, the connection is kept opened until the client explicitly closes it or until this timeout is elapsed without data being transferred on the socket. This is required if a client is for example switched off while the connection is active, the connection will be dropped and the memory recovered after the timeout is elapsed.
Maximum connections per proxy entry (ProxyMaxSock)	For each proxy entry, a maximum number of connections can be opened at a given time on a proxy port. This parameter defines the maximum.
Proxy External Interface (EXT) (ProxyExtItf)	Select the interface (*WAN*, *PPP incoming* or *VPN*) where the proxy rules are applied.
Control *(param name in comcfg.txt file)*	**Description**
Proxy Configuration table	
Protocol *(ProxyProto#)*	This is the type of protocol that the eWON will proxy to the given server. These protocols are handled differently and must be specified in the configuration. Available protocols are : • **Disabled (0)** • **UDP (1)** • **TCP (2)** • **FTP (3)** Although FTP is TCP, it must be specified. The FTP proxy will work for passive and active connections. REM: If ProxyProto is set to "disabled", then the full proxy entry will be disabled, regardless of the other entry parameter's values.
Direction *(ProxySide#)*	The eWON's proxy is completely symmetric, it can work in both directions. Usually the user will want to proxy from the EXT to the LAN in order to access a device on the LAN that has not the eWON as gateway. But a device can also connect to a server on the EXT without having the eWON as gateway. This is true as long as the server has a fixed IP address that can be entered in the Proxy configuration. Available directions are : • **Disabled (0)** • **EXT to LAN (1)** • **LAN to EXT (2)** REM: If ProxySide is set to "disabled", then the full proxy entry will be disabled, regardless of the other entry parameter's values.

Table 81: Proxy Global parameters table

Incoming port *(ProxyPort#)*	Port number on which the eWON will listen. For example, if the eWON must forward ports on a web server on port 80 and the client will connect to the eWON on port 8080, then *incoming port* (ProxyPort)=8080 and *Destination port* (ProxySrvPort)=80
Destination port *(ProxySrvPort#)*	Port number on which the eWON will connect when it receives a connection from the proxy client. This port will be the server port on device with the Destination IP address.
Destination IP address *(ProxySrvIpAddr#)*	The IP Address of the server the eWON will connect to when it receives a connection on its proxy port (ProxyPort). REM: If the Destination IP address is set to 0, then the full proxy entry will be disabled, regardless of the other entry parameter's values.

Table 82: Proxy Entry parameters table

Note:

There are 10 Proxy Entries, the # character found in the table above represent the index of the proxy entry, first entry has the index 1 (i.e.: ProxyProto1), the last entry has the index 10 (i.e.: ProxyProto10).

6.2.7 Security

You can define the Networking security level you need.
You can set security at three levels: WAN level, VPN level and at Transparent Forwarding level.

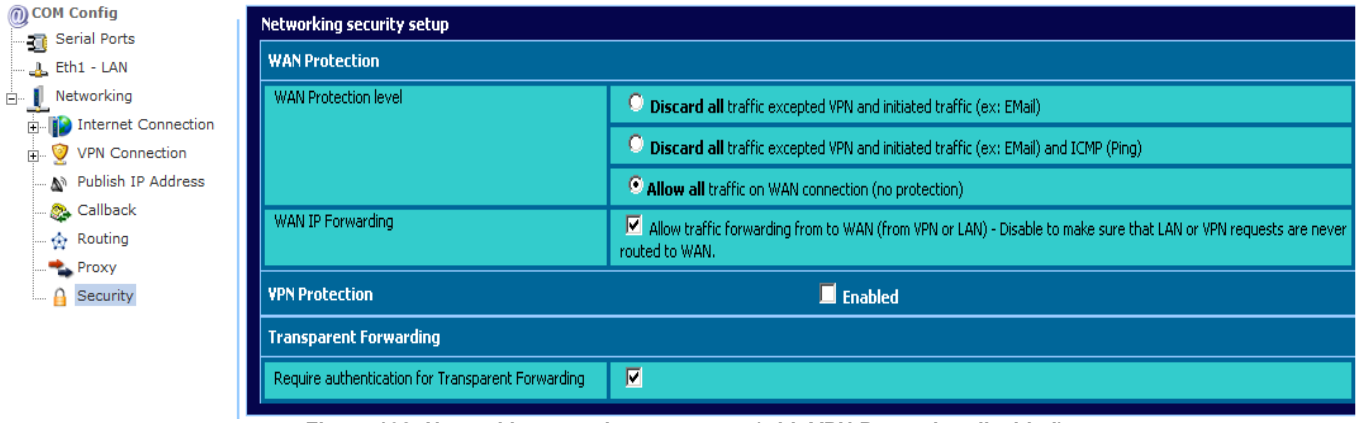


Figure 108: Networking security page setup (with VPN Protection disabled)

Control	Description
WAN Protection	
WAN Protection level	**• Discard all traffic excepted VPN and initiated traffic (like outgoing eMail or putFTP)** **• Discard all traffic excepted VPN and initiated traffic and ICMP (Ping)** **• Allow all traffic on WAN connection (no protection)**
WAN IP Forwarding	The default value is enabled, if disabled, then the LAN traffic cannot be forwarded to the Ethernet WAN interface. This option will disable forwarding only when WAN is configured on Ethernet or ADSL interface.
VPN Protection	Disable
Transparent Forwarding	
Require authentication	If this box is checked, the eWON will only accept to forward packets coming from the user who initiated the communication.

Table 83: Networking Security parameters

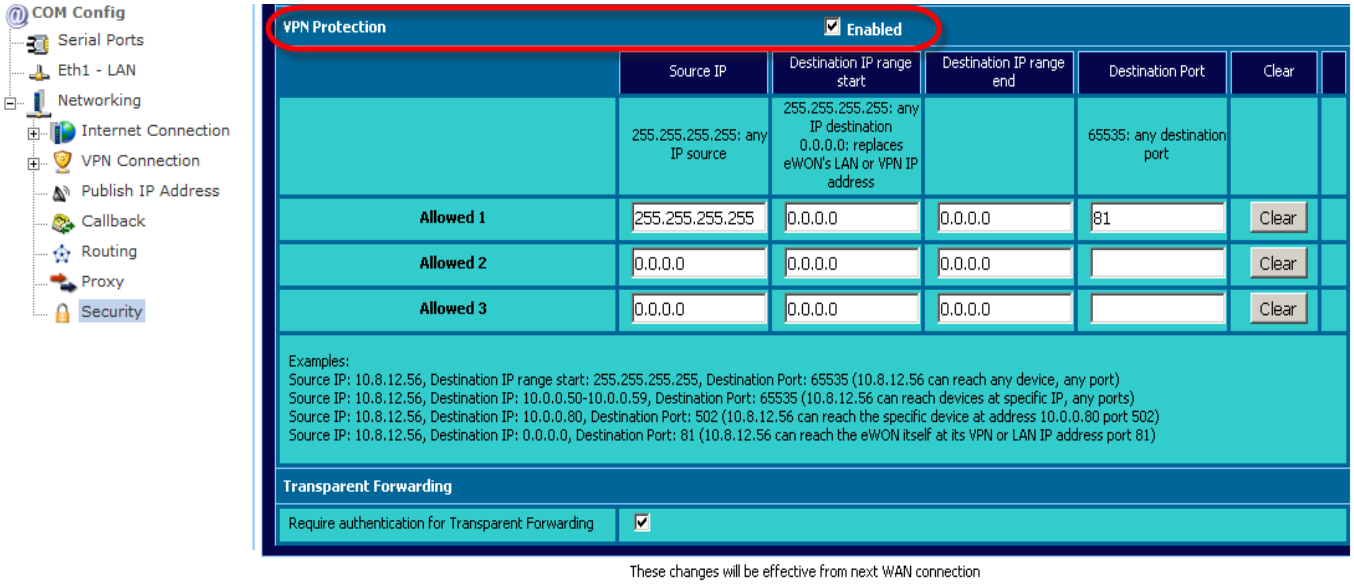


Figure 109: Networking security page setup (with VPN Protection enabled)

Control	Description
VPN Protection	
Once the VPN Protection is enabled (see Figure 67), all the packets will be filtered and only the packets satisfying one of the 3 "Allowing Rules" could be transmitted to the destination.	
Source IP	Enter here the Source IP address which is allowed to reach the LAN. Only one address could be encoded (ex: 10.8.12.56). Special value: 0.0.0.0 to disable the rule Special value: 255.255.255.255 to allow ALL Source IP addresses
Destination IP range start	Enter here the start range of the destination IP addresses reachable (ex: 192.168.0.100) Special value: 0.0.0.0 replaces eWON's LAN or VPN IP addresses Special value: 255.255.255.255 to allow any Destination IP addresses
Destination IP range end	Enter here the end range of the destination IP addresses reachable (ex: 192.168.0.125).
Destination Port	Enter here the ports allowed. Separate values by comma to enter several ports (80,81,502). Special value: 65535 to allow ALL ports
Transparent Forwarding	
Require authentication	If this box is checked, the eWON will only accept to forward packets coming from the user who initiated the communication.

Table 84: Networking Security parameters VPN Protection

After having encoded your parameters, go to the bottom of the page to Update

6.2.8 IP Services

This page allows you to redefine the standard eWON's ports.

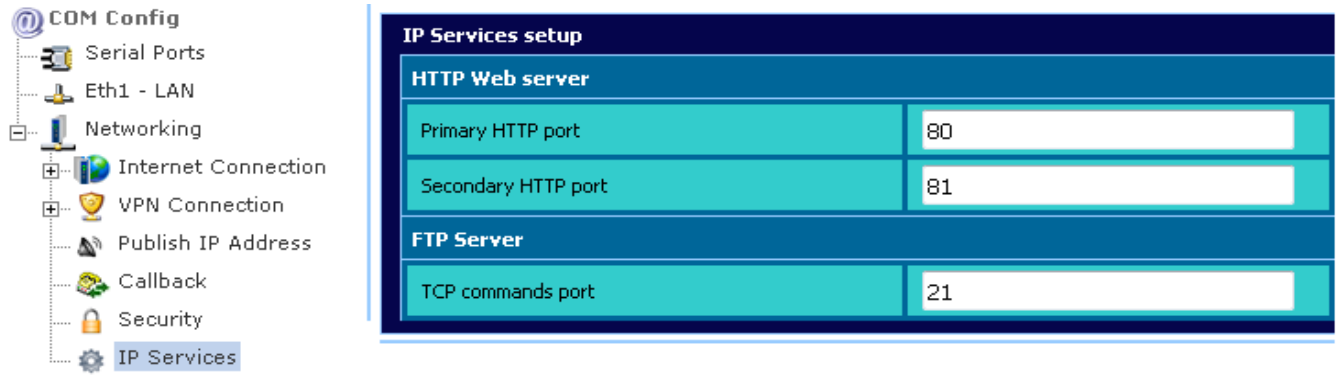


Figure 110: IP Services configuration

After having encoded your parameters, go to the bottom of the page to Update

Control	Description
HTTP Web Server	
Primary HTTP port	Allows you to redefine the eWON's Primary TCP Port (whose default value is set to 80).
Secondary HTTP port	Allows you to redefine eWON's Secondary TCP Port (whose default value is set to 81). This port is never forwarded when Transparent Forwarding is enabled. This port is used to reach the eWON default Website (http://10.0.0.53:81)
FTP Server	
TCP command Port	Allows you to redefine the TCP command Port from eWON's FTP Server (whose default value is set to 21).

Table 85: IP services configuration controls

Note:
The changes in those fields will be taken in account only after the eWON is rebooted.

6.3 Manage Config

In this group, you will find parameters and functions allowing you to manage your eWON configuration.

6.3.1 Security

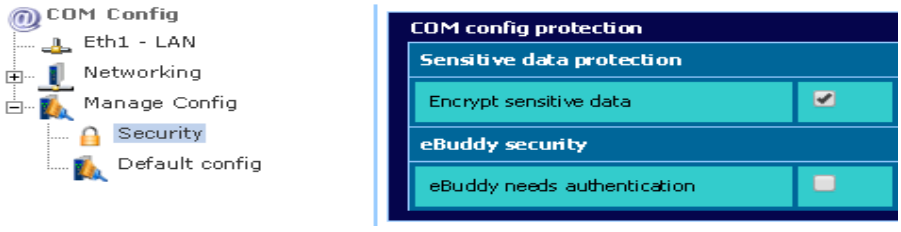


Figure 111: Manage config : Security setup

Control	Description
Sensitive data protection	
	Select this box to encrypt sensitive data (passwords, Pin code) in setup page and configuration files. The text appears as *dots* in the *Input Field* (see image below). In configuration files, the password values are encrypted too (see comcfg extract below). If this box is clear, the password is readable in the Setup page and in the configuration files.
eBuddy security	
	Select this box to accept an IP address change from eBuddy only with authentication. The eWON User needs to have the "Change Configuration" right. This feature requires eBuddy 1.8 (or above)

Table 86: COM Config Protection

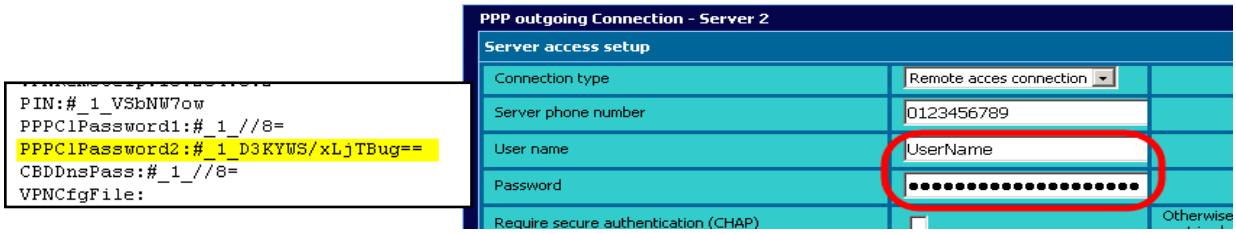


Figure 112: Encrypted Fields

6.3.2 *Default Config*

Using this menu, the user can return to the default communication configuration of the eWON. This will NOT modify anything in the other configurations of the eWON(like Tags, Users, Script, ...)

All communication settings will be reset. Only the LAN IP address will remain unchanged.

This option requires a foced reboot of the eWON (software or hardware).

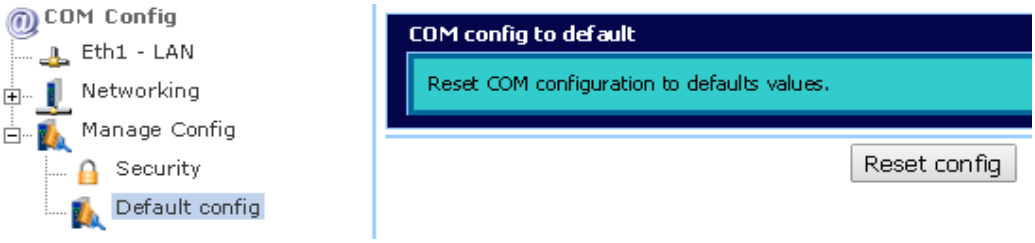


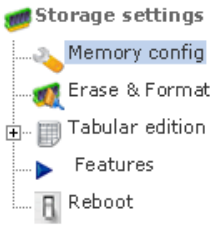
Figure 113: Reset to default COM configuration

COM configuration has been reset to default values.

Important:

This COM configuration is saved in a special flash file system, it means that resetting (level1) the eWON will not erase this configuration. This allows formatting the eWON and ensuring that communication is still possible after formatting. Nevertheless, the Default Config menu allows the user to return to default factory the communication settings excepting the LAN IP address. And the Reset Level 2 will reset completely the eWON to factory settings (LAN IP=10.0.0.53)

7 System Setup - Storage



The eWON stores configuration and recording data in its flash memory. The eWON flash memory is divided into areas of different sizes that can be erased and reformatted individually during a partitioning operation.

Depending on their type, eWONs have physical flash memory sizes of 8, 16, 32 or 128 MB. However, not all that physical memory is available for the user, see table below.

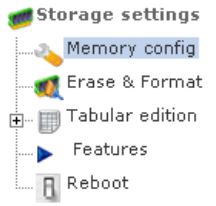
eWON types	Physical Flash Size	User Memory
eWON500 V1, eWONx001 eWON4002	8 MB	4 MB
eWON500 V2, eWON4001 V2 eWONx005, eWONx101 eWON4102	16 MB	7 MB
eWONx001CD, eWONx005CD eWONx104	32 MB	17 MB
eWON Flexy 10x eWON Flexy 20x	128 MB	35 MB

Table 87: eWON types vs flash memory

7.1 Memory config

Depending on the memory size of the eWON you are working with, you can select either 3 or 5 different memory partitions. The selection of a particular partition depends on the specific needs of your application. In the example below, we consider the partitions available for eWONs featuring a physical memory of 35 MB.

The active configuration is displayed in RED.



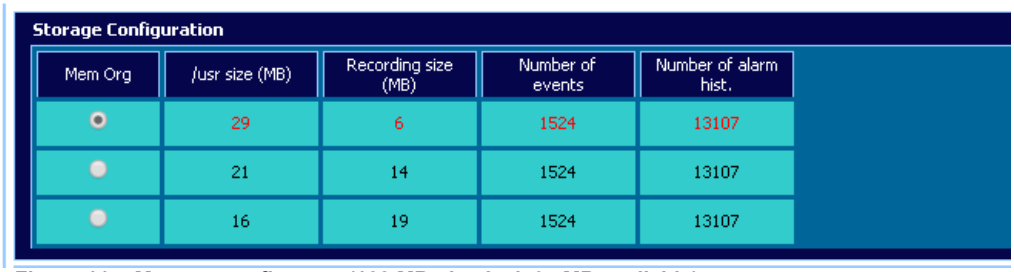


Figure 114: Memory config page (128 MB physical, 35 MB available)

Warning: Changing the storage configuration implies reformatting the available memory space.
This means that all data, except the communication configuration, will be lost.

Flash Memory zone	Circular	Description
/usr size	No	This partition uses a different file system, allowing to create a larger number of files and to use a larger total flash memory. This file system is also very robust in case of power lost during the time when operations are performed on the files. This partition can be used through the eWON's FTP server, custom Webpages or using the eWON's BASIC scripts.
Recording size	Yes	This partition contains circular data: • Events logging • Alarm history logging Each of those files receives a predefined maximum amount of space. When the space is full, then the older data are erased, in order to free space for the new data.
Number of events	Yes	The maximum records of the Event log.
Number of alarms hist.	Yes	The maximum records of the Alarm history.

Table 88: Storage Configuration Setup

Important:

The storage configuration that you define in this panel is applied only after the eWON reboot. Therefore, changes made to the configuration can be canceled at any moment, provided that the eWON was not rebooted in the meantime. Imagine that you change your configuration (i.e. you selected configuration 3 while you are currently running configuration 2... As long as you have not rebooted eWON, you can return to configuration 2. In this case, there will be no change applied in the Storage Configuration when eWON reboots. You have just to check that you select the line in which characters are displayed in red, and validate by clicking on the ***Update Config*** button.

Important remark regarding circular files:

This kind of file has 2 sizes, a standard size and a maximum size. When the maximum size is reached, the oldest 64K of data are erased and new data starts to be written. This means that the actual size of data that has to be considered for a circular file is the standard size, because the maximum size is not permanent.
Formatting the Flash file system means erasing all the data in these files.

Description of the other storage partitions **(not available to the user)**

Flash Memory zone	Size	Circular	Description
System Config (except COM config)	256 KB	No	The System configuration contains: • System setup • Pages setup • IO Servers setup • Tags setup • Users setup
Program	128 KB	No	Script program
Communication Config	64 KB	No	The communication configuration needs to be saved in a distinct block in order to allow formatting any other data in the eWON without risking to loose contact with the device (Ethernet IP address, PPP configuration etc.). This configuration uses a fixed memory size and is stored with a special mechanism that prevents loosing the configuration even if power is lost at any time during the configuration update. The only risk is to loose the last modification made after last save occurred. Communication Configuration consists in all the configuration information that appears in the ComCfg.txt file.
Retentive values	64 KB	No	This is a fixed flash memory block that contains the retentive values. Each time a retentive value changes, a record is written in the flash memory, the record is 12 bytes long.This file is also erased when the flash file system is formatted.The flash memory can be erased/written minimum 100K times. Each time a retentive value is written, its record is read back and content is verified, in case of error, error code "Write retentive failed", code 20517 is generated, it indicates that the flash memory is probably dead. The dimension of that block does not need to be modified.

Table 89: Internal Storage Configuration

7.2 Erase & Format

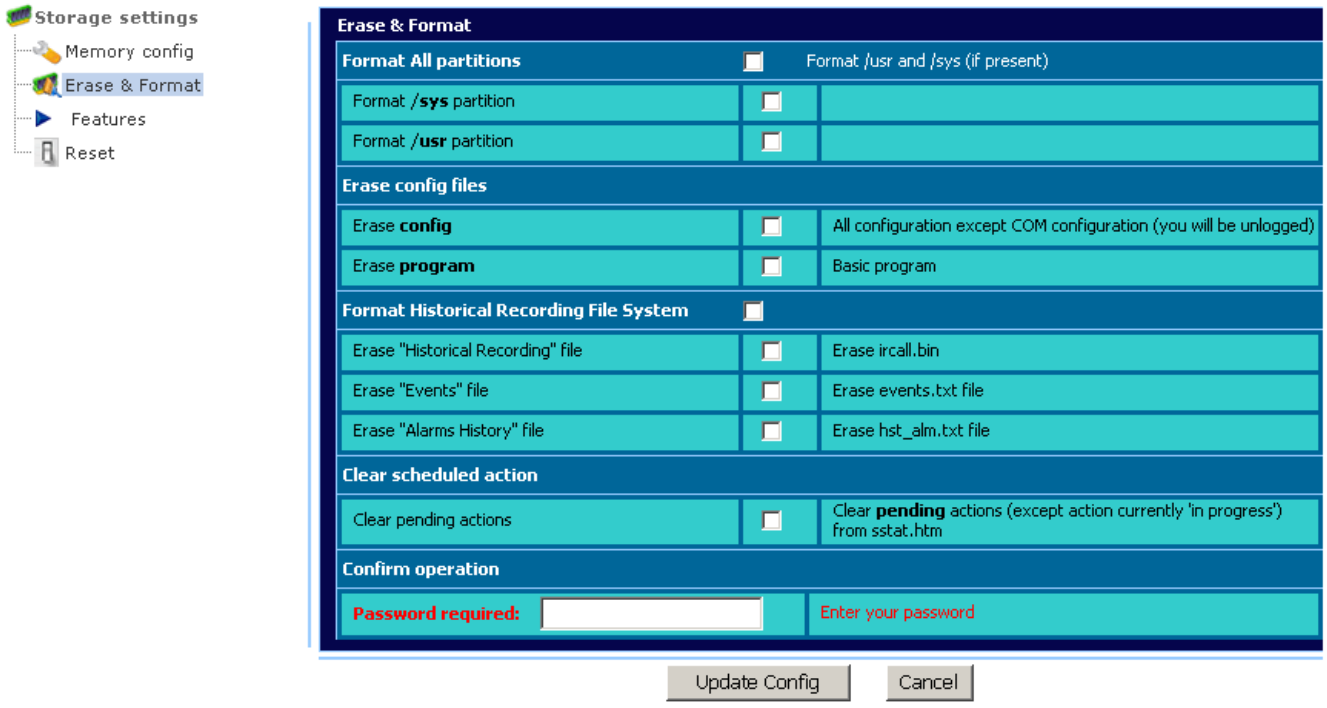


Figure 115: Erase & Format panel

This control panel function is to allow you to erase some parts of the eWON storage area.:

Control	Description
Format All partitions	
Format All partitions	Validating this checkbox will result in formatting **/usr** and **/sys** partitions.
Format /sys partition	Validating this checkbox will result in formatting **/sys** partition.
Format /usr partition	Validating this checkbox will result in: Formatting only **/usr** if **/sys** is not stored in it Formatting **/usr** AND **/sys** if you have chosen a storage configuration with /sys set to "0"
Erase config files	
Erase config	Validating this checkbox will result in erasing the eWON configuration, except for its communication information (comcfg.txt). Clicking on ***Execute*** after having selected this checkbox will disconnect you from your current eWON session.
Erase program	Validating the checkbox will result in erasing the eWON Basic script file program.bas.
Format Historical Recording File System	
Format Historical Recording File System	Validating this checkbox will result in erasing the 3 files that stores the eWON's internal history, which means all of the three following controls together in this table.
Erase "Historical Recording" file	Validating the checkbox will result in erasing the binary format ircall.bin file that contains the binary values of all the Tags that are defined in the eWON.
Erase "Events" file	Validating the checkbox will result in erasing the text format events.txt file that contains the history of all of the (maximum) 762 last events that have been logged in eWON.
Erase "Alarms History" file	Validating the checkbox will result in erasing the text format hst_alm.txt file that contains the history of the alarms for the Tags that have been defined in the eWON.

Clear scheduled action	
Clear pending actions	Validating this checkbox will result in erasing from the sstat.htm file the eWON actions that are not currently in progress, that means all the actions that are completed (whatever successful or not). Note: as sstat.htm is a "virtual" file, which means that its information are stored in the volatile memory from eWON, clearing this file does not impact the memory file system from eWON. As this command is an exception in this page, it has been placed here for obvious ergonomic reasons.
Confirm operation	
Password required	Your password is required in order to confirm your changes. Those changes will be validated when you click on the ***Execute*** button.

Table 90: Erase & Format Submenu

7.3 Tabular config editor

Since firmware version 6.4 S1, the eWON configuration parameters can also be accessed under tabular format. This feature should be used by advanced users only, you should not edit your configuration using the tabular editor unless you know exactly what you are doing.

The purpose of this topic is to explain how you can access and edit configuration parameters using the tabular config editor.

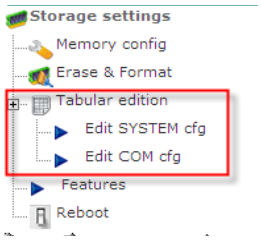
7.3.1 Access

Connect your PC with your eWON to access its web server. In the interface, click on ***Configuration, System setup*** and ***Storage***.

In the tree on the left, you have an entry called ***Tabular edition.***

If you expand the contents of this entry, you will see two additional links: ***Edit COM cfg*** and ***Edit SYSTEM cfg***.

The eWON configuration parameters are spread over these two options.



COM cfg = Communication settings, contents is equivalent to comcfg.txt file of the eWON.

SYSTEM cfg = general eWON settings, users, IOservers, etc. Contents is equivalent to the config.txt file.

7.3.2 Edit parameters

Once you have clicked on one of these links, a list is appearing with ALL parameters that are available under this link

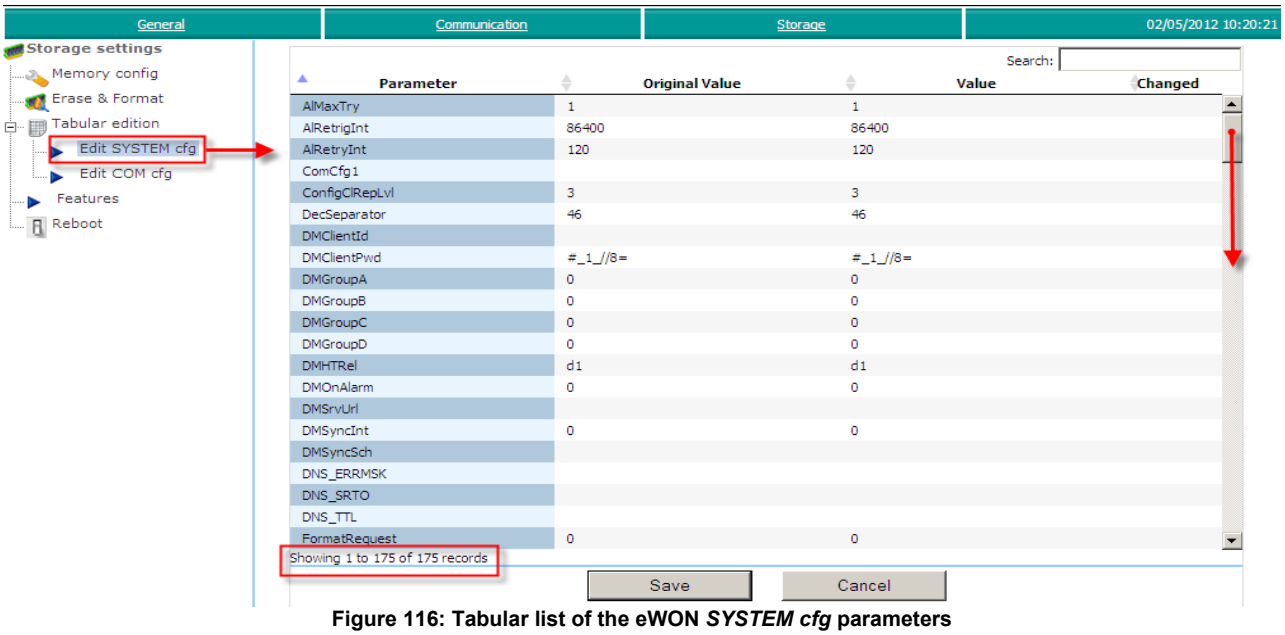


Figure 116: Tabular list of the eWON *SYSTEM cfg* parameters

7.3.3 Searching for a given parameter

As there are many parameters, you may want to filter those that containing a given character chain. Therefore, just enter a search chain into the ***Search*** field and hit ***Enter***, a list showing only the matching records appears. **Note**: the example below shows a search on "NAT" which returns only one single parameter.

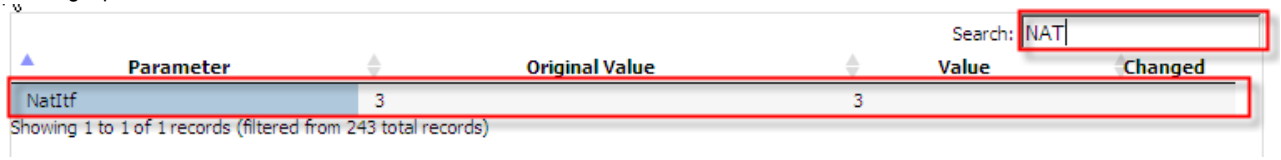


Figure 117: Result of a seach on parameters containing *NAT* in their identifier

Original Value corresponds to the value that is currently configured (saved) in the eWON (NOT the default value). ***Value*** shows the future value that will be send to the eWON when you click on ***Save***. These values are typically identical when opening the interface.

7.3.4 Editing the value of a configuration parameter

To edit the value, double-click on the selected record. The edit window opens:

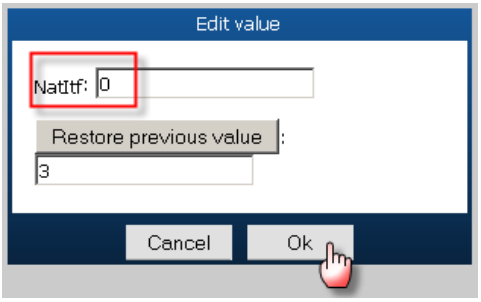


Figure 118: Edit value window

As soon as you change the value and click ***OK***, this value appears in the ***Value*** column of the interface.

It is however not yet written in the eWON.

It will be once you click on ***Save*** (typically after having edited all the parameters you need to change).

7.4 Features

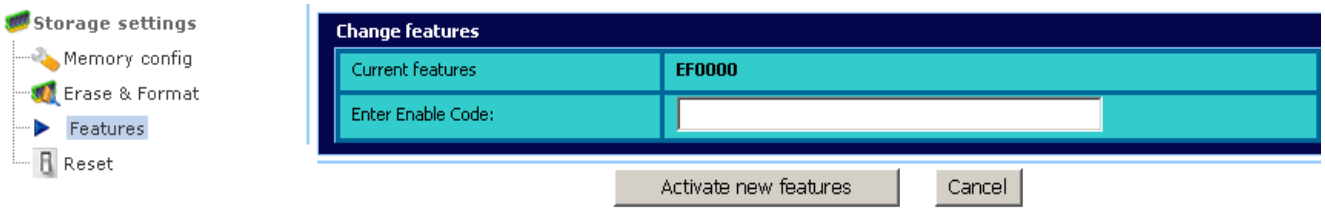


Figure 119: Features setup page

There is some "options/restrictions" available on the firmware.
To activate these features, you need to enter an "enable code".

7.5 REBOOT

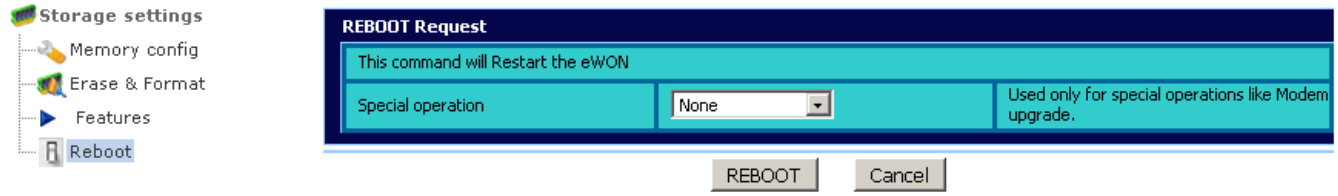


Figure 120: eWON *REBOOT Request* page from the *Storage* menu

If for any reason you want to restart your eWON, then you just have to click on the ***REBOOT*** button, and the reboot process will begin.

Your eWON will be accessible again when restart is completed.

For further information on the different ways to reboot the eWON, please refer to chapter ""Reboot" on page 59.

8 The eWON IO Servers

8.1 Introduction

This introduction repeats some information already introduced in chapter “Tag Setup” on page 37.
An IO Server is the interface between a changing value and the eWON monitoring engine. It is a kind of driver. Any variable from any *data source* must have a common representation for all IO Servers in order to define common interface in the eWON.

The *data-source* representation in the eWON uses 3 fields for the definition of a Tag:

- **The IO Server Name**
- **The Topic name**
- **The Item Name**

A Tag’s data-source will be uniquely identified with these 3 parameters:

IO Server name:	Is a kind of driver name. For each IO Server there is a specific Topic Name and Item Name syntax. Example: MODBUS, EWON, MEM
Topic Name:	Is used to group items inside an IO Server, for example the memory IO Server uses the blank topic ("") and the retentive topic ("ret"). All Tags of the MEM IO Server defined in the "ret" topic will have their value saved and restored when the eWON boots. All IO servers do not use a Topic Name. In that case the Topic Name field must be left empty.
Item Name:	The item name is a string of characters; its syntax is specific to each IO Server. The Item Name describes the physical variable to monitor that uses the IO Server.
For example, the MODBUS IO Server needs to poll registers or coils from a slave, so it uses an item name representation to define the *register type, register address and slave address.* (Example "40001,5" => Where 4 means "read write register", 0001 is the register number and 5 is the slave Modbus address).	

Table 91: Tags data-source parameters

Important note: For optimization purpose, the eWON may disable the polling of "invalid tags" (See "IO Server Init" on page 126).

8.2 IO servers setup

Some of the IO servers are configurable.
The IO setup window proposes a list of IO servers:

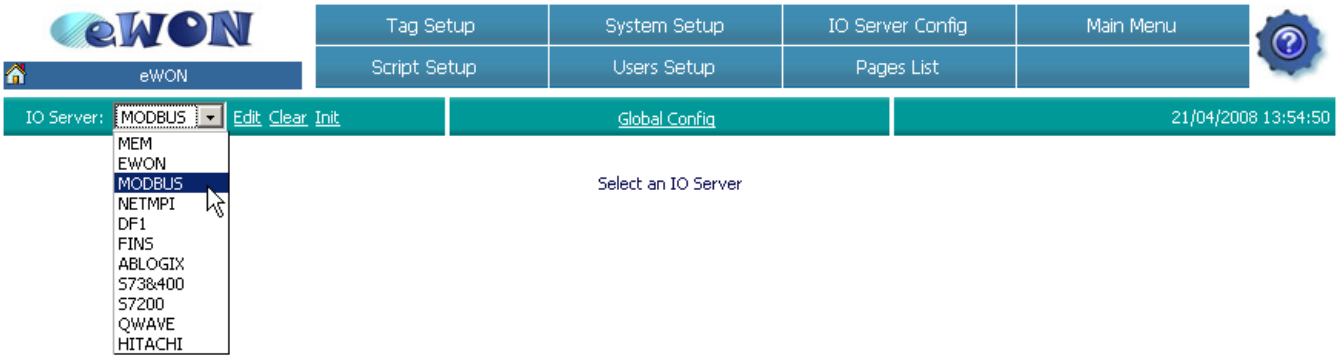
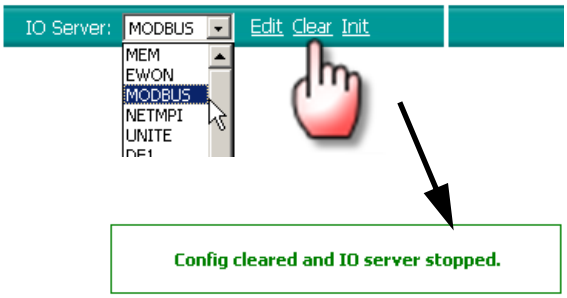


Figure 121: eWON IO servers scrolling list

Click on the ***Edit*** hyper link or select another IO server to display its edition window.
There are 3 possible cases regarding the IO server configuration:

- **The IO server is not configurable**
- **The IO server has a dedicated configuration page (ex: MODBUS, UNITE, NETMPI, DF1,...)**
- **The IO server uses the standard IO server configuration page.**

8.2.1 IO Server Clear



To avoid the useless consumption of CPU and memory, the unused IO Servers need to be “unloaded” from CPU tasks and the used memory need to be cleared.

For that purpose, the Clear function must be used.

Only set to *disable* the Baud Rate of an IO Server make it idle, but this IO Server is still in memory and use some CPU time (for nothing).

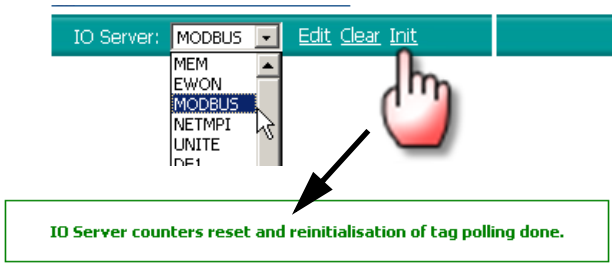
Click on the ***Clear*** link to reset the config of the displayed IO Server and unload it from memory.

Some IO Servers are not dynamically stoppable and need an eWON reboot to ensure the unload from memory. You will be warned with the following message.

8.2.2 IO Server Init

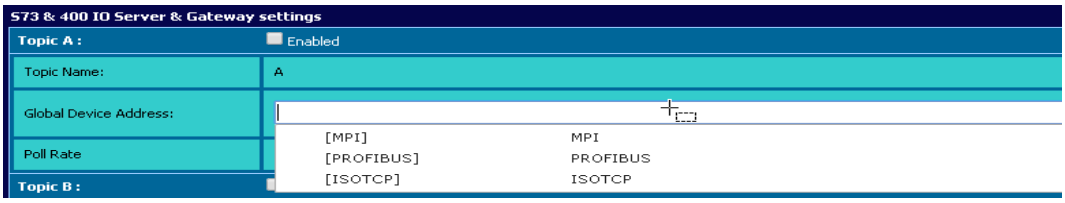
Click on the ***Init*** link to initialize an IOServer.

This initialization will reset all IOServer counters (See "Status" on page 22) and restart the tags validation process (See "Tags validation" on page 38).



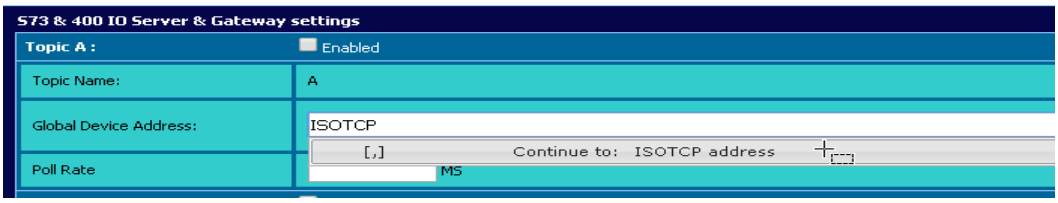
8.2.3 Assisted Edition

eWON features an Assisted Edition for the destination device address (the PLC to reach).
This allows to encode the correct destination device address for each IOserver.



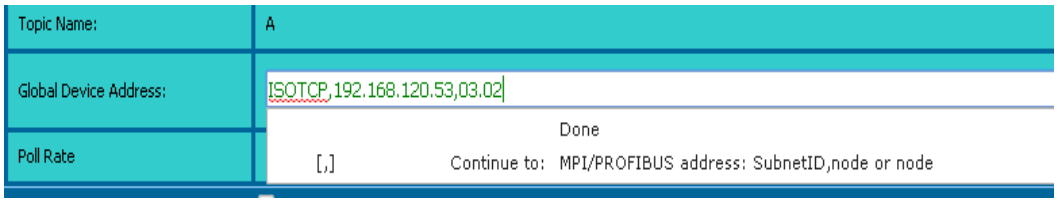
According to the IOserver you selected, eWON will display the different possibilities for the PLC device address.
For example, for some IO servers you first need to specify the protocol that will be used for the polling.

You can with a mouse click select one of the proposed items, or simply enter the text directly inside the address field.



As long as the device address path is not complete, eWON will display the address field in black color. This means that some items are still missing inside the address path.
To continue the address path, select or enter one of the new proposed items.

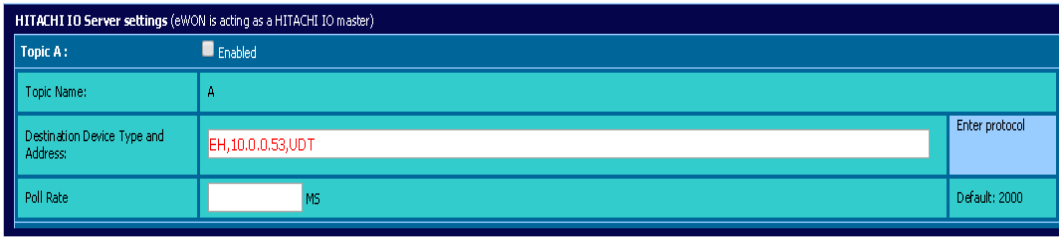
Once the encoded address is a valid address path, eWON will display the address in green.



You can now leave the address as it and save the configuration.

Or, if required, you can define supplementary optional address path options.
For example, in the picture here above clicking (or typing) the [,] option allows to encode a PLC address that can be reached on a second network behind the first PLC.

An incorrect address syntax will be displayed in red and you'll not be allowed to save the configuration.



Note: Assisted Edition is not applicable for MEM, EWON or MODBUS IO servers

8.2.4 Global Config

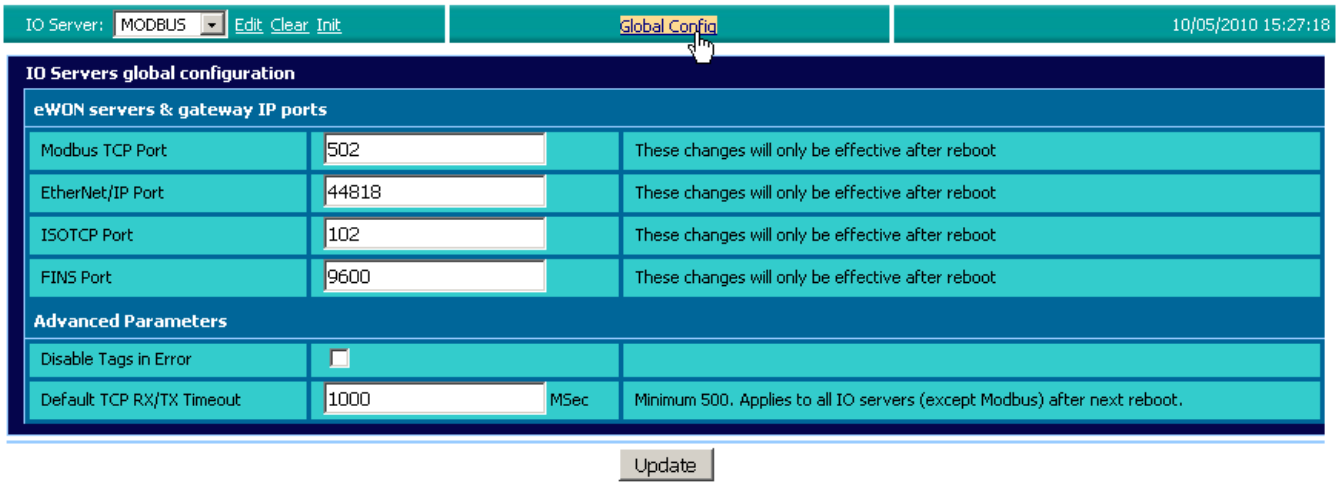


Figure 122: IOServer Global Config page

Item	Description
	Encode here the TCP Port number used for the Modbus TCP server protocol. *Default is 502*
Ethernet/IP Port	Encode here the TCP Port used for the Ethernet/IP protocol (Allen Bradley). *Default is 44818*
ISOTCP Port	Encode here the TCP Port number used for the ISOTCP protocol (Siemens). *Default is 102*
FINS Port	Encode here the TCP Port number used for the FINS protocol (Omron). *Default is 9600*
Disable Tags in Error	Activate the Tags Validation See "Tags validation" on page 38
Default TCP RX/TX Timeout	Value in mSec for IOServer TCP timeout (need reboot to apply)

Note: To disable ports used for transparent gateway, set the corresponding port to 0 and reboot the eWON.

8.2.5 Standard IO server configuration page

When no dedicated configuration page is defined for configuring an IO server, the standard configuration page is used.

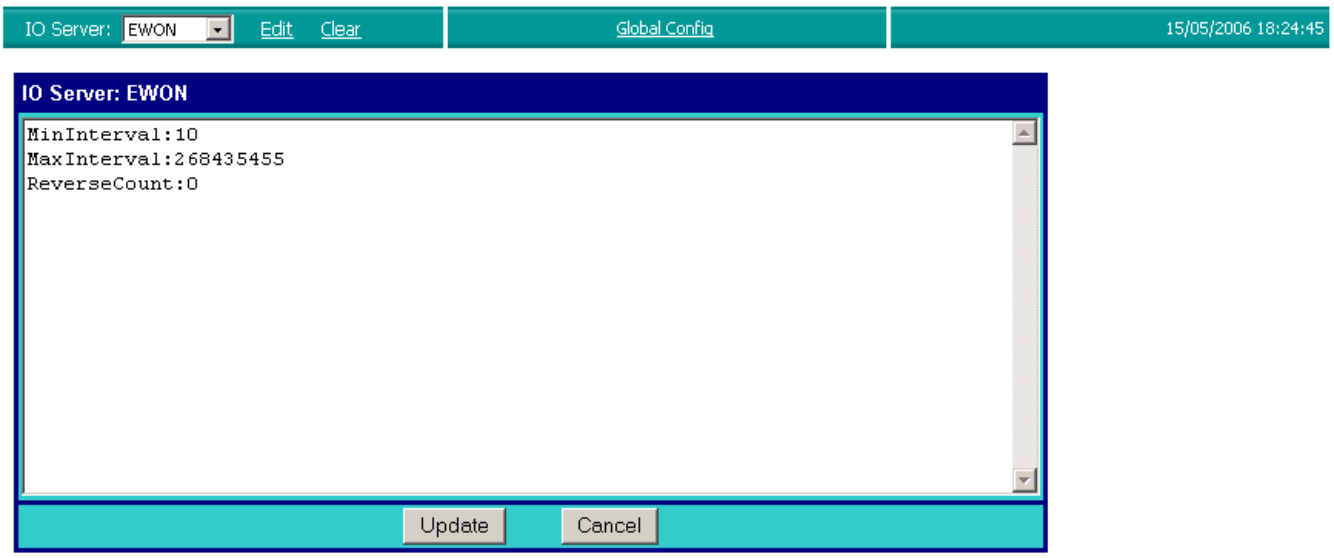


Figure 123: Standard IO server configuration page

As you can see in the above example, the standard configuration screen is a simple text edition area. Each parameter is entered on a separate line, the parameter value is separated from the parameter name by a colon **':'** .

The generic format of a line is:

PARAM_NAME:PARAM_VALUE

Warning: Extra space must be removed.

When using this configuration, you must respect the correct syntax of each parameter and the values for each parameter.

The list of valid parameters and their corresponding valid values are listed in the corresponding IO server documentation (see following chapters).

Any error that would occur when the eWON applies the configuration that you have entered would be written to the event file. Please refer to chapter “Files transfer” on page 19 to see how to get access to the events file.

8.3 Modbus IO server

8.3.1 Introduction

The MODBUS IO Server setup is the standard remote IO communication setup of the eWON. It is used to configure:

- **The eWON as a Modbus RTU master.**
- **The eWON as a Modbus TCP slave and master.**

The first feature (Modbus TCP slave) is specific to the MODBUS IO server; it is actually designed to provide access to eWON Tag values and, unlike all the other IO servers, for interfacing field values with the eWON.

The second feature (MODBUS Master) is the actual IO server feature that provides an interface to the field values as a common IO server.

The eWON MODBUS IO server will give access to values in equipments having a MODBUS interface.

The interface can be:

- **RS485 / RS422 / RS232 – MODBUS RTU protocol will be used**
- **ETHERNET/PPP – MODBUS TCP protocol will be used.**

The eWON can mix access to MODBUS RTU and MODBUS TCP, depending on the way the Tag address is defined.

8.3.2 Setup

8.3.2.1 Setup for eWON Server

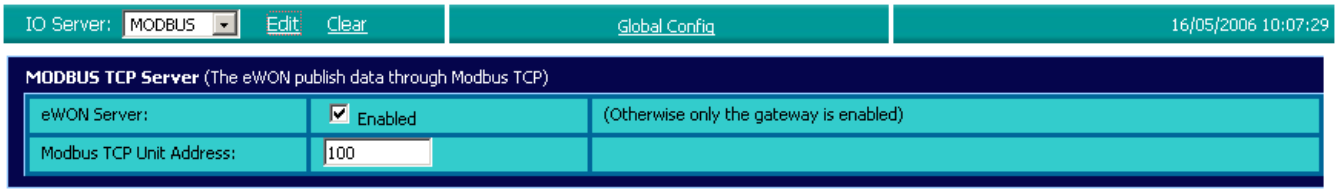


Figure 124: Modbus TCP Server configuration

This page defines the eWON configuration when used as a Modbus TCP slave.
As described in the Tag configuration paragraph, each Tag can be published to Modbus TCP so that a Modbus TCP can read their values.

This setup screen defines the eWON address, and globally enables or disables the Modbus TCP slave feature.

eWON Server Properties	Description
	Globally enables or disables the Modbus TCP Server feature. If disabled, then any request from a Modbus TCP master will be rejected, even if Tags are published.
Modbus TCP Unit address	This feature is used by some gateway but can usually be left to 1 because Modbus TCP appears as a point to point connection.

Table 92: eWON server configuration - eWON as Modbus TCP slave

8.3.2.2 Setup for eWON IO server and Gateway - COM Setup

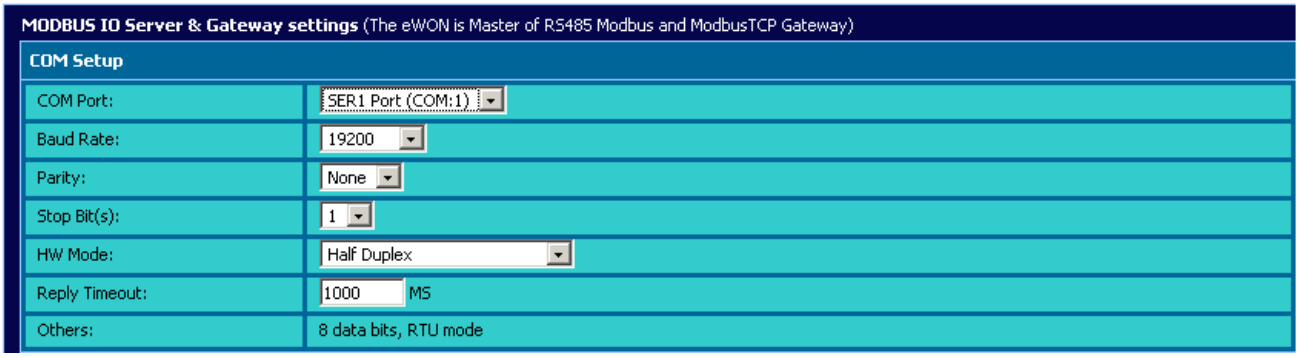


Figure 125: Modbus communications configuration

If more than one Serial port are available, you must choose on which COM the modbus request will be sent. This example of configuration shows an RS485 setup.

Field name	Description
COM Port	Physical COM Port allocated to the Modbus IO Server. Drop down shows alternatives only if the relevant eWON has multiple serial ports (1).
Baud Rate	Baud rate of the serial link (has to be the same than the target device). Default is Disabled.
Parity	Parity
Stop Bit(s)	Stop bit(s)
HW Mode	HW mode (half Duplex, Full Duplex HW Handshaking, Full Duplex NO Handshaking
Reply Timeout	Time (in msec) the eWON waits for an answer from the connected Modbus device. The default value is 1000 msec

(1) For the eWON Flexy: The numbering of the serial COM ports starts with the serial port of the Base Unit (if available) and then continues with the upper port of the first Extension Module starting from the left. A maximum of 5 serial ports are supported.

Warning: If multiple IO servers are potentially using the same serial port, the unused IO server must be cleared or the baud rate must be set to Disabled. Example: if Modbus and UniTE IO servers are configured to the same port, at least one of them must have its baud rate set to Disabled. If not the case, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

8.3.2.3 Topic configuration

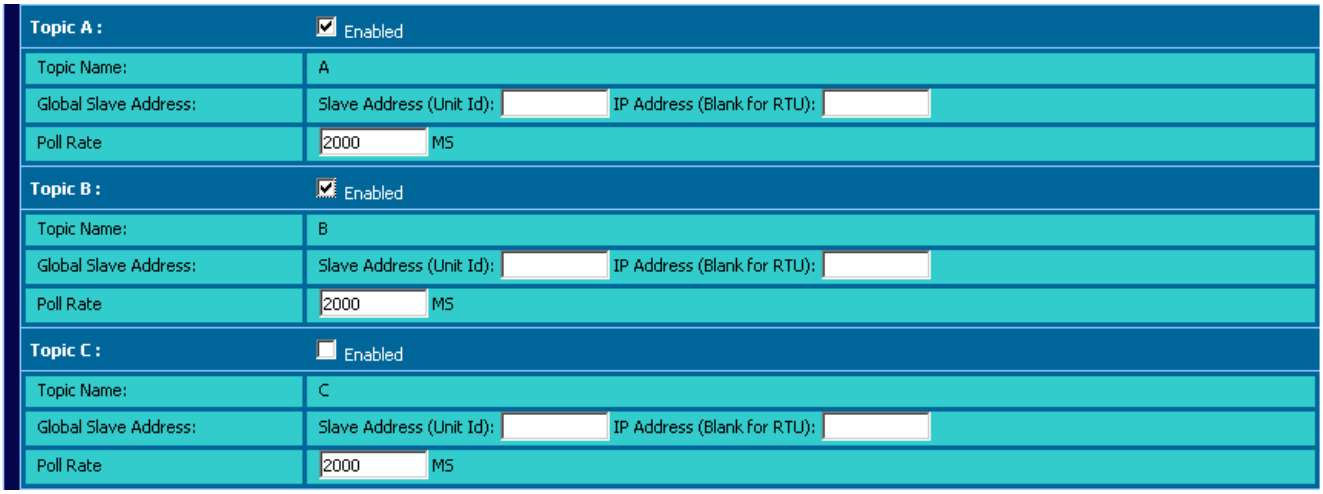


Figure 126: Modbus topics configuration

Three topics can be used for the IO Server. These topics are used to give a common property to a group of MODBUS Tag like:

- **Enable/Disable**
- **Poll rate**
- **Slave address (Modbus RTU)**
- **Unit address and TCP/IP address (Modbus TCP)**

Modbus Server Properties	Description
	Enables or disables polling of all the Tags in the topic.
Slave address	The slave address is a global parameter for all the Tags of the topic. If the slave is connected with Modbus RTU, Slave address must be entered and the IP address must be blank. If the slave is Modbus TCP, its unit address and its IP address must be entered.
Poll rate	This defines the rate to which the Tag will be refreshed. In a complex application, we can imagine that some Tags must be refreshed every second – typically for digital input - and other every minute – typically: temperature-.

Table 93: Modbus topic configuration

Warning:

Any slave address that is defined in the Topic configuration overwrites the slave address configured per Tag.

If a Tag is defined with Tag Address: 40010,5 and the global address of the topic is 5 and 10.0.0.81, the Tag is entered as Modbus RTU but it is polled as Modbus TCP. So, if you need to address slaves Tag by Tag, let the topic address configuration empty.

8.3.2.4 Advanced parameters

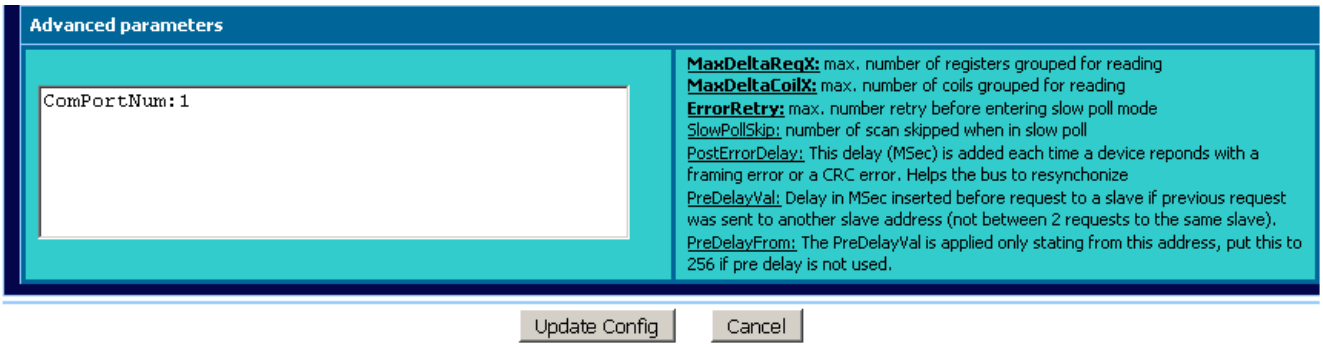


Figure 127: Modbus advanced parameters configuration

Extended parameters have been added to accommodate various special operating conditions. They are entered in the edit box at the bottom of the configuration page, conforming to the syntax below. Each parameter has a default value, so the advanced parameter edit box must only be filled with the parameters for which default values must be changed. (c.f. “Standard IO server configuration page” page 128).

Parameter name	Description
PreDelayFrom	Used in conjunction with the next parameter (PreDelayVal), starting at that slave address, the eWON will insert a delay when switching from one slave address to another. If the PreDelayVal feature is not used, then the value for PreDelayFrom must be set to 256 (default value).
PreDelayVal	Used to define the delay (in Msec) to be inserted before a request to a slave if a request was previously sent to another slave address (not between 2 requests to the same slave). The PreDelayVal is placed only for slaves with an address higher than PreDelayFrom.
ErrorRetry	Defines the number of errors before the device enters in slow poll mode. (Minimum 1)
SlowPollSkip	Defines the number of times the slave is skipped when in slow poll mode. This delay depends on the poll rate.
GatewayIPCTimeout	Maximum event lock while waiting for a response to a modbus gateway request from the modbus IO server (router) (in Msec – minimum 1000).
PostErrorDelay	This delay (in Msec) is added each time a device responds with a framing error or a CRC error, in order to help the bus to perform its re synchronization (default value = 50).
MaxDeltaCoil*X* (X= A,B,C)	Maximum number of Coils that can be grouped in a request (per topic) max=256
MaxDeltaReg*X* (X= A,B,C)	Maximum number of registers that can be grouped in a request (per topic) max=124

Table 94: extended IO server configuration controls

8.3.2.4.1 Additional advanced parameters

• gwdestaddr
When the eWON is used as a Modbus gateway, it uses the UnitID from the ModbusTCP request to determine the Modbus RTU destination address.
It is possible to bypass this mechanism and force all the requests received by the eWON in ModbusTCP to be forwarded to a single ModbusRTU device (EXCEPT for requests with UnitID corresponding to the eWON's Modbus TCP Unit address (usually 100) when the eWON Server is enabled - see explanations about this precise point in the above configuration fields descriptions).
Every request is forwarded to the device with Slave address defined by the Modbus IO server advanced parameter called **gwdestaddr**.
If the advanced parameters textfield contains the following entry:

```
gwdestaddr:10
```

Then all the requests will be forwarded to the slave with address 10.

REMARK: the eWON will change the address before sending the request to the slave, then it will change it back when sending the response to the master (Modbus TCP master). So the **gwdestaddr** will never appear in any communication between the Master and the eWON.

• FastSrv
FastSrv is a mode which allows a supervisor to read in Modbus TCP more easily the Modbus tags published by the eWON. This mode completely changes the tag’s addressing, and when activated, the Modbus addresses are no more compatible.
You have just to enter "FastSrv:1" in the Advanced Parameters text area to activate it. When done, the Modbus tags can be read as follows:

X	Integer (with scale factors and offset defined)
X+2048	Float (X+2048: 1ST float, X+2048+2: 2nd float, etc.)
X+4096	Alarm status
X+6144	Alarm type

Notes:

- If the tag is binary read, its value is worth 0 if tag==0, and 1 if tag <>0
- Writing 0 in AlarmStatus acknowledges the alarm (will be logged by eWON as acknowledged by administrator)
- It is not possible to write a coil in the float area (coil address range: X+2048 to X+4094)
- It is not possible to address more than 1024 registers in float.

Click on the ***Update Config*** button to validate your inputs or use the ***Cancel*** button to discard changes

• TcpPort
Use the 'TcpPort' parameter to change the default 502 port used when the eWON is ModbusTCP CLIENT.

If not specified the 502 default value is used.
This Port value is used for all the ModbusTCP client connections.

8.3.3 Tag name convention

IO Server configuration		
	MODBUS	
Topic Name	A or B or C	
Item Name	ValueName,SlaveAddress	The PLC Address is defined Tag by Tag on serial link (RTU Master)
	ValueName,SlaveAddress,IPAddress	The PLC Address is defined Tag by Tag on TCP link
	ValueName	The Topic PLC address is used

8.3.3.1 ValueName

The Modbus IO Server Tags can be classified following ranges of values. Two types of ranges are used. The two following tables describe the different ranges of value, for each of the two standards.

• First standard:

Modbus Type	IO Type	Access	Register address
	Digital Output	R/W	1 → 9999
	Digital Input	R	10001 → 19999
	Analog Input	R	30001 → 39999
	Analog Output	R/W	40001 → 49999
	Digital Output	W	50001 → 59999
	Analog Output	W	60001 → 69999

Table 95: Modbus IO server Tag name convention: first standard

• Second standard:

Modbus Type	IO Type	Access	Register address
	Digital Output	R/W	+1 → +65535
	Digital Input	R	+100001 → +165535
	Analog Input	R	+300001 → +365535
	Analog Output	R/W	+400001 → +465535
	Digital Output	W	+500001 → +565535
	Analog Output	W	+600001 → +665535

Table 96: Modbus IO server Tag name convention: second standard

The second standard allows more than 9999 values in each range. Notice the "+" sign before the register value.

* The two last ranges are used with non-standard equipments that do not allow the reading of some of their values. In this case, specifying the address in the "write only" ranges informs the eWON not to read the values after setting them, which is normally done in the other cases. If those registers are read, the returned value will always be 0.

After the numerical value, the characters F, L, I, D or W can be used to specify how to read the value. The following table describes the different character meaning.

Character	Description	Automatic Tag type
W	Reads 1 register considered as 16 bits unsigned integer (DEFAULT IF NOT SPECIFIED)	DWord
I	Reads 1 register considered as 16 bits signed integer	Integer
D	Reads 2 regs R1, R2 as a DWORD R1 is Less significant, R2 is most significant (32 bits, unsigned) (*)	DWord
E	Reads 2 regs R1, R2 as a DWORD R2 is Less significant, R1 is most significant (32 bits, unsigned) (*)	DWord
L	Reads 2 regs R1, R2 as a LONG R1 is Less significant, R2 is most significant (32 bits, signed) (*)	Integer
M	Reads 2 regs R1, R2 as a LONG R2 is Less significant, R1 is most significant (32 bits, signed) (*)	Integer
F	Reads 2 regs R1, R2 as a FLOAT R1 is Less significant, R2 is most significant (32 bits, signed)	Float
H	Reads 2 regs R1, R2 as a FLOAT R2 is Less significant, R1 is most significant (32 bits, signed)	Float

Table 97: the characters used to specify how to read the value

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

When reading a 32 bits value, two consecutive registers or coils are read and combined e.g. 40001L,11 to access in Long representation the reg 1 on the slave 11.

examples:

address	meaning
40001,10	access the *Holding Register* at address 1 on the UnitID 10
1,11	access the *Coil* at address 1 on the UnitID 11
+320234,12	access the *Input Register* at address 20234 on the UnitID 12
40001,100,10.0.0.53	access the *Hoding Register* at address 1 on the UnitID 100 at IP address 10.0.0.53
40010L,12	access the LONG *Holding Register* at address 10 (and 11) on the UnitID 12
40008F,15	access the FLOAT *Holding Register* at address 8 (and 9) on the UnitID 15

Table 98: Modbus address examples

STATUS TAG:

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ItemName is composed of:

Status,Address

If the address is omitted, the Topic address will be used (e.g.: status,11) points to the status of the slave 11
You can define a status Tag for each address used.
If you use the status MODBUS address, the Tag must be configured as analog:

Tag value	Meaning
0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 99: MODBUS status values

8.3.3.2 Slave Address

This is the address of the slave device that you want to access.
It is a number from 0 to 255.

Example:

30001,11	Polls a RTU device at address 11.

8.3.3.3 IP Address

This is the IP address of the device on an Ethernet network. It is composed of 4 numbers separated by a dot.

Example:

30001,11,10.0.0.50	Polls a device configured with IP address 10.0.0.50 and with Modbus slave address 11.

8.3.3.4 Device specific information

Warning for new users of WAGO modules:

Keep in mind that coil read and write don't use the same address (offset of 0x200); please consult the Wago™ documentation.

Example:

If you use Wago™ systems with two digital inputs and two digital outputs, inputs have addresses 1 and 2, and outputs have the same. The only way to distinguish them it's the read-only access or R/W access.

Tags: station 11

Tag	Modbus address	Comment
MB_DigIn1	10001,11	Digital input module 1 -- read-only
MB_DigIn2	10002,11	Digital input module 2 -- read-only
MB_DigOut1	00001,11	Digital output module 1 for writing - Encode all leading zeroes!
MB_DigOut1Read	10513,11	Digital output module 1 for reading only
MB_DigOut2	00002,11	Digital output module 2 for writing Encode all leading zeroes!
MB_DigOut2Read	10514,11	Digital output module 2 for reading only

Table 100: Wago™ modules - addresses examples

In *View I/O page*, you can change the value of MB_DigOut1 with the update link (set to 1), and if you do that, you view that the value read is always 0.

Why?

Because the eWON reads the value at the WAGO address 1 (thus, DigIn1)! If you want to read the state of the DigOut1, you must read it at WAGO address 513!

The same remark is applied for analog Modbus registers. It's the documented behavior of Wago™-Modbus modules; keep it in mind.

8.4 NETMPI IO Server

8.4.1 Introduction

NETMPI IO server is used to communicate with SIEMENS PLC. The eWON will connect to the PLC's MPI interface by means of the eLINK adapter.
The eLINK adapter is an interface with an MPI interface on one side and an Ethernet TCP/IP interface on the other side.
The eLINK interface will be configured with an IP that the eWON will use to poll data. In addition to the IP address, the eWON will need the MPI address of the PLC on the MPI bus.
Using that eLINK interface, it is possible to poll different types of item in the PLC. These items types are described below.

8.4.2 Setup

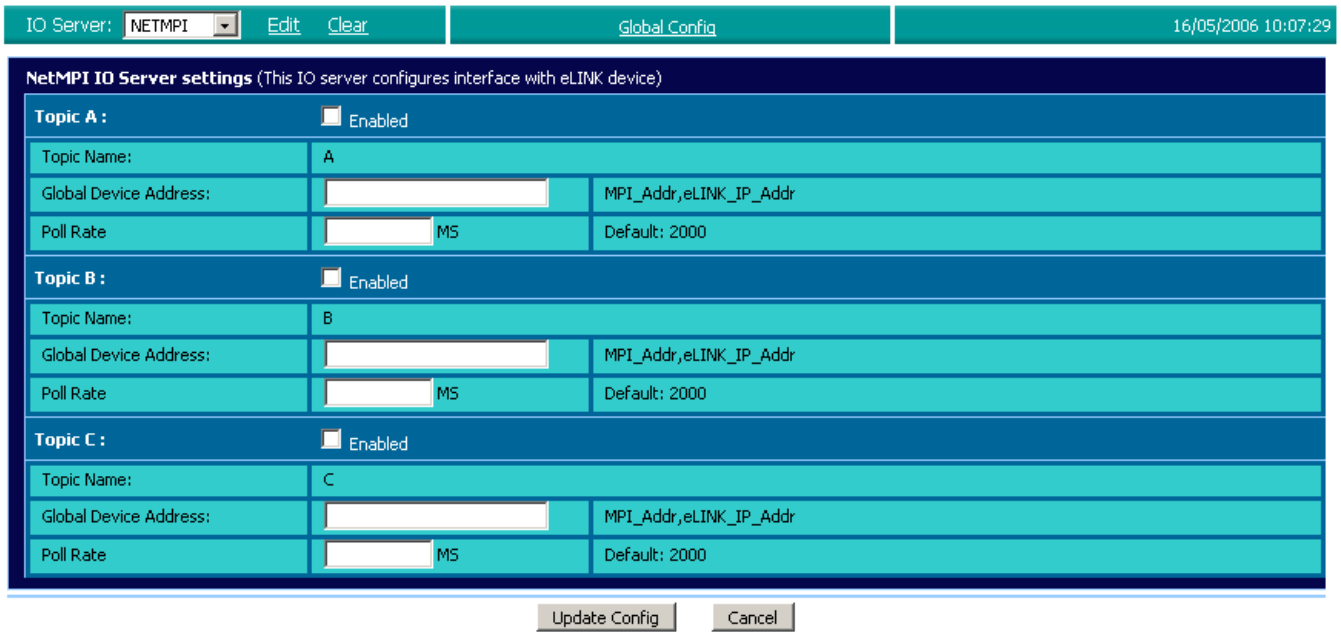


Figure 128: NETMPI configuration window

As for the Modbus and Unite protocols, it is possible to define topics, so that a single configuration can be applied to several Tags.

8.4.3 Tag name convention

IO Server configuration		
	NETMPI	
Topic Name	A	
	B	
	C	
Item Name	ValueName,RemoteStationAddress,eLinkIpAddress	PLC Address is defined Tag by Tag
	ValueName	Topic PLC Address is used

Table 101: NETMPI - IO server configuration

The Item Name can contain the PLC address where the value is polled, or not. If address is also specified at topic level, the address specified at Tag level will be ignored.

8.4.3.1 ValueName

Syntax	Description	Automatic Tag type
DBxBy	Data block x Byte offset y (0-255)	DWord
DBxWy	Data block x Word offset y (0 - 65535)	DWord
DBxFy	Data block x Float offset y (+-3.4e38)	Float
DBxDy	Data block x DWord offset y (-2147483648->2147483647) (*)	Integer
MxB	Memento x as byte	DWord
MxW	Memento x as word	DWord
MxF	Memento x as real	Float
MxD	Memento x as double (*)	Integer
Tx	Timer x (0-65535)	DWord
Cx	Counter x (0-65535)	DWord

Table 102: value names for NETMPI addresses

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

• Bit access modifier:

In any of the above items, it is possible to access a single bit (except for float items).
#x must be appended to the Value Name. (Bit index goes from 0..31)
The syntax can be used for reading bits and for writing them as well.

Example:

```
DB1W13#3 represents bit 3 of W13 in DB 1
```

REM:

```
Bit index range depends on a referenced item  (for W, bit index maximum value is 15)
```

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

```
Status, Global Device Address
```

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 103: Tag Status meaning

8.4.3.2 Device Address

The device address is either appended to the ValueName in the Item Name definition, or entered in the Topic global address fields.
The device address is composed of: RemoteStationAddress,eLinkIpAddress:

• RemoteStationAddress: is the PLC's MPI address
• eLinkIpAddress: is the eLINK IP address.

Important:

If the PLC address is defined at the Topic level, it can be omitted in the Tag definition. In that case the Tag name will only contain the "ValueName".

If the PLC address is specified at the Topic level, it will replace any address defined Tag by Tag.

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.5 UNITE IO Server

8.5.1 Introduction

The eWON RS485 link can be configured as an UNITELWAY SLAVE INTERFACE. When the Baud Rate in the UNITE IO Server is set to a value different than "Disabled", the Unitelway slave module in the eWON will be enabled.

This Unitelway slave provides 2 features:

- **Poll items in a Unitelway capable device.**
  The device can be the Unitelway master itself or a device addressable through the Unitelway master on the XWay network.
- **Forward XIP requests from TCP/IP XIP to Unitelway bus and thus, act as a gateway between XIP and Unitelway.**
  Using that feature, it is possible to access a PLC connected to the eWON's Unitelway link by connecting PL7PRO using the XIP driver started with the eWON IP address as destination.

8.5.2 Setup

8.5.2.1 Communication Setup

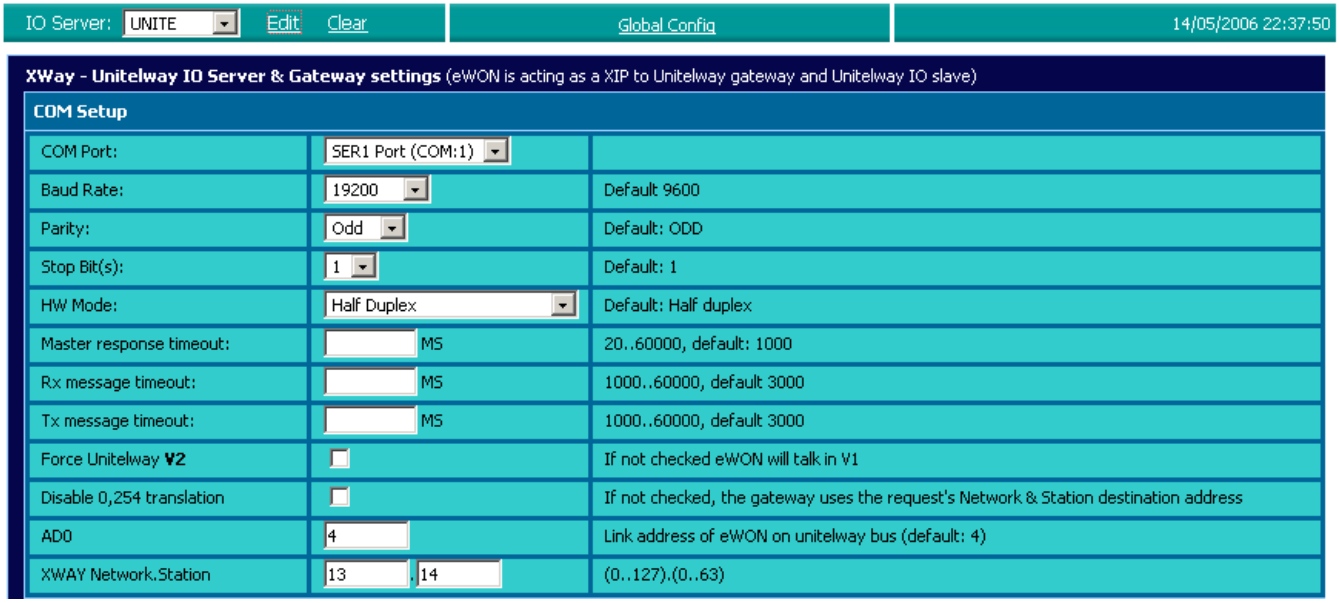


Figure 129: XWAY-UNITELWAY configuration

If more than one Serial port are available, you must choose on which COM the Unitelway request will be sent.

Field name	Description
COM Port	Physical COM Port allocated to the Unite IO Server. Drop down shows alternatives only if the relevant eWON has multiple serial ports (1).
Baud Rate	Baud rate of the serial link (has to be the same than the target device). Default is 9600..
Parity	The parity to apply: none / odd / even. This field is set by default to Odd, as in the main cases in a typical UniTE topology. However, the eWON allows you to define a different parity type (Even or None), in case this is needful to comply with your industrial network installations.
Stop Bit(s)	Number of stop bits
Master Response Timeout	Maximum time the eWON will wait for a valid message from the Unitelway master. This value can be critical for a correct operation, depending on the responsiveness of the master. A value of 1000 should be selected to guarantee a correct operation.
Rx message timeout (MSEC)	Maximum time between a request is posted and the response is received
Tx message timeout (MSEC)	Maximum time for a request to be sent

Table 104: XWAY communication setup controls

Force UnitelWay V2	If checked, the eWON will initiate a communication in V2 with the devices. When used with a TSX PLC, this check box can be left unchecked.
ADO	Link address base. The eWON will respond to AD0 and AD0+1 on the Unitelway link. The eWON will act as an Unitelway slave, it will respond to 2 consecutive link addresses AD0 and AD0+1, doing this improves the throughput of data across the eWON when acting as a gateway.
Xway Network Station	Address of the eWON on the XWAY network. When acting as an XIP to Unitelway gateway, the eWON will only respond the XWay network station defined here. Any XIP frame addressed to another network station will be ignored.

Table 104: XWAY communication setup controls

(1) For the eWON Flexy: The numbering of the serial COM ports starts with the serial port of the Base Unit (if available) and then continues with the upper port of the first Extension Module starting from the left. A maximum of 5 serial ports are supported.

Warning: When there are multiple IO servers potentially using the serial line, the unused IO servers must be cleared or the baud rate must be set to ***Disabled***. Example: if Modbus **and** UniTE IO servers are available, at least one of them must have its baud rate configured to Disabled. If not, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

8.5.2.2 Topic configuration

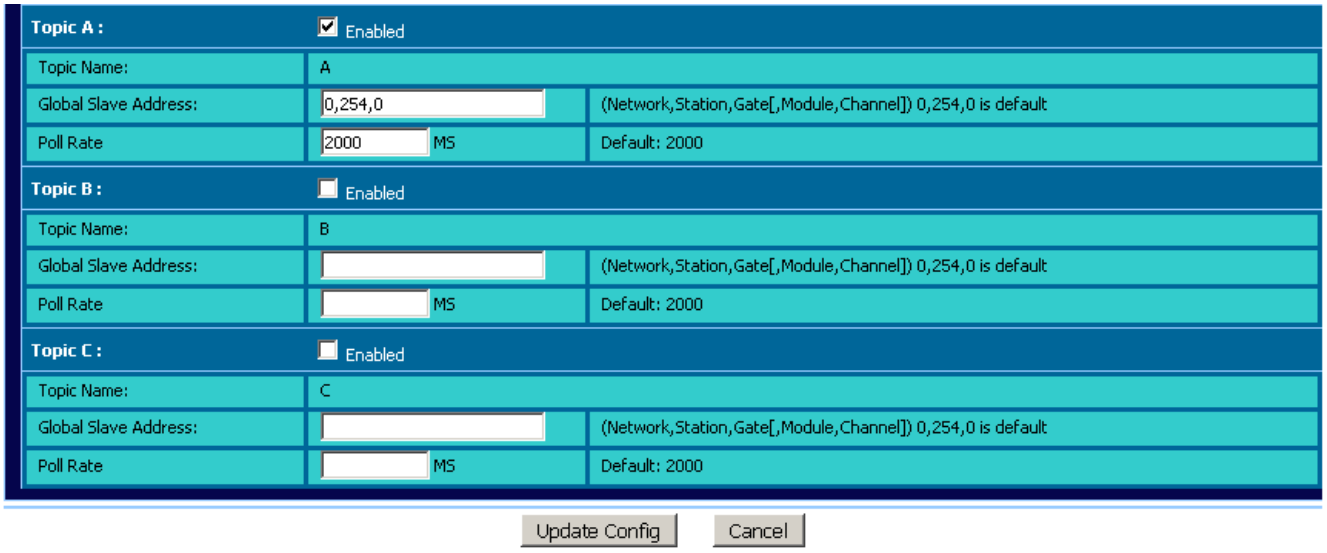


Figure 130: XWAY-UNITELWAY topics configuration

Three topics can be used for the IO Server. These topics are used to give a common property to a group of UNITE Tags such as:
- **Enable/Disable**
- **Poll rate**
- **Global Slave address**

Topic configuration item	Description
	Enables or disables polling of all the Tags in the topic.
Global Slave Address	This Slave address is a global parameter for all the Tags of the topic. See below for the Device Address syntax. If an address is specified here, it will replace (overload) the address defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag name must be refreshed every second – typically for digital input - and other every minute – typically: temperature-.

Table 105: UNITE - topics configuration

8.5.3 Tag name convention

IO Server configuration		
	UNITE	
Topic Name	A	
	B	
	C	
Item Name	ValueName,Network,Station,Gate,Module,Channel	PLC Address is defined Tag by Tag (and the gate requires a 5 level addressing)
	ValueName,Network,Station,Gate	PLC Address is defined Tag by Tag
	ValueName	Topic PLC Address is used

Table 106: UNITE - IO server configuration

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at topic level, the address specified at Tag level will be ignored. If the Topic address is not defined either, then address 0,254,0 will be used.

8.5.3.1 Value Name

Value name follows the syntax below:

Syntax	Description	Automatic Tag type
MWxW	Internal data word 16 bits (unsigned)	DWord
MWxI	Internal data word 16 bits (signed)	Integer
MWxD	Internal data word 32 bits as DWORD (unsigned) (*)	DWord
MWxF	Internal data word 32 bits as IEEE float	Float
MWxL	Internal data word 32 bits as LONG (signed) (*)	Integer
SWxW	System data word 16 bits (unsigned)	DWord
SWxI	System data word 16 bits (signed)	Integer
SWxD	System data word 32 bits as DWORD (unsigned) (*)	DWord
SWxL	System data word 32 bits as LONG (signed) (*)	Integer
Mx	Internal data bit	DWord
Sx	System data bit	DWord

Table 107: value names for UNITE addresses

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

Notes:

SW type cannot be formatted as float
The eWON allows you to optimize the requests in case you need to read a lot of Tags that have been created on the UniTelWay device. Imagine you have 100 Tags to read, the eWON will group the Tags within a predefined limit in order to make the less as reading operations as possible. The number of Tags that can be read depends of the types of words or bits that have to be read:
SW and MW types: by groups of 50
S and M types: by groups of 200
It is possible to read one bit from a word. The syntax to add is as follows:
#0 to #31
That means that if you want to read the fifth bit from an internal data word 16 bits unsigned that you address MW0, you have to add "#4" at the end of the address: MW0#4.
The type of words for which this syntax can be applied are:
MWxW, MWxI, MWxD, MWxL, SWxW, SWxI, SWxD and SWxL (please report to the table above).

examples:

address	point to
MW10 or MW10W	the Internal data Word (16bits) at address 10
MW10D	the Internal data Word (as DWord 32bits) at address 10
MW10W#5	the bit 5 (the sixth) from the Word at address 10
SW2 or SW2W	the System data Word (16bits) at address 2

Table 108: UNITE address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

Status, Global Device Address

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 109: Tag Status meaning

8.5.3.2 The device address syntax

The Device Address is used in the topic definition or in the Tag definition. If used in the Tag definition, it will be separated from the value name by a coma (',')

• Network,Station,Gate

example: 0,254,0 to access the UnitelWay device directly connected on the eWON

or

• Network,Station,Gate,Module,Channel

The second case applies to addresses with 5 levels:

- ***Network*: 0..127**
- ***Station*: 0..63**
- **Gate:**
- **Module:**
- **Channel:**

Module and channel can be omitted if not required.

Note: If the address is not specified, 0,254,0 will be used.

Important: If an address is specified in a Topic definition it will replace any address defined Tag by Tag.

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.6 DF1 IO Server

8.6.1 Introduction

The eWON serial link can be configured as a DF1 INTERFACE. When the Baud Rate in the DF1 IO Server is set to a value different than "Disabled", the DF1 module in the eWON will be enabled.
This DF1 module provides 3 features:
• Poll items in SLC50x and PLC5 controllers using PCCC requests.
• Forward PCCC requests from EIP (TCP/IP) to DF1 bus and thus, acts as an adapter between EIP and DF1.
Thanks to that feature, it is possible to access a PLC connected to the eWON's DF1 link by connecting RSLogix 500 using RSLinx TCP driver started with the eWON IP address as destination.
• Poll DH+ device using ControlLogix gateway

The DF1 IO Server must be configured in **Full Duplex mode** (eWON serial link must be configured in RS232 mode, with dipswitch).

note: Please check in the "Rockwell compatibility matrix" on page 244 if your device is supported.

8.6.2 Setup

8.6.2.1 Communication Setup

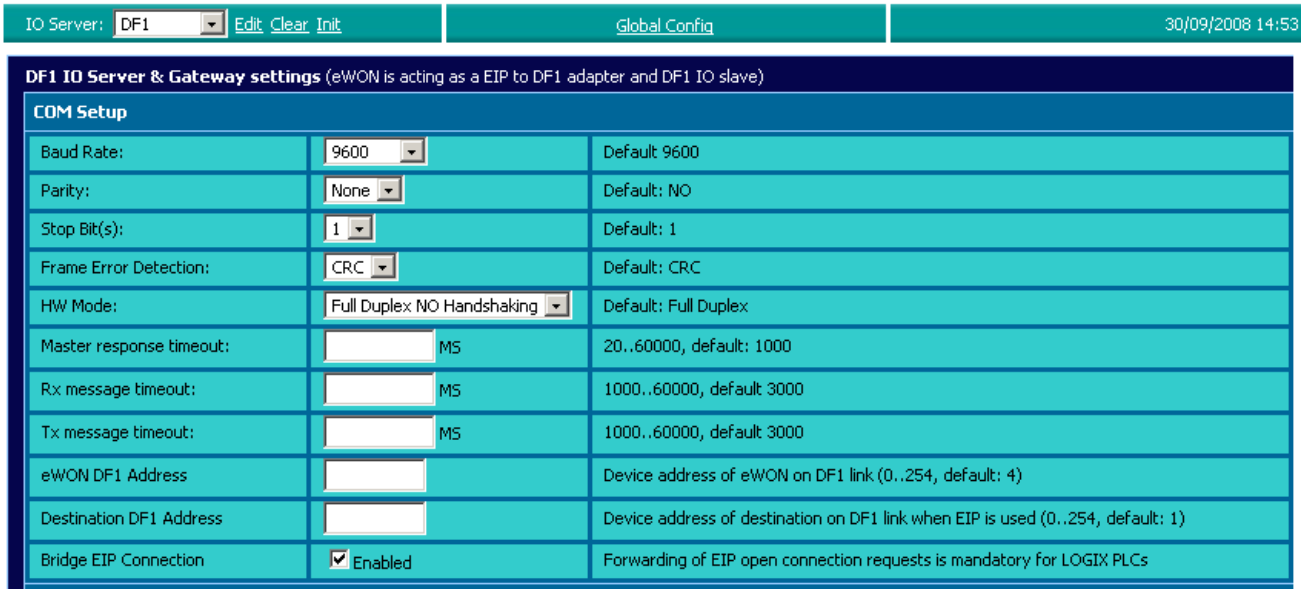


Figure 131: DF1 communications setup

If more than one Serial port are available, you must choose which COM the DF1 request will be sent to.

The following parameters can be modified:

Field name	Description
COM Port	Physical COM Port allocated to the DF1 IO Server. **Note**: In the example above, the port selection drop down is not displayed because the eWON has only one single serial port. For multiple serial ports see remark (1).
Baud Rate	Select the Baud rate from 1200 to 38400 Bauds
Parity	The parity to apply: none / odd / even
Stop Bit(s)	Number of stop bits
Frame Error Detection	Cyclic Redundancy Check (CRC) or Block Check Character (BCC)
HW mode	Full Duplex no handshaking or Half duplex
Master Response Timeout	Maximum time the eWON will wait for a valid message from the DF1 master. This value can be critical for a correct operation, depending on the responsiveness of the master. A value of 1000 should be selected to guarantee correct operations

Table 110: DF1 communication setup controls

Rx message timeout (MSEC)	Maximum time between a request is posted and the response is received
Tx message timeout (MSEC)	Maximum time for a request to be sent
eWON DF1 address	The eWON's device address on the DF1 link When the eWON acts as a DF1 slave, it will respond to 2 consecutive link addresses; doing this improves the throughput of data across the eWON when acting as a gateway. (eWON DF1 address and eWON DF1 address +1)
Destination DF1 address	Device Address of Destination on DF1 link when EIP is used
Bridge EIP connection	When bridging is configured, EIP connections requests are forwarded to the PLC on the DF1 interface (mandatory for Logix family). This is the default configuration. When not configured, connection requests are canceled by the eWON (must be disabled for SLC family).

Table 110: DF1 communication setup controls

(1) For the eWON Flexy: The numbering of the serial COM ports starts with the serial port of the Base Unit (if available) and then continues with the upper port of the first Extension Module starting from the left. A maximum of 5 serial ports are supported.

Warning: When there are multiple IO servers potentially using the serial line, the unused IO servers must be cleared or the baud rate must be set to ***Disabled***. Example: if Modbus **and** DF1 servers are available, at least one of them must have its baud rate configured to Disabled. If not, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

8.6.2.2 Topic configuration

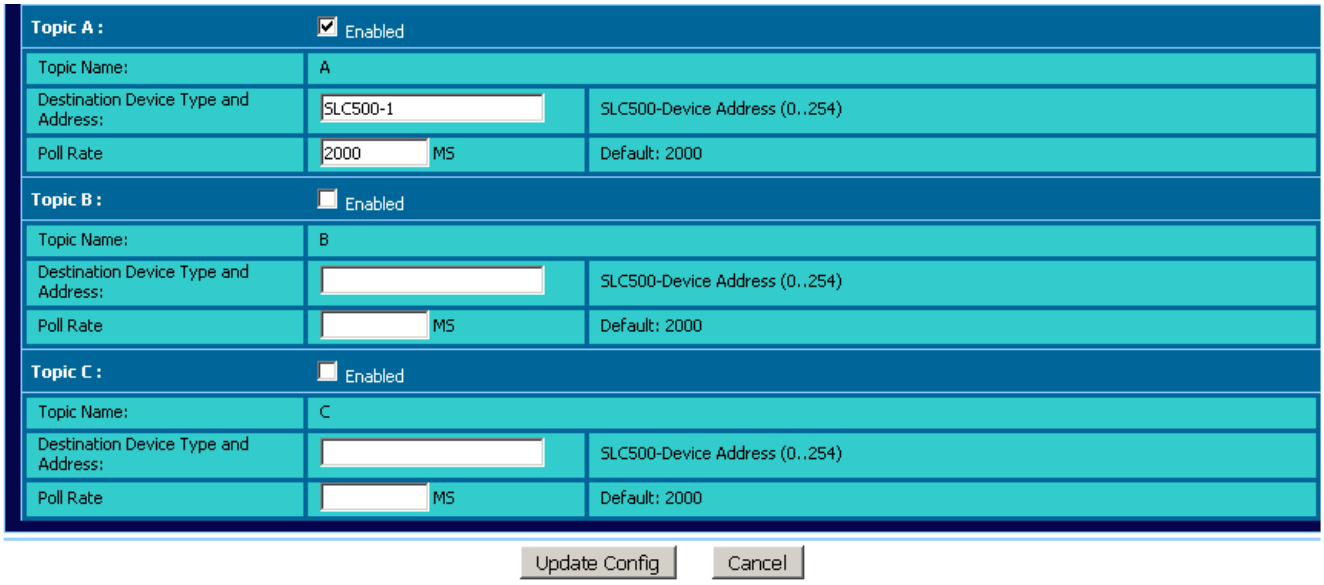


Figure 132: DF1 topics configuration

Three topics can be used for the IO Server. These topics are used to give a common property to a group of DF1 Tags like:
- **Enable/Disable**
- **Poll rate**
- **Destination Device Type and Address**

Topic configuration item	Description
	Enables or disables the polling of all the Tags in the topic
Destination Device Type and Address	The Destination Device Type and Address is a global parameter for all the Tags of the topic. See below for the Device Address syntax. If an address is specified here, it will replace (overload) the address defined Tag by Tag
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag name must be refreshed every second – typically for digital input - and other every minute – typically: temperature-

Table 111: DF1 topics configuration setup

8.6.2.2.1 DF1 : serial link

The Destination Device Type and address are :

- *SLC500-x* (where *x* is the address of your SLC500 or Micrologix Device, range 0..254)
- *PLC5-x* (where *x* is the address of your PLC5 Device, range 0..254)

```
i.e.:  Topic A Destination = SLC500-1
       Topic B Destination = PLC5-6
For accessing a Micrologix, use the SLC500 syntax
       Topic C Destination = SLC500-3      (accessing the Micrologix at address 3)
```

8.6.2.2.2 DF1 : Ethernet routing

Thanks to the ABLogix IOServer, the eWON is now able to poll data on SLC500/PLC5 devices by its Ethernet link. Even SLC500 connected behind your ControlLogix Network becomes available for polling.
With this use of DF1 IOServer, the Serial config can be left without configuration (baud rate=disabled), only one Topic enabled is required.
You need to use a similar syntax than in ABLogix IOServer.

[DeviceType-] IP Address [, Port, Link]

- ***DeviceType*** = type of PLC (SLC500 or PLC5)
- ***IP Address*** = address on your Ethernet network (i.e.: 10.0.0.50)
- ***Port*** = value from 1 to 3 representing: 1 = Backplane, 2 = Channel A, 3 = Channel B
- ***Link*** could be:
  - *Slot*: representing the Slot on the Backplane (0=CPU)
  - *Node ID*: value from 0 to 99 (for ControlNet)
  - *IP address*

To reach a SLC500 with Ethernet address 10.0.0.60:
Topic A Destination = ***10.0.0.60 or SLC500-10.0.0.60***

To reach a PLC5 with Ethernet address 10.0.0.65:
Topic A Destination = ***PLC5-10.0.0.65***

To reach a SLC500 connected behind a ControlLogix :
Topic A Destination = ***10.0.0.80,1,3,2,45 or SLC500-10.0.0.80,1,3,2,45***

- ***10.0.0.80*** = IP address of the ControlLogix
- ***1*** = BackPlane
- ***3*** = Slot 3 (COM card in ControlNet)
- ***2*** = Channel A (of the Card present in Slot 3)
- ***45*** = NodeID of the SLC500 (in the ControlNet network)

To reach a PLC5 connected behind a ControlLogix :
Topic A Destination = ***PLC5-10.0.0.90,1,3,2,44***

- ***10.0.0.90*** = IP address of the ControlLogix
- ***1*** = BackPlane
- ***3*** = Slot 3 (COM card)
- ***2*** = Channel A (of the Card present in Slot 3)
- ***44*** = NodeID of the PLC5 (in the COM network)

8.6.2.2.3 DH+ polling using ControlLogix gateway

This feature allows the eWON to poll PLC Tags located on a DH+ network, behind a ControlLogix equipped with one or more DHRIO cards.
Polling is done using eWON EIP protocol.
The DF1 IO server is used to access the "SLC500" PLC family. The ABLOGIX IO server is used to access the "LOGIX" PLC family.

The syntax *[Device Type-] IP address [,Port,Link]* is still applicable but in this particular case:
the [,Port,Link] part becomes mandatory
The DH+ channel used to reached the "SLC500" PLC must be specified using the "A" or "B" character.

Example: To reach a SLC500 with DH+ node Id 5, using channel A of a DHRIO card at slot 9 of a ControlLogix at IP address 10.0.30.21.
Topic A Destination = ***SLC500-10.0.30.21,1,9,A,5***

- ***10.0.30.21*** = IP address of the ControlLogix
- ***1*** = BackPlane
- ***9*** = Slot 9 (COM card)
- ***A*** = Channel A (of the Card present in Slot 9)
- ***5*** = NodeID of the SLC500 (in the COM network)

8.6.3 Tag name convention

IO Server configuration		
	DF1	
Topic Name	A	
	B	
	C	
Item Name	ValueName, DeviceType-DeviceAddress	Device Type and Address are defined Tag by Tag Only device Type SLC500 is supported Device Address is a number between 0..254
	ValueName	Topic PLC Address is used

Table 112: DF1 IO server configuration

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at the topic level, the address specified at Tag level will be ignored.

8.6.3.1 Value Name

8.6.3.1.1 General Description

The general format of value names for data from SLC-500 controllers matches the naming convention used by the programming software. The format is shown below (The parts of the name shown between square brackets are optional).

```
General Value Name Format:    X[file]:element [.field][/bit]
```

X: Identifies the file type. The below table summarizes the valid file types, default file number for each type and the fields allowed.

X	File Type	Default file Number	Fields	Automatic Tag type
O	Output	0		DWord
I	Input	1		DWord
S	Status	2		DWord
B	Binary	3		DWord
T	Timer	4	.PRE, .ACC, .EN, .TT, .DN	DWord
C	Counter	5	.PRE, .ACC, .CU, .CD, .DN, .OV, .UN, .UA	DWord
R	Control	6	.LEN, .POS, .EN, .DN, .ER, .UL, .IN, .FD	DWord
N	Integer	7		DWord
F	Floating	8		Float
A	ASCII	none		DWord

Table 113: value names for DF1 addresses

- **File: File number must be 0-255 decimal**
- **Element: Element number within the file**
- **Field: Valid only for Counter, Timer and Control files**
- **/bit: Valid for all types except Floating**

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

8.6.3.1.2 Output File Items

`Output File Item Format: O[n]:e.s[/b]`

• "n" represents the file number and is optional. Value is always zero
• "e" indicates the element number in the file (0..30)
• "s" indicates the sub-element number (0..255)
• "b" specifies the bit (0..15) decimal

Note for the Micrologix Series:
The syntax for Output File Items for the Micrologix Series is slightly different:
Basically, it drops 1 digit to show O:1 instead of O:0.1
Actually the eWON reads consecutive words.

Example for the Micrologix 1400

PLC Addressing	eWON Addressing
O:0.2	O:2
O:1.0	O.6

This example shows that when stepping to another output card, the incrementation continues in the eWON (from O:5 to O:6) while in the PLC itself it increments the first digit (from O:0.5 to O:1.0).

8.6.3.1.3 Input File Items

`Input File Item Format: I[n]:e.s[/b]`

• "n" represents the file number and is optional. Value is always one
• "e: indicates the element number in the file (0..30)
• "s" indicates the sub-element number (0..255)
• "b" specifies the bit (0..15) decimal
•

Note for the Micrologix Series:
The syntax for Input File Items for the Micrologix Series is slightly different:
Basically, it drops 1 digit to show O:1 instead of O:0.1
Actually the eWON reads consecutive words.

Example for the Micrologix 1400

PLC Addressing	eWON Addressing
I:0.7	I:7
I:1.0	I.8

This example shows that when stepping to another input card, the incrementation continues in the eWON (from I:7 to I:8) while in the PLC itself it increments the first digit (from I:0.7 to I:1.0).
•

8.6.3.1.4 Status File Items

`Status File Item Format: S[n]:e[/b]`

• "n" represents the file number and is optional. If not specified, it is assumed to be 2
• "e" indicates the element number in the file (0..255)
• "b" specifies the bit (0..15) decimal

8.6.3.1.5 Binary File Items

Binary File Item Format: B[n]:e/b
• "n" represents the file number and is optional. If not specified, it is assumed to be 3, otherwise must be between 3 and 255 decimal
• "e" indicates the element number in the file (0..255)
• "b" specifies the bit (0..15) decimal

Note: The format B[n]/b is not supported.

8.6.3.1.6 Timer File Items

`Timer File Item Format: T[n]: e [.f] [/b]`

- **"n" represents the file number and is optional. If not specified, it is assumed to be 4, otherwise must be between 4 and 255 decimal**
- **"e" indicates the element number (3 words per element) in the file (0..255)**
- **"f" identifies one of the valid values for timer fields specified in the table above. If omitted it is assumed to be the word containing the status bits**
- **"b" specifies the bit (0..15) decimal**

8.6.3.1.7 Counter File Items

`Counter File Item Format: C[n]: e [.f] [/b]`

- **"n" represents the file number and is optional. If not specified, it is assumed to be 5, otherwise must be between 5 and 255 decimal**
- **"e" indicates the element number (3 words per element) in the file (0..255)**
- **"f" identifies one of the valid values for counter fields specified in the table above. If omitted it is assumed to be the word containing the status bits**
- **"b" specifies the bit (0..15) decimal**

8.6.3.1.8 Control File Items

`Counter File Item Format: C[n]: e [.f] [/b]`

- **"n" represents the file number and is optional. If not specified, it is assumed to be 6, otherwise must be between 6 and 255 decimal**
- **"e" indicates the element number (3 words per element) in the file (0..255)**
- **"f" identifies one of the valid values for counter fields specified in the table above. If omitted it is assumed to be the word containing the status bits**
- **"b" specifies the bit (0..15) decimal**

8.6.3.1.9 Integer File Items

`Integer File Item Format: N[n]:e[/b]`

- **"n" represents the file number and is optional. If not specified, it is assumed to be 7, otherwise must be between 7 and 255 decimal**
- **"e" indicates the element number in the file (0..255)**
- **"b" specifies the bit (0..15) decimal**

8.6.3.1.10 Floating File Items

Floating File Item Format: F[n]:e

- **"n" represents the file number and is optional. If not specified, it is assumed to be 8, otherwise must be between 8 and 255 decimal**
- **"e" indicates the element number in the file (0..255)**

8.6.3.1.11 ASCII File Items

`ASCII File Item Format: An:e[/b]`

- **"n" represents the file number and is not optional**
- **"e" indicates the element number in the file (0...255)**
- **"b" specifies the bit (0..15) decimal**

8.6.3.1.12 Status register

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

`Status, Global Device Address`

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 114: Tag Status meaning

8.6.3.2 Destination Device Type and Address

The Device Address is used in the topic definition or in the Tag definition. If used in the Tag definition, it will be separated from the value name by a coma (',').

• **Format:**
DeviceType-DeviceAddress

The Destination Device Type and address are :
- *SLC500-x* (where *x* is the address of your SLC500 or Micrologix Device, range 0..254)
- *PLC5-x* (where *x* is the address of your PLC5 Device, range 0..254)

i.e.: Topic A Destination = SLC500-1
Topic B Destination = PLC5-6
For accessing a Micrologix, use the SLC500 syntax
Topic C Destination = SLC500-3 (accessing the Micrologix at address 3)

• **Format:**
[DeviceType-] IP address [,Port,Link]

example: 10.0.0.80 to access a SLC500 (or a Micrologix)

See "DF1 : Ethernet routing" on page 143

Note: Assisted Edition is enable for this IO server (C.F. Page 100)

8.7 FINS IO Server

8.7.1 Introduction

The FINS IO Server includes the configuration of:

- **The eWON as a FINS Hostlink client (master) to give access on values in CSCJ series OMRON equipments reachable using eWON serial port(s).**
- **The eWON as a FINS TCP/UDP client (master) to give access on values in CSCJ OMRON equipments reachable using eWON Ethernet interface.**
- **The eWON as a FINS TCP/UDP server acting as a gateway between the Ethernet/PPP interface and the serial interface (used to connect remotely programming/monitoring software to OMRON FINS supporting equipments reachable using eWON serial ports).**

The FINS IO Server is designed to provide simultaneous access to OMRON equipments on its serial interface and Ethernet interface. The correct protocol will depend on the topic that the Tag belongs to. UDP and TCP protocols can be mixed as well on the Ethernet interface.

When the Baud Rate in the FINS IO Server is set to a value different than "Disabled", the serial Hostlink Client will be enabled.

The FINS IO Server can be configured in 3 modes:

- **Full Duplex mode (eWON serial link must be configured in RS232 mode) without HW handshaking**
- **Full Duplex mode with HW handshaking**
- **Half Duplex slave mode (RS485 mode)**

8.7.2 Setup

8.7.2.1 Communication Setup

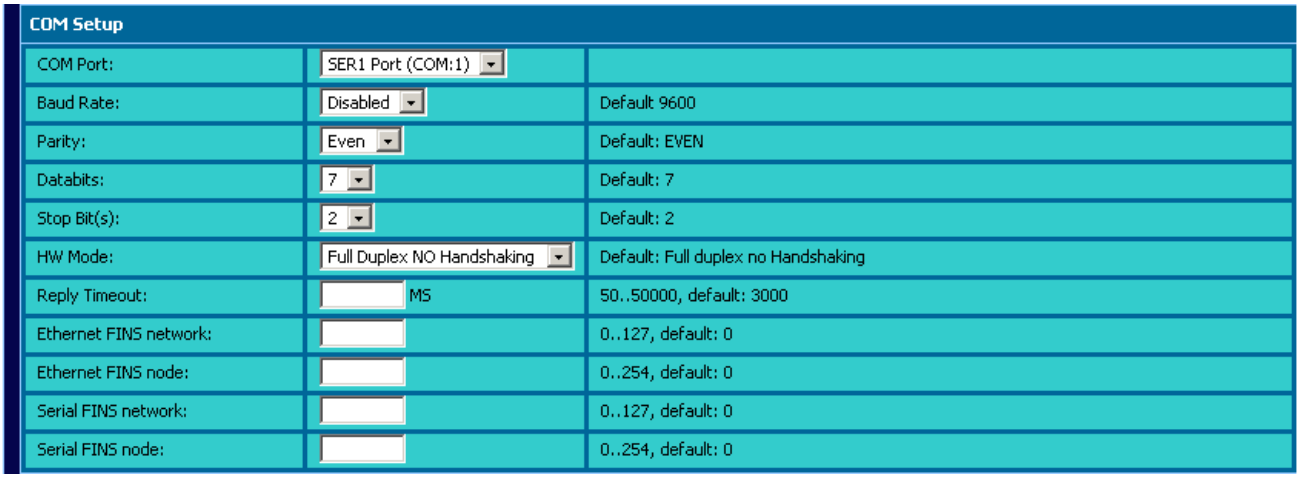


Figure 133: FINS IO server COM setup

The following parameters can be modified:

Field name	Description
COM Port	Physical COM Port allocated to the FINS IO Server. **Note**: The port selection drop down is not displayed if the eWON has only one single serial port. For multiple serial ports see remark (1).
Baud Rate	Disabled, 1200, 2400, 4800, 9600, 19200, 38400, 57600
Parity	None, Odd, Even
Data Bits	7, 8
Stop Bit(s)	1,2
HW mode	Full Duplex no HW handshaking, Full Duplex HW handshaking, Half Duplex
ReplyTimeout	The maximum time the eWON will wait for a valid FINS message response (applicable for Ethernet and serial interface).
Ethernet FINS network	Source Network Address (SNA) filled in a FINS request message originating from the eWON and sent out on the Ethernet interface.
Ethernet FINS node	Source Node Address (SA1) filled in a FINS request message originating from the eWON and sent out on the Ethernet interface. It uniquely identifies the eWON on the Ethernet network.
Serial FINS network	Source Network Address (SNA) filled in a FINS request message originating from the eWON and sent out on the serial interface.
Serial FINS node	Source Node Address (SA1) filled in a FINS request message originating from the eWON and sent out on the serial interface. It uniquely identifies the eWON on the serial network.

Table 115: FINS IO server COM setup configuration fields

(1) For the eWON Flexy: The numbering of the serial COM ports starts with the serial port of the Base Unit (if available) and then continues with the upper port of the first Extension Module starting from the left. A maximum of 5 serial ports are supported.

Warning: When there are multiple IO servers potentially using the serial line, the unused IO servers must be cleared or the baud rate must be set to ***Disabled***. Example: if Modbus **and** FINS servers are available, at least one of them must have its baud rate configured to Disabled. If not, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

8.7.2.2 Topic Configuration

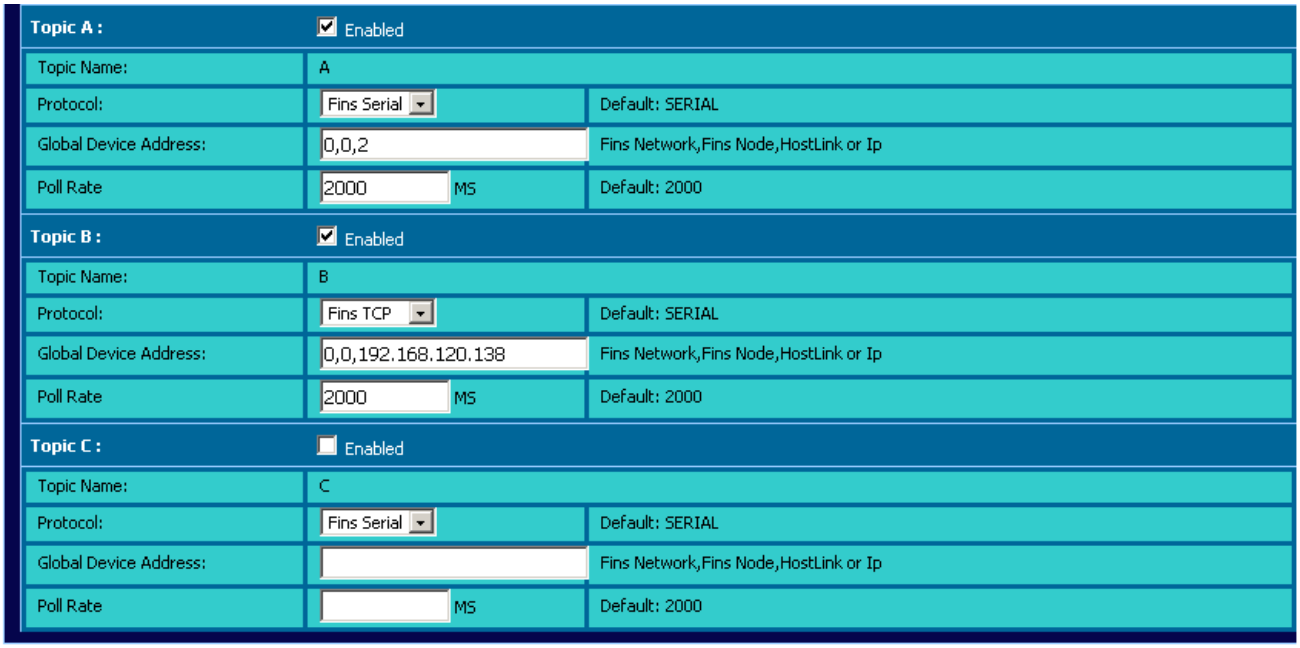


Figure 134: FINS IO server topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of FINS Tags like:

- Enable/Disable
- Protocol
- Global Device Address
- Polling Rate

Topic configuration item	Description
	Enables or disables the polling of all the Tags in the topic.
Protocol	Protocol used for the tags belonging to this topic: FINS Serial, FINS UDP, FINS TCP.
Global Device Address	See below for the Device Address Syntax. If an address is specified here, it will replace (overload) the address-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

Table 116: FINS IO server topic configuration fields

8.7.2.3 Gateway Configuration

The following parameters can be modified:

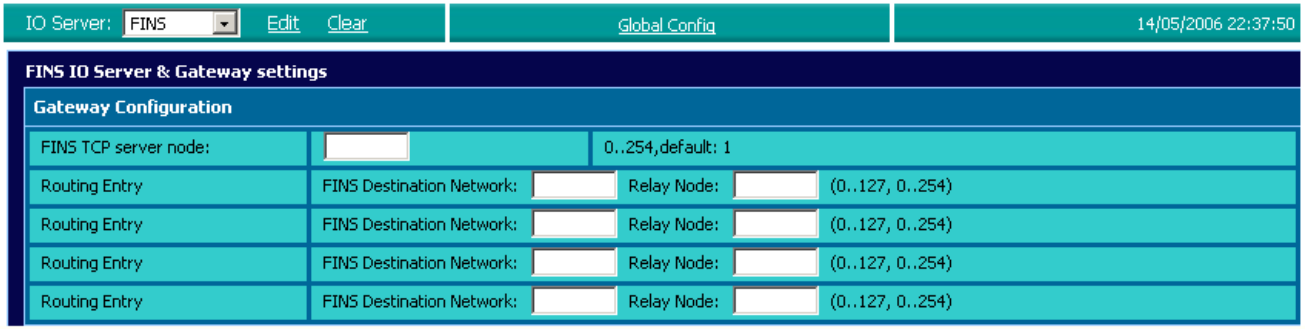


Figure 135: FINS IO server gateway configuration

FINS TCP Server Node	The eWON FINS server node address used during FINS TCP session establishment (exchange of the FINS node address messages, and allocation of a FINS TCP Client node if necessary).
Routing Entry 1..4	For each defined destination network, gives the matching relay destination node. This is used to fill in the host link unit ID in the hostlink frame which encapsulates the FINS message sent out on the serial interface.

Table 117: FINS IO server gateway configuration fields

8.7.3 Tag Name Convention

IO Server configuration		
IO Server Name	FINS	
Topic Name	A	
	B	

Table 118: FINS IO server - Tag name convention table

	C	
Item Name	ValueName, FINS Network, FINS Node, Hostlink or Ip Address	If FINS Serial has been chosen at topic level, Hostlink value has to be defined. If FINS UDP or FINS TCP has been chosen at topic level, IP address has to be defined.
	ValueName	Topic PLC Address is used.

Table 118: FINS IO server - Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If address is also specified at the topic level, the address specified at the Tag level will be ignored.

8.7.3.1 Value Name

8.7.3.1.1 General Description

The format of value names for data from CS/CJ OMRON controllers is shown below. Its is based on the naming convention used by the CX Programmer programming software. The format is shown below (The parts of the name shown in square brackets are optional).

`General Value Name Format: X[bank number:][modifier]word address[#bit address]`*

- **X identifies the Memory area acronym.**
- **[bank number:] is only supported by the E memory area. Values 0 to max values for memory area.**
- **[modifier] allow you to interpret the data in a specific type (Word if omitted).**
- **[#bit address] is only supported by A, D, CIO, H and W memory areas. Values 0 to 15.**

**items between brackets "[]" are optional (the brackets should not be used!)*

`Supported memory areas:`

X	Memory area
A	Auxiliary area
C	Counter area
CIO	Core I/O area
D	Data Memory area
E	Extended Data Memory area
H	Holding area
T	Timer Area
W	Work Area

Table 119: FINS IO server supported memory areas table

`Modifier:`

Symbol	Modifier	value range	Automatic Tag type
	Word (default)	0 .. 65535	DWord
	signed Word	-32768 .. 32767	Integer
	DWord	0 .. 4294967296 (*)	DWord
	signed DWord	-2147483648 .. 2147483647 (*)	Integer
	Float	+/- 3.4e38	Float

Table 120: FINS Modifiers

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

examples:

address	point to
A5	the Word at address 5 in the Auxiliary Area (equivalent to AW5)
AS5	the Signed Word at address 5 in the Auxiliary Area
A2#5	the bit 5 from the Word at address 2 in the Auxiliary Area
E0:S3	the signed Word at address 3 from the Extended Data Memory 0
C5	the Counter at address 5
D4	the Data Memory at address 4

Table 121: FINS address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for the other Tags, the status Tag ValueName is composed of:

Status, Global Device Address

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 122: Tag Status meaning

8.7.3.2 Global Device Address

The global device address is used in the topic definition or in the Tag definition. If it is used in the Tag definition, it will be separated from the value name by a coma.

• Format:

Network,Node,HostLink
or Network,Node,IP

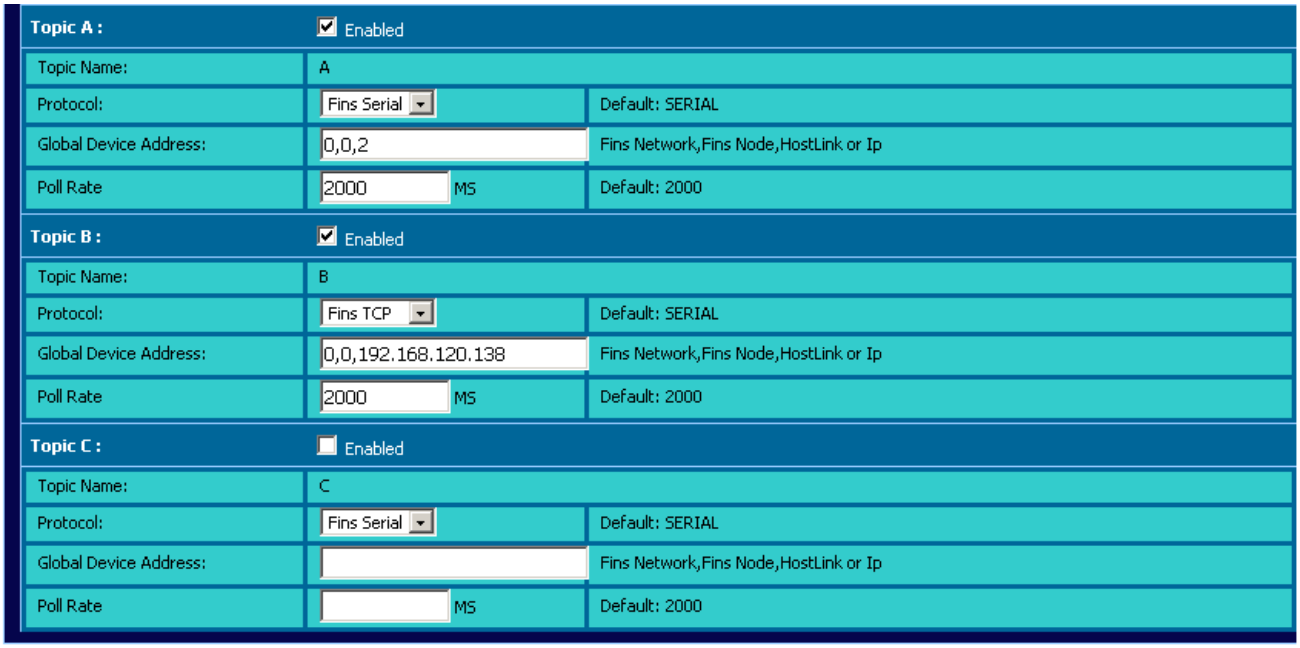


Figure 136: FINS IOServer topic setup

NOTE: Assisted Edition is enable for this IO server (C.F. Page 100)

8.8 S5-AS511 IO Server

8.8.1 Introduction

This IO server is intended for use with Siemens S5 PLCs communicating via the front programming port using AS511 protocol.
The AS511 protocol is specific for each Siemens device. This IO Server has been designed to operate with a set range for Siemens equipment. Use of the IO Server on devices other than those listed is not recommended and not supported.

The Siemens S5 PLC family has a unique memory structure. Data within the PLC are not located at fixed locations within the PLC's memory space. This memory space is continuously updated and revised as you create and modify your PLC logic. When these revisions occur, the location of key data elements such as flags, timers, counters, I/O and data blocks can move around in the PLC's memory. The Siemens S5 IO Server has been designed to read the location of these memory elements when the driver first begins operation upon detecting a communication error or after a request (which is not a read or a write request) has been transmitted to the PLC. If you change your PLC configuration you must restart the Siemens S5 IO Server or simply unplug/re-plug the connection cable. Both actions will cause the Siemens S5 IO Server to reacquire the location of all PLC memory elements.

8.8.2 Setup

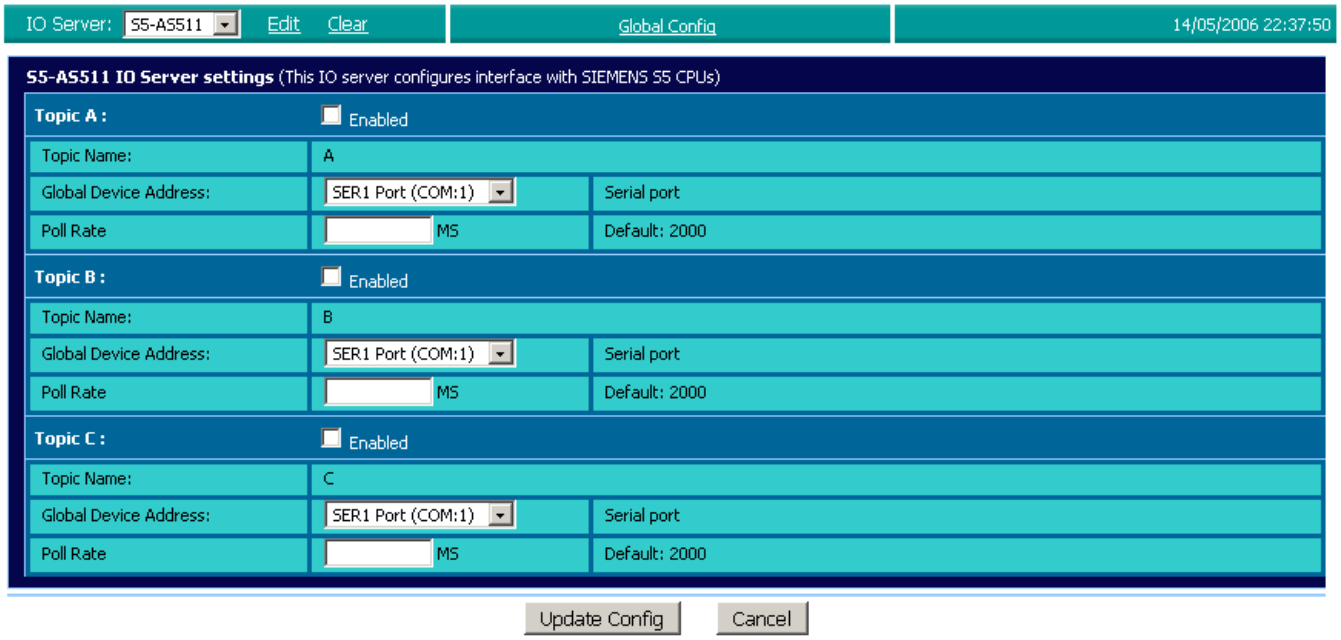


Figure 137: S5-AS511 IO server setup window

For the eWON Flexy: The numbering of the serial COM ports starts with the serial port of the Base Unit (if available) and then continues with the upper port of the first Extension Module starting from the left. A maximum of 5 serial ports are supported.

Warning: When there are multiple IO servers potentially using the serial line, the unused IO servers must be cleared or the baud rate must be set to ***Disabled***. Example: if Modbus **and** S5-AS511 servers are available, at least one of them must have its baud rate configured to Disabled. If not, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

8.8.3 Communication setup

The AS511 link uses a RS-232 Current Loop functioning mode.
A specific cable (with electronic) is therefore required (Siemens S5 Cable : ACT'L ref EW40910)
The communication parameters are fixed to the following values:

- **9600 Baud (Fixed)**
- **Even Parity (Fixed)**
- **8 Data Bits (Fixed)**
- **1 Stop Bit (Fixed)**
- **Full duplex no handshaking (Fixed)**

8.8.3.1 Supported Devices

• Siemens S5 - 90U • Siemens S5 - 95U • Siemens S5 - 100U - 100 • Siemens S5 - 100U - 101 • Siemens S5 - 100U - 103 • Siemens S5 - 101U	• Siemens S5 - 115U - 941 • Siemens S5 - 115U - 942 • Siemens S5 - 115U - 943 • Siemens S5 - 115U - 944 • Siemens S5 - 115U - 945

Table 123: Siemens S5 devices supported by the eWON AS-511 IO server

8.8.4 Tag name convention

IO server Name	S5-AS511	
Topic name	A or B or C	
Item Name	ValueName, ComPortNum	COM port is defined Tag by Tag
	ValueName	Topic COM port is used (or default)

Table 124: S5-AS511 IO server Tag name convention table

ComPortNum: The port number used to access the PLC; if not specified, the default COM port is used.
- If a port address is specified in the topic, it is used and overloads per Tag address.
- If no address is specified, neither in the topic, nor at the Tag level, then the default port is used (Default port is the ECIA Port - COM:1).

8.8.4.1 ValueName

Syntax	Description	Automatic Tag type
	Data block x Word offset y, left byte of word (0 - 255)	DWord
	Data block x Word offset y, left char of word (-128 - 127)	Integer
	Data block x Word offset y, right byte of word (0 - 255)	DWord
	Data block x Word offset y, right char of word (-128 - 127)	Integer
	Data block x Word offset y, full word (0 - 65535)	DWord
	Data block x Word offset y, integer (-32768 - 32767)	Integer
	Data block x DWord offset y (0 - 4294967296) (*)	DWord
	Timer x (0-65535)	DWord
	Counter x (0-65535)	DWord
	Memento as Byte	DWord
	Memento as Word	DWord
	Memento as DWord (*)	DWord
	Input	DWord
	Output	DWord

Table 125: S5-AS511 IO server value names

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

- **Bit access modifier:**

In any of the above items, it is possible to access a single bit.
#x must be appended to the Value Name (Bit index goes from 0..31).
The syntax can be used for reading bits and for writing them as well.

Example:

```
DB1W13#3 represents bit 3 of W13 in DB 1
Q32B#0 represents bit 0 of Q32.
       Note that you must define the type byte (B) to successfully extracts a bit (Q32#0 will not work).
```

REM:

```
Bit index range depends on item referenced (for W, bit index maximum value is 15)
```

NOTES:

- **For DB the smallest element is a WORD and we count addresses in Word.**
  This means that DB1W0 and DB1W1 WILL NOT overlap.
- **Timers and Counters are always Words and addresses are counted in WORD as well.**
  This means that T0 and T1 WILL NOT overlap.
- **For M, I, Q addresses are counted in BYTES.**
  This means that M0W and M1W WILL overlap.
- **Both syntax (German and English) can be used for I, Q, C**
  which in German gives: E, A, Z.

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for other Tags, the status Tag ValueName is composed of:

```
Status,ComPortNum
```

- You can define a status Tag for each COM port used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 126: Tag status meaning

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.9 ABLOGIX IO Server

8.9.1 Introduction

ABLogix IO server is used to communicate with Allen Bradley Logix Series PLCs on the Ethernet link or on the Serial link (in DF1 protocol).

• It allows the eWON to poll ABLOGIX PLCs in order to read data.
• It allows the eWON to act as EIP-DF1 gateway for remote maintenance of the ABLOGIX PLCs.
• It allows the eWON to poll DH+ device using ControlLogix gateway.

The eWON only allows DF1 communication with devices directly connected to the eWON Serial link (the ABLOGIX PLC may not be located behind another PLC connected on the DF1 serial link acting itself as gateway).

Note: Please check in the “Rockwell compatibility matrix” on page 244 if your device is supported.

8.9.2 Setup

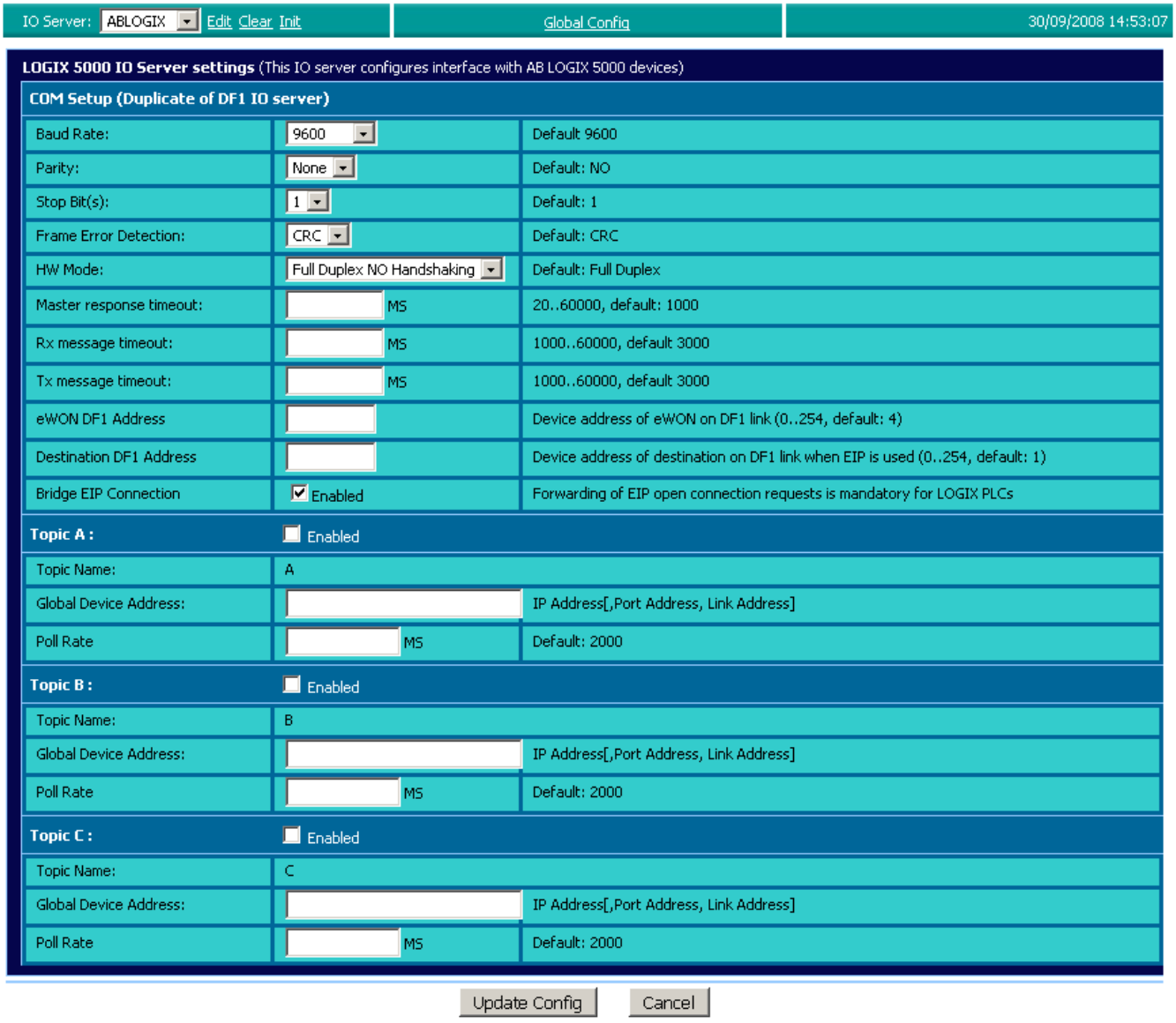


Figure 138: ABLOGIX IO server setup window

8.9.2.1 Communication Setup

In the current implementation, the serial link configuration may be done using the DF1 IO Server configuration page or the AB LOGIX IO server page.
The same settings apply for both IO servers (DF1 and ABLogix).
note: In the config.txt file the serial link parameters are defined in the DF1 IO server entry.

Field name	Description
COM Port	Physical COM Port allocated to the ABLOGIX IO Server. **Note**: The port selection drop down is not displayed if the eWON has only one single serial port. For multiple serial ports see remark (1).
Baud Rate	Select the Baud rate from 1200 to 38400 Bauds
Parity	The parity to apply: none / odd / even
Stop Bit(s)	Number of stop bits
Frame Error Detection	Cyclic Redundancy Check (CRC) or Block Check Character (BCC)

Table 127: ABLOGIX-DF1 communication setup controls

HW mode	Full Duplex no handshaking or Half duplex
Master Response Timeout	Maximum time the eWON will wait for a valid message from the DF1 master. This value can be critical for a correct operation, depending on the responsiveness of the master. A value of 1000 should be selected to guarantee correct operation
Rx message timeout (MSEC)	Maximum time between a request is posted and the response is received
Tx message timeout (MSEC)	Maximum time for a request to be sent
eWON DF1 address	Device Address of eWON on DF1 link When the eWON acts as a DF1 slave, it will respond to 2 consecutive link addresses; doing this improves the throughput of data across the eWON when acting as a gateway. (eWON DF1 address and eWON DF1 address +1)
Destination DF1 address	Device Address of Destination on DF1 link when EIP is used
Bridge EIP connection	When bridging is configured, EIP connections requests are forwarded to the PLC on the DF1 interface (mandatory for Logix family). This is the default configuration. When not configured, connection requests are canceled by the eWON (must be disabled for SLC family).

Table 127: ABLOGIX-DF1 communication setup controls

(1) For the eWON Flexy: The numbering of the serial COM ports starts with the serial port of the Base Unit (if available) and then continues with the upper port of the first Extension Module starting from the left. A maximum of 5 serial ports are supported.

Warning: When there are multiple IO servers potentially using the serial line, the unused IO servers must be cleared or the baud rate must be set to ***Disabled***. Example: if Modbus **and** ABLOGIX servers are available, at least one of them must have its baud rate configured to Disabled. If not, one of the IO servers will not be able to use the serial line and it will be disabled, with an error written in the event log.

8.9.2.2 Topic configuration

Three topics can be used for the IO Server. These topics are used to give a common property, to a group of Tags, like:

- **Enable/Disable**
- **Global Device Address**
- **Poll rate**

Topic configuration item	Description
	Enables or disables the polling of all the Tags in the topic
Global Device Address	The Global Device Address is a global parameter for all the Tags of the topic. See below for the Device Address syntax. If an address is specified here, it will replace (overload) the address defined Tag by Tag
Poll rate	Defines the refresh rate (in mSec) of the Tag name. In a complex application, we can imagine that some Tag name must be refreshed every second – typically for digital input - and other every minute – typically: temperature-

Table 128: ABLOGIX topics configuration setup

8.9.2.2.1 ABLogix : DF1 serial link

The Global Device Address has the following syntax: ***Address***

- ***Address*** = DF1 Node ID of the device (i.e.: 5)

Figure 139: ABLogix : DF1 address example

8.9.2.2.2 ABLogix : EIP Ethernet link

The Global Device Address has the following syntax : ***IP Address,Port,Link***

- ***IP Address*** = address on your Ethernet network (i.e.: 10.0.30.7)
- ***Port*** = value from 1 to 3 representing: 1 = Backplane, 2 = Channel A, 3 = Channel B
- ***Link*** could be:
  - *Slot*: representing the Slot on the Backplane (for example: 0=CPU)
  - *Node ID*: value from 0 to 99 (for ControlNet)
  - *IP address*

Figure 140: ABLogix : EIP address example

REM: In the case of using a ControlLogix as Gateway, the Device Address could be like following: IP Address, Port, Link[, Port,Link][, Port,Link]…

8.9.2.2.3 DH+ polling using ControlLogix gateway

This feature allows the eWON to poll PLC tags located on a DH+ network, behind a ControlLogix equipped with one or more DHRIO cards. Polling is done using the eWON EIP protocol.
The ABLOGIX IO server is used to access the "LOGIX" PLC family.
The DF1 IO server is used to access the "SLC500" PLC family (See "DH+ polling using ControlLogix gateway" on page 143).

The general syntax *IP address,Port,Link* is still applicable. There is no specific character to indicate the DH+ channel ("2" or "3" should be used).

Example: To reach a SLC500 (with CPU in slot 0) with DH+ node Id 3 using channel A of a DHRIO card at slot 9 of a ControlLogix at IP address 10.0.30.21.

Topic A Destination = ***SLC500-10.0.30.21,1,9,2,3,1,0***

- ***10.0.30.21*** = IP address of the ControlLogix
- ***1*** = BackPlane
- ***9*** = Slot 9 (COM card)
- ***2*** = Channel A (of the Card present in Slot 9)
- ***3*** = NodeID of the PLC5 (in the COM network)
- **1** = BackPlane
- **0** = slot (of the CPU in our example)

8.9.3 Tag name convention

IO Server Configuration		
	ABLOGIX	
	A or B or C	
	ValueName	Topic PLC address is used
	ValueName, IP address[, Port, Link]	PLC address is defined Tag by Tag
	ValueName, NodeID	PLC address is defined Tag by Tag

Table 129: ABLOGIX IO server Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at topic level, the address specified at Tag level will be ignored.

8.9.3.1 ValueName

ValueName follows the below syntax:

[PROGRAM:ProgName.]SymbolicTagName

- **ProgName is the name of the program where the Tag is.**
  If no ProgName, the Tag is in the global scope (tag is controller type)
- **SymbolicTagName:**
  - Symbol of the tag.
    Only following atomic type are supported: BOOL, SINT, INT, FLOAT, DINT (*), BIT ARRAY
  - Bit selection with <SymbolicTagName>/bit
    where bit is the bit number (from 0 to 31)
    ex: controlbit/4 read the bit 4 of the controlbit register
  - TIMER, CONTROL, COUNTER predefined types with <SymbolicTagName>.acc (or ctl or pre)
    ex: MyVar.acc read the counter of MyVar
  - Element of a table
    <Symbol_1>[idx_1].<Symbol_2>[idx_2].<Symbol_3>[idx_3].<Symbol>
    With maximum 3 index.
    ex: table1[2].subtable[6].element read data named 'element' on the index 6 of the 'sub table' from the index 2 of the 'table1'
  - Element of a structure
    <Symbol_1>.<Symbol_2>
    ex: CounterObj.init read the 'init' part of the structure 'CounterObj'

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag. See "DataType of Tags" on page 38

If you choose “Automatic” Tag type, eWON will use Floating Point as storage type.

examples:

address	point to
myvar	the data named “myvar” in the scope *global* (controller) of the PLC
PROGRAM:myprog.myvar	the data named “myvar” in the scope of the program named “myprog”
myvar/4	the bit 4 (the fifth) from the data “myvar”
mystruct.mydata	the data named “mydata” from the structure named “mystruct”
mytable[6]	the element 6 (the seventh) of the table “mytable”
mytablestruct[4].mydata[12]	the element 12 of the table “mydata” from the structure at index 4 of the table “mytablestruct”

Table 130: ABLogix address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for other Tags, the status Tag ValueName is composed of:

Status,GlobalDeviceAddress

- You can define a status Tag for each COM port used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 131: Tag status meaning

NOTE: Assisted Edition is enable for this IO server (C.F. page 126)

8.10 eWON IO Server

8.10.1 Introduction

The eWON IO server is used to interface the eWON INPUTS and OUTPUTS.
Depending on your eWON model, you have:

eWON types	500, x001, x101, x005[CD], x104	4002	Flexy 10x - 20x (Base Units)	Flexy FLX 3401 (Extension Card)
Digital Inputs	1	9	2	8
Digital Outputs	1	3	1	2
Analog Inputs	0	6	0	4

Table 132: eWON Inputs/Outputs

Additionally, there are a number of Tags that can be addressed with this IO server and which are computed by the eWON IO Server. These additional Tags are used for energy management. In Energy management, the following requirements are taken into accounts:
• Using digital inputs as counter inputs
• Count for a given interval and latch computed result (also save it in historical)
• Reject the measurement interval if too long or too short
• Adjust the eWON's Real Time Clock based on a digital input
These Tags will be computed if the energy module is enabled.
There is no topic name to define for the eWON IO server.

8.10.2 Standard eWON I/O Item Names

8.10.2.1 Tag address convention

The following Tags addresses are available for standard eWON Inputs & Outputs access:

IO Server configuration		Comment		
IO Server Name	**EWON**			
Topic Name	**Empty**			
Item Address	**DI#**	Digital Input (1)		Boolean
	CI#	Counter Input (1)	0 to 2.147.400.000(2)	Analog
	FI#	Counter Input	0 to 255	Analog
	LI#	Latched Counter Input (1)		Analog
	DO#	Digital Output (1)		Boolean
	AI#	Analog Input (1)		Analog
	BI#	Button Input (1)		Boolean

Table 133: eWON IO server configuration parameters - no topic defined

Note:

The button input (BI1) can be used during normal eWON operations, if it is pressed for more than 4 seconds while the eWON is booting, the flash file system will be erased (please refer to chapter "Resetting the eWON" on page 239).

(1) The number of items depend of the eWON type. See Table 132 on page 159. For the eWON Flexy range, the numbering of the IOs starts with the embedded IOs of the Base Unit and continues with the first IO Extension Card starting from the left (if available). More information on this subject is given below Table 135 on page 161

(2) From firmware 4.1S3 to 4.3, the CIx value wrapped at 1.000.000. Before 4.1S3, the CIx was misinterpreted as negative when value passes over 2^{31}.

IO Server configuration		Comment	
	EWON		
Topic Name	**SYS**		
	SN_LO	Serial number, low part (see example of use below)	DWord
	SN_HI	Serial number, high part (see example of use below)	DWord
	SYS_UP	Number of seconds since Power Up	DWord
	GSM_REG	GSM Status: 1: Home network 2: Searching registration 3: Registration denied 4: unknown registration 5: Roaming 100: Not applicable 101: Registration in progress usually: 1 or 5: means registered Other: not registered	DWord
	GSM_LEV	GSM level (antenna reception)	DWord

Table 134: eWON IO server configuration parameters - SYS topic

Example of use of SN_LO and SN_HI items in a Basic program:

```
a% = Int(SN_HI@ * 65536) + Int(SN_LO@)
Rem  Product code
b% = a% Mod 256
Rem  Sequential number
c% = Int(a% / 256) Mod 1024
Rem  Week number
d% = Int(a% / 262144) Mod 64
Rem  Year number
e% = Int(a% / 16777216) Mod 128
Print "SN: ";e%;" ";d%;"-";c%;"-"b%
```

For instance, you can define a Tag for the digital input 1 as follows:

Server name: *EWON* - ***Topic***: empty - ***Address***: *DI1*

	Syntax	Description	Automatic Tag type
eWON500 **eWON2001(CD), eWON4001(CD)** **eWON2101(CD), eWON4101(CD)** **eWON2005(CD)** **eWON4005(CD)** **eWON2104, eWON4104**	**DI1**	Status of input 1 on connector Input/output (bottom side)	Boolean
	CI1	Counter on input 1 on connector Input/output (bottom side)	DWord
	LI1	Latched counter on input 1 on connector Input/output	DWord
	DO1	Digital command of output 1 on connector Input/output	Boolean
	BI1	Status of button (reset) on the front face	Boolean
eWON4002 **eWON4102**	**DI1... DI8**	Status of input 1 to 8 on connector DI1-DI8 (top side)	Boolean
	CI1... CI8	Counter on input 1 to 8 on connector DI1-DI8 (top side)	DWord
	LI1... LI8	Latched counter on input 1 to 8 on connector DI1-DI8 (top side)	DWord
	DI9	Status of input 9 on connector Input/output (bottom side)	Boolean
	CI9	Counter on input 9 on connector Input/output (bottom side)	DWord
	LI9	Latched counter on input 9 on connector Input/output (bottom)	DWord
	DO1... DO2	Digital command of relay 1 and 2 on relay connector (bottom side)	Boolean
	DO3	Digital command of output 1 on connector Input/output (bottom)	Boolean
	BI1	Status of button (reset) on the front face	Boolean
	AI1... AI4	Value of analog input 1 to 4	DWord
	AI5... AI6	Value of analog input 5 to 6 (PT100 probes)	DWord
eWON Flexy 1xx **eWON Flexy 2xx** Base Units only. See note below.	**DI1... DI2**	Status of input 1 and 2 on the Base Unit main connector	Boolean
	CI1	Counter on input 1 and 2 on the Base Unit main connector	DWord
	LI1	Latched counter on input 1 and 2 on the Base Unit main connector	DWord
	DO1	Digital command of relay 1 on the Base Unit main connector	
	BI1	Status of button (reset) on the front face	

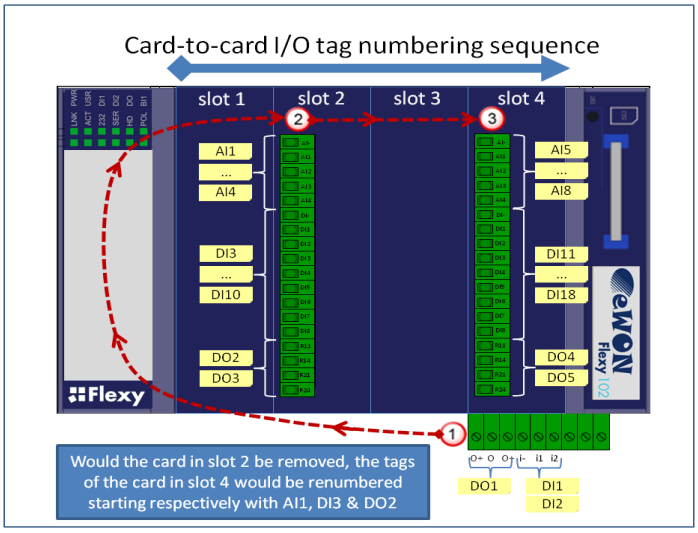
Table 135: Available Items depending on eWON product type

8.10.2.2 Basic Principle of the eWON Flexy I/O Tag Addresses

The internal I/O tag addresses of the eWON Flexy always start with the Inputs/Outputs of the Base Unit. Remember that all Base Units feature 1 Digital Output and 2 Digital Inputs, those are the first ones that have to be considered when creating tags in the eWON.

The example on the right helps you to understand the syntax of the I/O tag addresses in the case of 2 I/O Extension Cards.

In the case of multiple I/O cards, the tag numbering sequence is following the left-to-right order of slots. First the I/O Extension Card plugged in the most left slot, then the next on its right and so on. Removing an I/O card other than the utmost right one will result in an internal reallocation of tag addresses that may result in a mismatch between physical I/Os and their software configuration. The software tag addresses can be "frozen" by adding the slot number in the tag definition. This prevents unwanted I/O mismatch (see below).



Slot number append to prevent tag address mismatch:

To prevent any risk of mismatching tag addresses you can append the slot number after the I/O address.
The syntax to use is as follows:

ABx,Ey

Where AB is the type of I/O (DI, AI, DO)
x is the order number
E is a constant prefix to the slot number
y is the slot number of the card (0 = main board, 1 = slot #1, 2 = Slot #2, etc..)

Let's imagine an eWON Flexy featuring 2 I/O cards FLX 3401 in slots #2 and #3.

Delete Selected Tag | Create New Tag (like first selected) | Page: Default

L	Tag Name	Description	Type	IO Server	Topic	
	DO1		Floating point	EWON		DO1,E0
	DO2		Floating point	EWON		DO2
	DO3		Floating point	EWON		DO3,E2
	DO4		Floating point	EWON		DO4,E3
	DO5		Floating point	EWON		DO5,E3

The main I/O syntax and order numbering remains unchanged.
In the example above, the I/O server tag addresses are as follows:

Tag Syntax	Explanation
DO1,EO	Digital Output 1, main board (though E0 is not necessary in this case)
DO2	Digital Output 2, no position specified = second detected DO = first DO on first extension card detected (in slot #2 most left).
DO3,E2	Digital Output 3, board in slot #2 = second DO on extension card in slot #2
DO4,E3	Digital Output 4, board in slot #3 = first DO on extension card in slot #3
DO5,E3	Digital Output 5, board in slot #3 = second DO on extension card in slot #3

Behavior if the card in slot #2 is ***removed***:
In the ***Tag View*** page,

- DO2 will appear normally as it was not frozen by a slot number append. But it can no longer reflect the status of the first DO of the board in slot #2 that was removed. DO2 now reflects the status of the first DO of the board in slot #3.
- The 3 other DOs with specified slot number E2 and E3 will all appear in error (red cross, value 0), because:
  a) The address of DO3,E2 of the card in slot #2 could no longer be found, and
  b) The software addresses of DO4,E3 and DO5,E3 of the card in slot #3 do no longer match with the detected order of physical addresses.

The error messages in the ***Trace*** log file are "Invalid IO Tag name (DOx, addr. DOx,Ex)".

To have the DOs of the card in slot #3 responding, edit the tags and change their software addresses as follows:

DO4,E3 to DO2,E3 and
DO5,E3 to DO3,E3.

8.10.2.3 Energy configuration with the LIx Tags

The following parameters can be added to the eWON IO server in order to activate the energy support (enter *Energy:1*, validate and the other parameters will be automatically added):

Parameter	Default Value		
Energy	**0 or 1**	Enabled or not	Once Energy is defined, the eWON will automatically add the other parameters with default value. When 0, no energy computation at all are performed, saving eWON CPU resources.
Debug	**0 or 1**	Not automatically added	When :1 all synchronizations are logged in the Real time event log.
RefTime		This is the reference time to compute interval. Letting this empty will start at 1/1/1970 00:00. You may enter a date with hour in the form 08/07/2002 11:15:00 to set a new reference (usually not required).	
IntTime	**15**	This is the integration time in MINUTES.	
IntTolS	**5**	This is a tolerance on the integration time in SECONDS. If the measurement interval is shorter or longer than this number of seconds, the period is considered as valid. For example IntTime=15 IntTolS =5 means "interval is valid if between 11.14:55 and 11.15:05".	
SyncIO	**5**	This is the IO number for clock synchronization. *0* means no synchro available, *1..8* is the IO number. Synchronization is based on the counter input associated with the digital input, each time the IO changes the eWON will try to perform a synchronization (see also ***SyncTolS***)	
SyncTolS	**5**	This is the tolerance for accepting the synchronization pulse in SECONDS. If the synchronization pulse arrives outside the interval, the pulse is rejected. *ERROR REPORT*: the first time the pulse is rejected, an error is logged in the event log. Next errors are not logged (except in Real time log if Debug is enabled); When sync are accepted again, a trace is logged in the event file for the first accepted synchronization. REM: Because the internal clock has a precision of 1 second, the time is only updated if the absolute value of the offset is greater than 1 (2 or more). Otherwise the offset jitters between -1 and +1 all the time.	

Figure 141: Energy IO server parameters

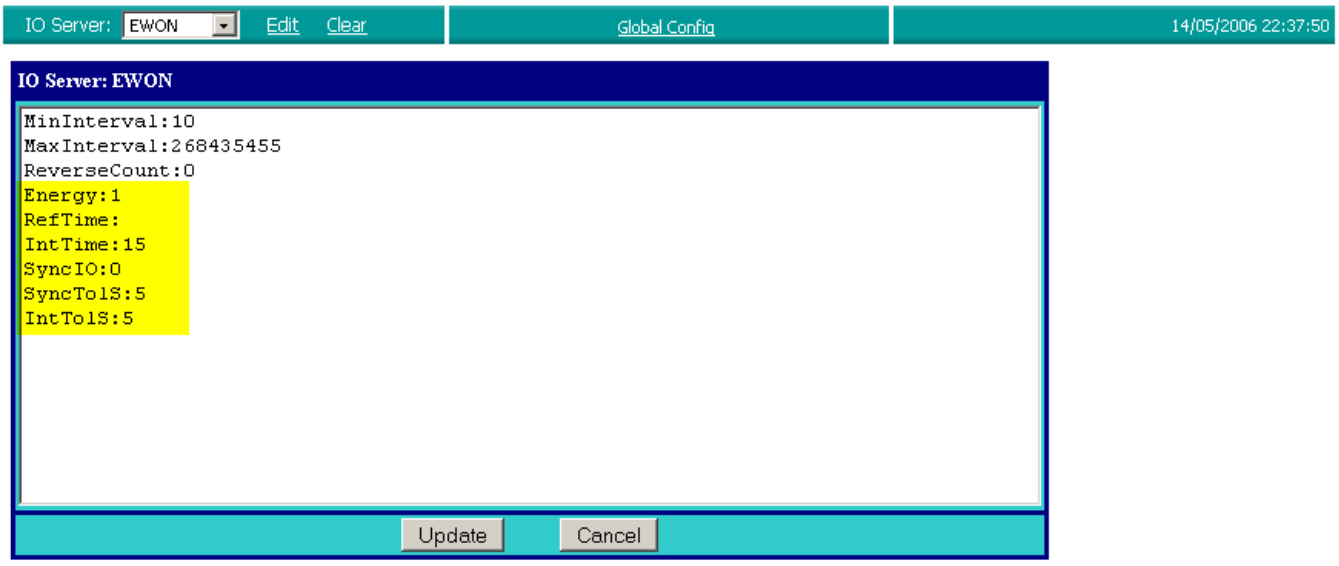


Figure 142: eWON IO server default parameters

8.10.2.3.1 ENERGY TAGS

The following tags are available for energy management:

LI1..LI8	Latched input	When the Integration Period expires, the number of pulses counted during the integration period are logged in the corresponding LIx.
ST1..ST4	**Status variables:**	
ST1		This is the absolute time when counter were latched. Expressed in seconds since 1/1/1970 minus 0x30000000 HEX (or 805306368 decimal). This huge value is subtracted to maintain precision in the Float storage. (*)
Latch time - 0x30000000		
ST2		0 means period is valid (within tolerance), 1 means period is invalid.
Period status		
ST3		Length of the period in second.
Period length sec		
ST4		This 32 bit counter counts is increased by 1 after each integration period. It can be used with ONCHANGE to perform operations when period expires.
Period Num		

REM1: Energy tags are logged after each new period IF Logging is enabled, even if the value has not changed since previous period.

REM2: Even if Deadband is -1 and Interval is 0. If not, you will have additional points and even maybe duplicate points.

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

8.10.2.3.2 32 BITS COUNTER TAGS:

The eWON IO Server provides 8 32 bits (*) counter tags named: CI1..CI8. These counters are writable but writing in these registers affects the LIx inputs of the Energy IO server module.

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

8.10.2.4 Analog Input Value Ranges (eWON4002 & Flexy)

On the eWON4002, the Analog Inputs (AI1 to AI6) are processed by a 12 bit ADC. The converted values range from 0 to 4095.

On the eWON Flexy Extension Card FLX 3401, the Analog Inputs (AI1 to AI4) are processed by a 16 bit ADC. The converted values range from 0 to 65535.

8.10.2.4.1 eWON4002 Configurable analog input AI1 to AI4

- **In 0-10V mode**

AI#	Volt
0	0
4095	10

If you need to read the Tag value converted in Volt, you can set a factor of 0.0024420 = 10/4095 with an offset of 0.

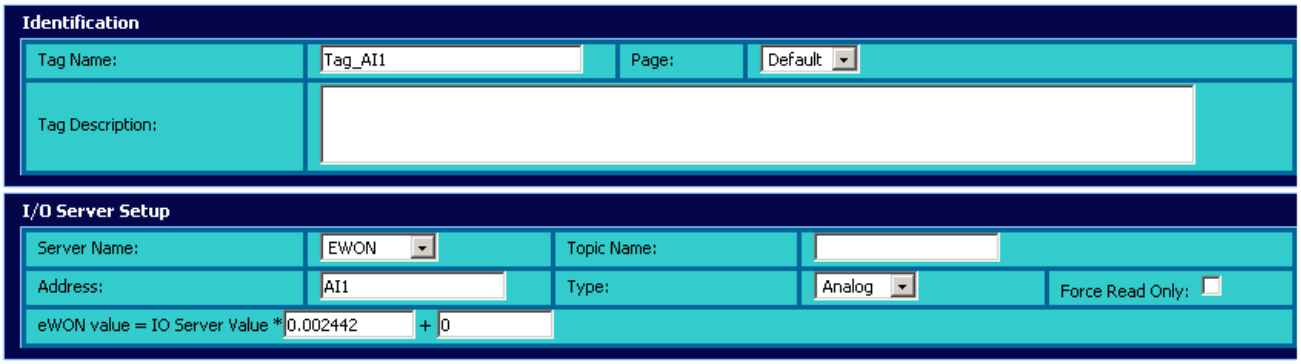


Figure 143: Tag's configuration: reading the tag value in Volt (eWON4002)

• In 0-20 mA mode

The shunt resistor for measuring current is a 220 Ohm.

AI#	mA
0	0
1802	20

If you need to read the Tag value converted in mA, you can set a factor of 0.011099 = 20/1802 with an offset of 0.

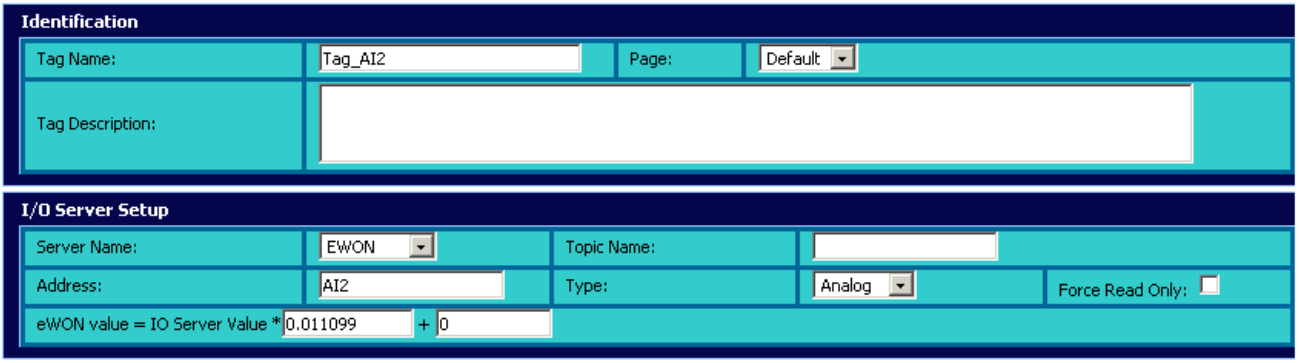


Figure 144: Tag's configuration: reading the tag value in mA (eWON4002)

8.10.2.4.2 eWON4002 PT100 input AI5 and AI6

These two inputs measure a Resistance value in Ohm.

AI#	Ohm
0	162.13
4095	79.625

As you can see, the slope is negative, and if you need to read the Tag value converted in Ohm, you can set a factor of -0.02014774 = -82.505/4095 with an offset of 162.13.

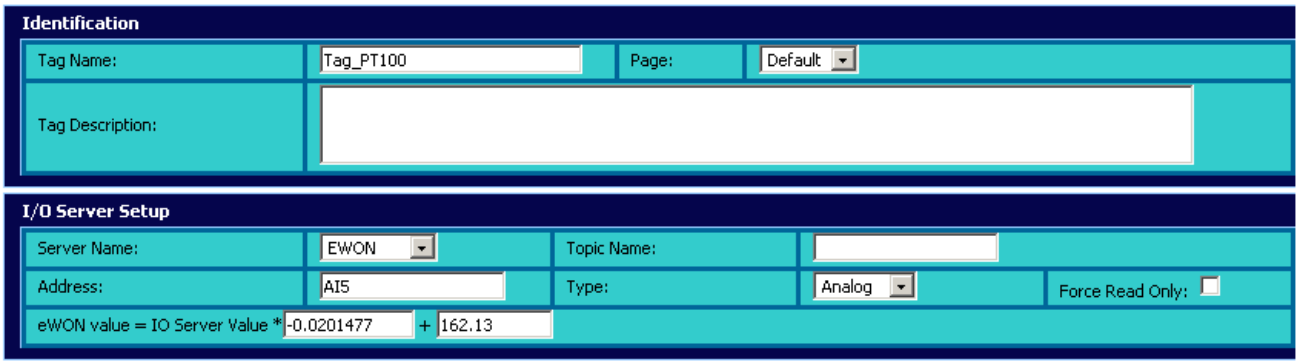


Figure 145: Tag's configuration: reading the tag value in Ohms (eWON4002)

If you need to convert into °C: temperature = AI * (-0.0523311) + 161.376.
The default range of PT100 in eWON is -50°C to 150°C.
Full range of ADC is: -52.92°C to 161.376°C (79.625Ohm to 162.13 Ohm).

Note:

- eWON 4002 models prior to S/N 0517-xxxx-89 have a PT100 range from 0°C to 131.9°C and must apply the following formulas:
  Ohm = IOValue * (-0.012402) + 150.8
  °C = IOValue * (-0.0322) + 131.9
- eWON 4002 models from S/N 0517-xxxxx-89 to S/N 0521-xxxx-89 have a PT100 range from -56°C to 151°C and must apply the following formulas:
  Ohm = IOValue * (-0.0195068) + 158.2
  °C = IOValue * (-0.050677) + 151.2

8.10.2.4.3 eWON Flexy Extensions Card FLX 3401 analog inputs AI1 to AI4

AI#	Volt
0	0
65535	10

If you need to read the Tag value converted in Volt, you can set a factor of 0.0001526 = 10/65535 with an offset of 0.

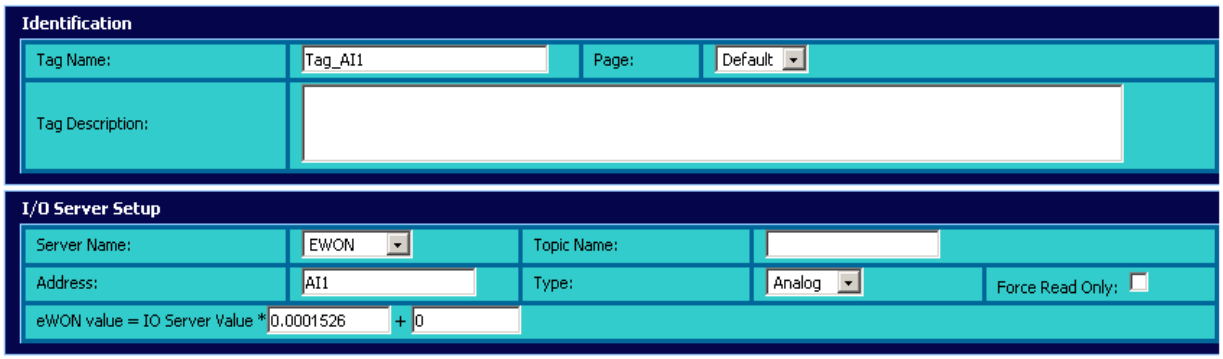


Figure 146: Tag's configuration: reading the tag value in Volt (Flexy FLX 3401)

8.10.3 Setup

The Energy IO Server is based on the eWON IO Server. The configuration consists in advanced parameters from the latter IO Server. The following screen shot shows the standard empty eWON IO Server configuration page.

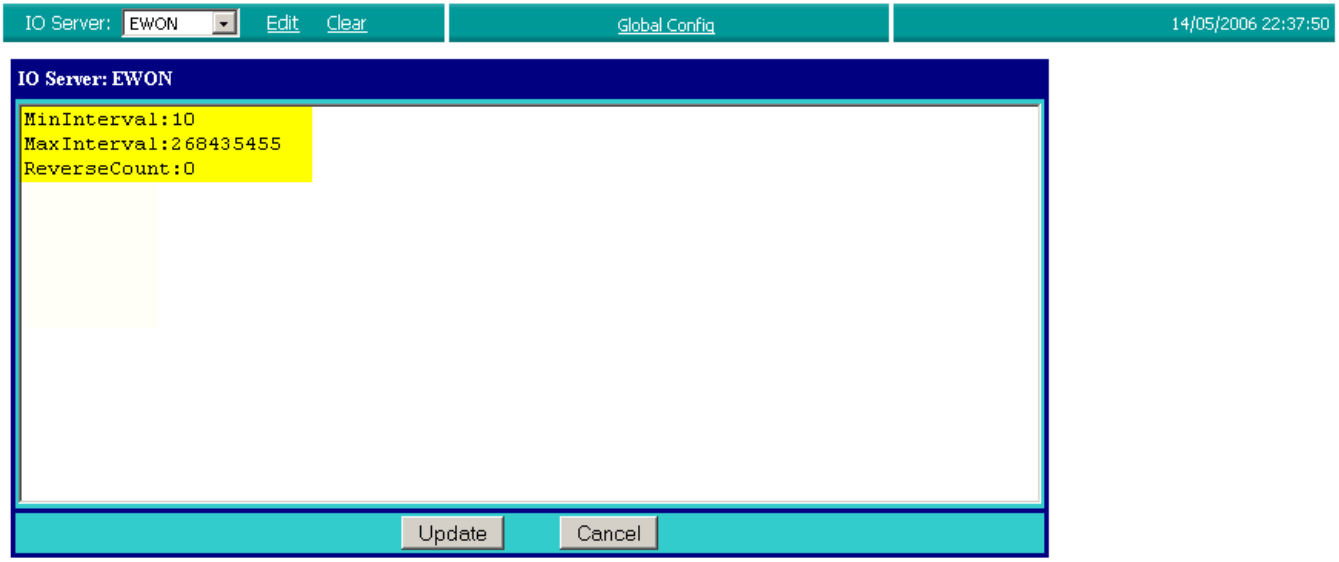


Figure 147: eWON IO server configuration page

8.10.3.1 Configuration of the counter pulse length

The pulse length for counter can be configured on all the eWON types.
The configuration must be entered in the eWON IO server edit area.
The following parameters are used:

MinInterval:	default=10, min=10
MaxInterval:	default=268435455, max=268435455
MinInterval and MaxInterval are entered in milliseconds	
ReverseCount:	default=0
The pulse length must be between MinInterval and MaxInterval to be accepted, the measurement resolution is 5 msec (the precision of the pulse length measured is 5 msec)	
ReverseCount can be used if pulses entered in the eWON are reversed, reversed means that signal is normally high on the eWON input and it goes low when the pulse occurs.	

Table 136: counter pulse length configuration

Example of configuration:

MinInterval:40
MaxInterval:1000
ReverseCount:0

Counts pulse with length longer than 40 msec and shorter than 1000 msec, other pulses are ignored.

8.11 MEM IO Server

8.11.1 Introduction

The MEMORY IO Server is not a real IO server because values do not come from a peripheral. Memory Tags (Tags defined with the MEM IO server) are rather sorts of variables that can be modified by a user input or by a BASIC application. These Tags are very useful for combining different Tags and consider the result as an actual Tag i.e. having data logging capabilities and alarm management capabilities like for all other Tags.

8.11.2 Setup

There is no setup for the MEM eWON IO server.

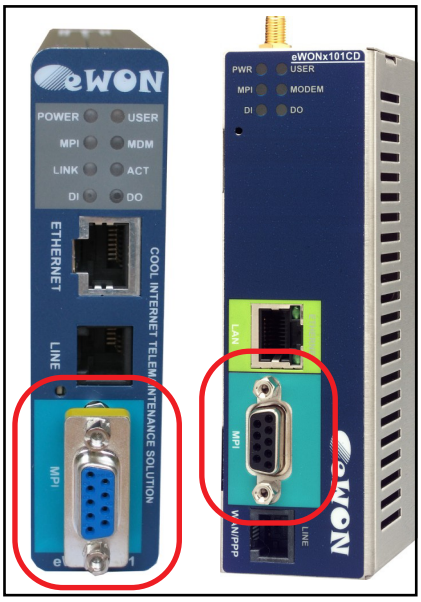
8.11.3 Tag name convention

IO Server configuration		
	MEM	
		If no topic is specified, the Tag is a standard memory Tag. Its value is set to 0 when the eWON boots and the Tag is read/write, it can be updated through user actions with script or web pages
	RET	If topic is set to RET, the Tag is retentive, each change is saved to flash and when the eWON boots, the last value of the Tag is restored. This feature can be convenient to use Tags as parameters.
Item Name	DON'T CARE	The MEM "Item Name" is insignificant, the TagName is automatically copied in the MEM address by the eWON, the user can change it, but the value will immediately be overwritten again by the TagName. Data type "Automatic" is equivalent to Floating Point.

Table 137: MEM IO server Tag name convention

Important: RET values are saved in the FLASH memory, this is not an immediate operation and the FLASH memory can only be written and erased a limited (even if huge 100.000) number of times. This means that you should not use a BASIC script for changing retentive values at very high rate. 1 Tag/Sec. is a maximum AVERAGE rate (occasional higher rates are not prohibited at all).

8.12 S7-300&400 (MPI/Profibus - ISOTCP)



8.12.1 Introduction

S73&400 IO Server is dedicated to communicate directly with SIEMENS PLC (S7-300 & S7-400). The eWON will connect directly to the PLC's MPI interface or Profibus DP interface.

WARNING: The MPI/Profibus interface requires a special serial port hardware! ONLY the eWONs MPI/Profibus are able to communicate in MPI/Profibus eWON product codes like EWxxx6x (i.e.: EW41264 eWON4001 MPI with PSTN modem)

eWONs MPI/Profibus have a colored (in light blue) square around DB9 connector labeled MPI (see photos on right).

eWONs MPI/Profibus (no CD series) have a Serial Gender-Changer fixed on DB9 connector to provide female DB9 connector.

Others Serial IO Server (i.e.: modbus RTU, DF1, UnitelWay) are not available on eWON MPI/Profibus.

The ISOTCP (Ethernet) is available on all eWON types.

With an eWON500 (with a standard Serial Port), you can have access to a S7-300&400 Siemens PLC by Ethernet thanks to the ISOTCP protocol.
With an eWON500-MPI, you can have access by the MPI port **and** by ISOTCP to your S7-300&400, if it has both interfaces.

Multi Session: Since firmware 5.4, the ISOTCP-MPI gateway allows multiple clients to access the same PLC at the same time.

PPI MultiMaster (for S7-200): Since firmware 5.5, it is supported by the MPI port of the eWON (See "S7-200 (PPI - ISOTCP)" on page 174)

8.12.2 Setup

8.12.2.1 COM configuration

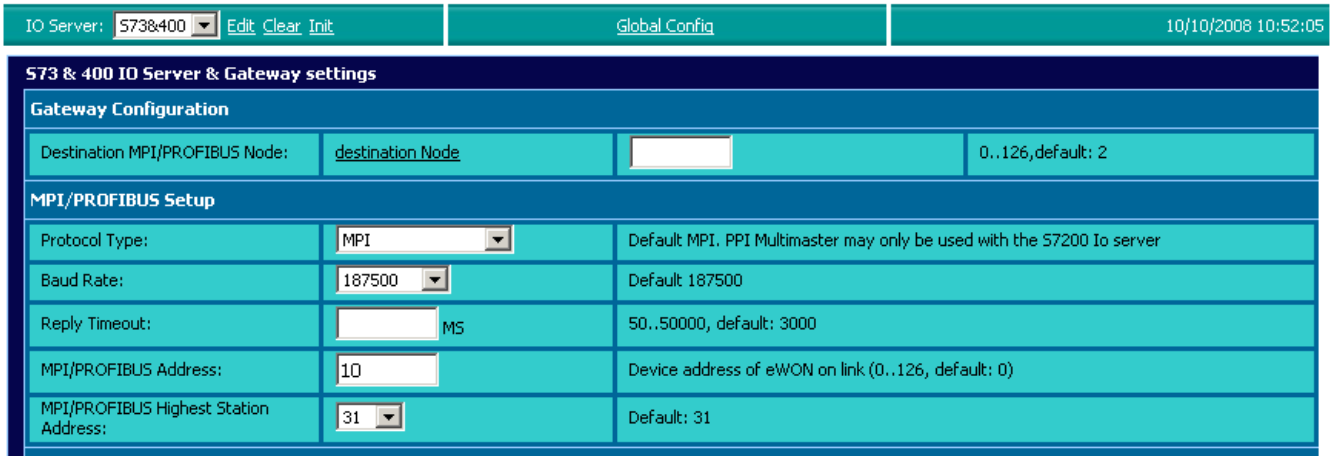


Figure 148: MPI link configuration

Parameter	Description
Gateway MPI/Profibus Destination Node	Identifies the PLC MPI/Profibus Destination address when ISOTCP is used
Protocol Type	Select protocol **MPI or PROFIBUS**. As the MPI port configuration is shared by the S73&400 and the S7-200 IOServers, this combo box shows also the PPI MULTIMASTER protocol (See "S7-200 (PPI - ISOTCP)" on page 174) *PPI MultiMaster and MPI/Profibus are mutually exclusive. It is not allowed to use the S7-200 and the S73&400 IOServers on the MPI port at the same time .*

Table 138: MPI/Profibus settings

Baud Rate	Speed of the MPI port. Available speeds are: • **disable** • **9.6 k Bauds** • **19.2 k Bauds** • **45.45 k Bauds** • **93.75 k Bauds** • **187.5 k Bauds** • **1.5 M Bauds** • **3 M Bauds** *(only for eWON CD-MPI)* • **6 M Bauds** *(only for eWON CD-MPI)* • **12 M Bauds** *(only for eWON CD-MPI)*
Reply Timeout	The maximum time the eWON will wait for a valid MPI message response
MPI Address	The device address of the eWON on the MPI link (0..126, default is 0)
MPI Highest Station Address	The highest station address polled by eWON. Select between 15, 31, 63 or 127.

Table 138: MPI/Profibus settings

8.12.2.2 Advanced Routing Setup

Advanced Routing Setup is a feature that has been introduced from firmware version 6.3 onwards.
It allows to access devices that make part of an other MPI/Profibus network connected indirectly to the eWON through another (or various other) PLC(s).

Advanced Routing Setup items are visible when the ***Enable*** checkbox is ticked.

Note: Parameters that would have been set in this section remain in memory but are visually hidden AND not taken into account by the firmware when the ***Enable*** checkbox is unticked.

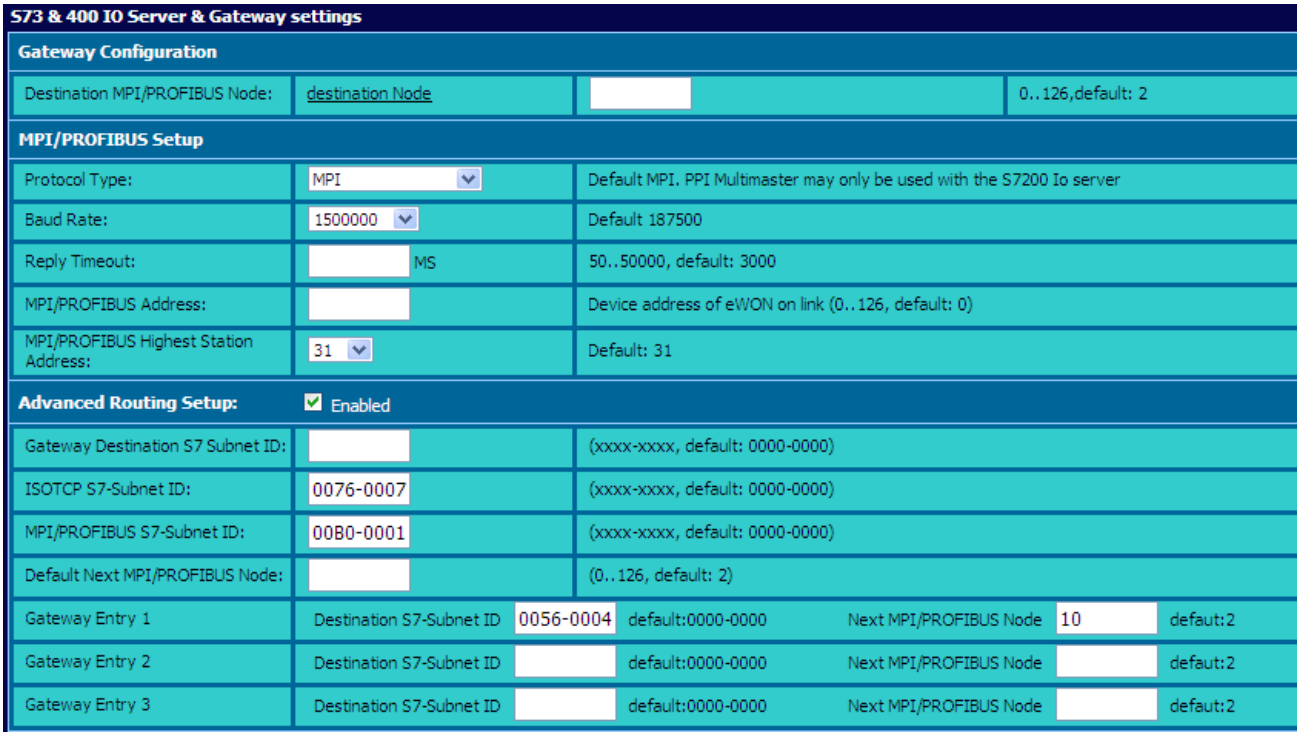


Figure 149: Advanced MPI configuration screenshot

Parameter	Description	Default value
Advanced Routing Setup	Enable/disable Advanced Routing Setup feature	0 (disabled)
Gateway/Destination S7-Subnet ID:	Used when no subnet ID is specified in the ISOTCP message to relay on the MPI bus	0000-0000
ISOTCP S7-Subnet ID:	eWON subnet ID at the ISOTCP interface side	0000-0000 (invalid subnet ID)
MPI/PROFIBUS S7-Subnet ID:	eWON subnet ID at the MPI interface side	0000-0000
Default Next MPI/PROFIBUS Node:	MPI node of the PLC towards which the MPI messages will be sent out if the destination subnet ID specified is not the one of the eWON (see previous field), nor one of the ones specified in the gateway entries (see next fields)	2
Gateway Entry 1..3 Destination S7-Subnet ID	MPI messages with destination subnet ID equal to this destination ID will be forwarded to the next MPI/Profibus Node (see next field)	0000-0000
Gateway Entry 1..3 Next MPI/Profibus Node ID	See previous row	2

Table 139: Advanced MPI/Profibus routing configuration parameter description

8.12.2.3 Topic configuration

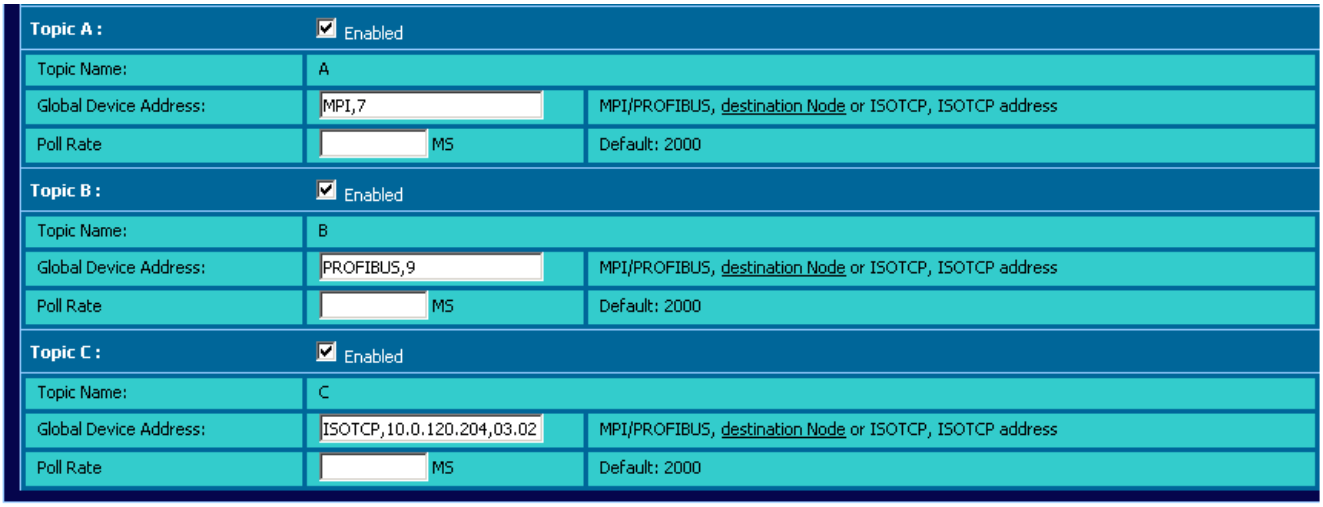


Figure 150: Topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of MPI/ISOTCP Tags like:

- Enable/Disable
- Global Device Address
- Polling Rate

Topic configuration item	Description
	Enables or disables polling of all the Tags in the topic.
Global Device Address	See below for the Device Address Syntax. If an address is specified here, it will replace (overload) the address-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

8.12.3 Tag name convention

IO Server Name	S73&400	
Topic Name	A	
	B	
	C	
Item Name	ValueName, Global Device Address	PLC address is defined Tag by Tag
	ValueName	Topic PLC Address is used.

Table 140: S73&400 IO server - Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at the topic level, the address specified at Tag level will be ignored.

8.12.3.1 Value Name

The syntax is the following:

<Memory Type><Modifier><address>

Symbol	Memory Type	Modifier	Address
	Data Block number x	B, C, W, S, D, L, F	Byte offset
M	Internal Memory	B, C, **W**, S, D, L, F	Byte offset
C	Counter	**W**, S	Object number
T	Timer	**W**, S	Object number
I	Discrete Inputs	B, C, **W**, S, D, L, F	Byte offset
Q	Discrete Outputs	B, C, **W**, S, D, L, F	Byte offset
PI	Peripheral Inputs	B, C, **W**, S, D, L, F	Byte offset
PQ	Peripheral Outputs	B, C, **W**, S, D, L, F	Byte offset

Table 141: S7 300-400 Memory types

Important: All the addresses are always in BYTES (except for Counter and Timer that are objects)

Note: The Modifier can by omitted, the modifier in bold will be used (DB type must have a modifier).

Symbol	Modifier	value range	Automatic Tag type
	Byte	0 .. 255	DWord
	signed Byte	-128 .. 127	Integer
	Word	0 .. 65535	DWord
	signed Word	-32768 .. 32767	Integer
	DWord	0 .. 4294967296 (*)	DWord
	signed DWord	-2147483648 .. 2147483647 (*)	Integer
	Float	+/- 3.4e38	Float

Table 142: S7 300-400 Modifiers

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

Examples

address	point to
MW4	the Word at address 4 (in bytes) in the Internal Memory
CS1	the Counter number 1, read it as Signed Word
DB2L5	the DWord at address 5 (in bytes) in the Data Block 2
IB3	the Byte at address 3 (in bytes) in the Discrete Inputs zone
I5#2	the bit 2 from the Byte (read 'Bit access modifier' note below) at address 5 in the Discrete Inputs zone

Table 143: S7 300-400 register address examples

- **Bit access modifier:**

In any Memory Type (excluding Counter and Timer), it is possible to access a single bit.
A **#x** must be appended to the Value name.
As the address is always in byte, the Bit index goes only from 0 to 7, no modifier are allowed (except B to separate DB block from the address).
The syntax can be used for reading bits and for writing them as well.
If Tag type "Automatic" is used, the type Boolean will be chosen.

Example:

```
DB1B13#3 represents bit 3 of Byte 13 in DB 1
invalid: IW5#2 wrong because there is a Modifier
         I5#10 wrong because bit number greater than 7
```

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of the communication for a given device. As for other Tags, the status Tag ValueName is composed of:

```
Status, Global Device Address
```

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 144: Tag Status meaning

8.12.3.2 Global Device Address

The device address is either appended to the ValueName in the Item Name definition or entered in the Topic global address fields.
The device address is composed like following:

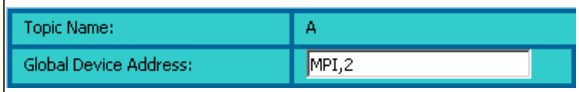
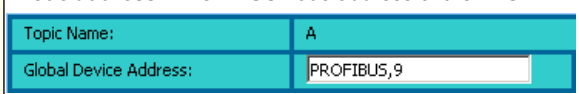
MPI	
MPI, *MPI node address*	***node address***: MPI node address of the PLC  Reach by MPI the PLC with the node address 2
PROFIBUS, *Profibus node addr*	***node address***: PROFIBUS node address of the PLC  Reach by Profibus the PLC with the node address 9

Table 145: MPI/ISOTCP device address syntax

MPI, Subnet ID, *node address*	When the Advanced Routing Setup is ***Enabled***(“Advanced Routing Setup” on page 170), the following syntax can be applied to reach a device on the MPI network indirectly connected to the eWON (behind one or several other PLCs) Topic Name: A Global Device Address: MPI,4859-4565,4 ***Subnet ID:*** ID of the destination S7-Subnet ID ***node address:*** MPI/Profibus node address of the PLC to reach Reach by MPI/Profibus the PLC with the node address 4 on the subnet with subnet ID 4859-4565
ISOTCP	
ISOTCP, *IP address*, *CalledTSAP*	***IP address*** : IP address of the PLC (ex: 10.0.120.204) ***Called TSAP*** : Transport Service Access Point (ex: 03.02) Topic Name: B Global Device Address: ISOTCP,10.0.120.204,03.02 Reach by ISOTCP the PLC at IP 10.0.120.204 with the TSAP 03.02
ISOTCP, *IP address*, *CalledTSAP*, *Subnet ID*, *MPI node address*	***IP address*** : IP address of the PLC (ex: 10.0.120.204) ***Called TSAP*** : Transport Service Access Point (ex: 03.02) ***Subnet ID*** : ID of the MPI subnet ***MPI node address*** : address of the PLC Topic Name: B Global Device Address: ISOTCP,10.0.120.204,03.02,0020-0001,2

Table 145: MPI/ISOTCP device address syntax

Important:

If the PLC address is defined at the Topic level, it can be omitted in the Tag definition. In that case the Tag name will only contain the "ValueName".

If the PLC address is specified at the Topic level, it will replace any address defined Tag by Tag.

Note:

For an S7-300, it’s generally always *03.02* .

For an S7-400, you have to take into account the slot number of the CPU.
For example if the CPU is on slot 4 rack 0 use TSAP 03.04, if the CPU is on slot 5 rack 1 use TSAP 03,25.

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.13 S7-200 (PPI - ISOTCP)

8.13.1 Introduction

The S7200 IO Server is dedicated to communicate directly with SIEMENS PLC of family S7-200.

Since firmware 5.7, all eWON types, with serial port or with MPI port, are able to communicate in both PPI modes (MonoMaster and MultiMaster).

Then, to communicate with a S7-200 device you could use either an eWON with a serial port or an eWON with an MPI port.

Usage	eWON with SERIAL port (EWxxx0x)	eWON with MPI port (EWxxx6x)
MonoMaster eWON is the ONLY Master on the PPI network.	**Yes**	**Yes** (since firmware 5.5)
MultiMaster eWON is not the only Master on the PPI network. Other masters (HMI or PPI multimaster programming cables) may be present at the same time on the PPI bus.	**Yes** (since firmware 5.7)	**Yes** (since firmware 5.5)

Table 146: PPI MonoMaster/MultiMaster usage

Usually, the eWON will be connected directly to the PLC's PPI interface.

Since firmware 5.5, eWONs with an MPI port are able to communicate on a PPI MultiMaster bus.

Since firmware 5.7, eWONs with a serial port are able to communicate on a PPI MultiMaster bus.

The eWON acts always as MASTER.

The standard serial port of eWON must be configure in RS-485 (with dipswitch) to communicate in PPI.

The ISOTCP (Ethernet) is available on all the eWON types.

8.13.2 Setup

8.13.2.1 Gateway configuration

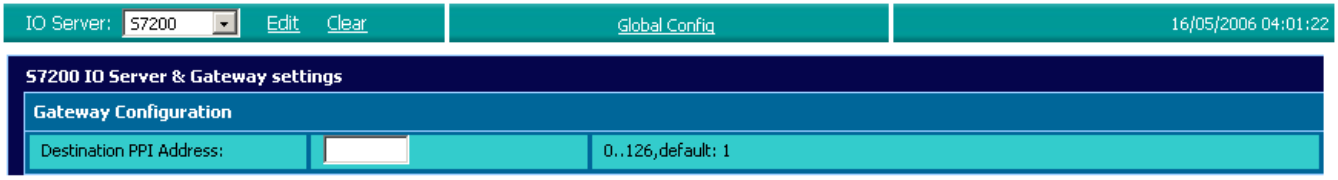


Figure 151: Gateway parameters

Parameter	Description
Destination PPI Address	Identifies the PLC PPI Destination address when ISOTCP is used

8.13.2.2 COM configuration (serial port)

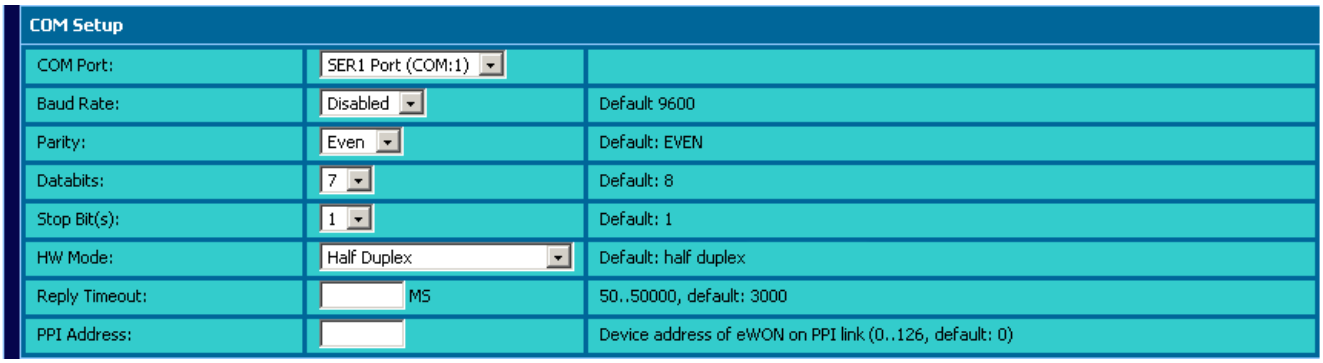


Figure 152: PPI link configuration

Parameter	Description
COM Port	Choose your COM port (only on eWON4002)
Baud Rate	Speed of the PPI port. Available speeds are 9600, 19200 Bauds or disable
Parity	The parity to apply (None / Even /Odd)
Databits	Number of bits in data (7 or 8)
Stop bit(s)	Number of Stop bits (1 or 2)
HW mode	Choose the Hardware mode of communication: **Half-Duplex** by default or Full Duplex with/without hardware handshaking.
Reply Timeout	Maximum time the eWON will wait for a valid PPI message response
PPI Address	Device address of eWON on PPI link (0..126, default is 0)

Figure 153:

By default, eWON with Serial port will act as MonoMaster on the PPI link.

8.13.2.2.1 Serial PPI MultiMaster configuration

To configure the serial port as PPI MultiMaster you need to configure the following parameters.

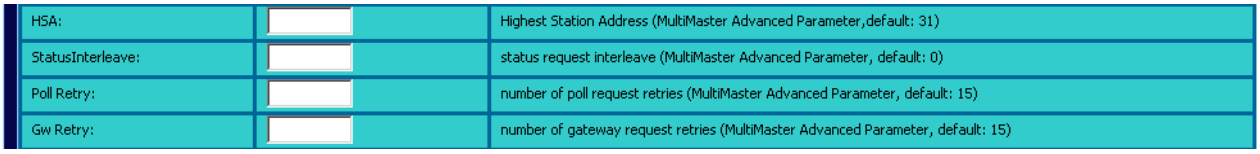


Figure 154: PPI Multimaster configuration parameters

Serial Multimaster Parameter	Description
StatusInterleave	number of token messages sent by the eWON before one status request message is sent out. Status messages are used to get the configuration of the network. In the case interleave number is high bandwith is used more efficiently for data exchange but network discovery and recovery is slow. - default value: 0 (eWON is mono master no exchange of status or token pass messages) - value range: 0..20
NbrPollRetry	number of retrials for one user request (poll = ask for the response after reception of a positive ACK from the PLC) before aborting the request. Useful in case of high PLC load. - default value: 15 - value range: 0..100 (0 means only one poll for one request)
NbrGwRetry	number of retrials for one gateway request (poll = ask for the response after reception of a positive ACK from the PLC) before aborting the request. Useful in case of bus conflict due to high PLC load (reception of lot of NACK). - default value: 15 - value range: 0..100
HSA	Highest station active - default value: 31 value range: 15..127

Table 147: Serial PPI MultiMaster

8.13.2.3 COM configuration (MPI port)

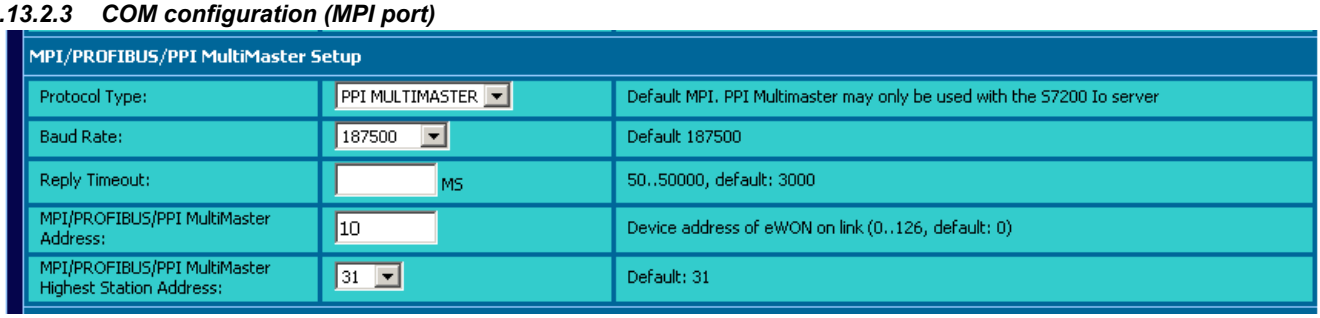


Figure 155: MPI link configuration

Parameter	Description
Protocol Type	Select protocol **PPI MULTIMASTER**. As the MPI port configuration is shared by the S7-200 and the S73&400 IOServers, this combo box shows also the MPI & Profibus protocols. *PPI MultiMaster and MPI/Profibus are mutually exclusive. It is not allowed to use at the same time the S7-200 and the S73&400 IOServers on the MPI port.*
Baud Rate	Speed of the MPI port. Available speeds are: • **disable** • **9.6 k Bauds** • **19.2 k Bauds** • **45.45 k Bauds** • **93.75 k Bauds** • **187.5 k Bauds** • **1.5 M Bauds** • **3 M Bauds** *(only for 2005CD-MPI or 4005CD-MPI)* • **6 M Bauds** *(only for 2005CD-MPI or 4005CD-MPI)* • **12 M Bauds** *(only for 2005CD-MPI or 4005CD-MPI)*
Reply Timeout	The maximum time the eWON will wait for a valid MPI message response
PPI MultiMaster Address	The device address of eWON on PPI link (0..126, default is 0)
PPI Highest Station Address	The highest station address polled by eWON. Select between 15, 31, 63 or 127.

Figure 156: PPI MultiMaster settings

Note: When using the PPI MultiMaster, the status counters to be checked are the MPI counters and not the PPI counters.

8.13.2.4 Topic configuration

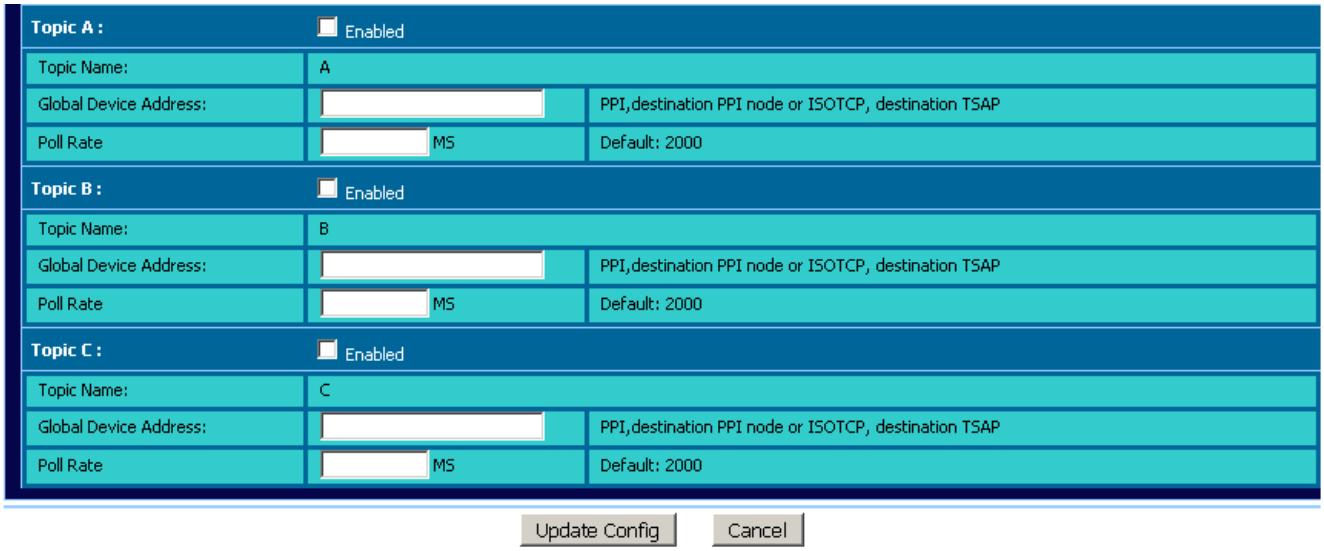


Figure 157: Topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of PPI/ISOTCP Tags like:

- Enable/Disable
- Global Device Address
- Polling Rate

Topic configuration item	Description
	Enables or disables polling of all the Tags in the topic.
Global Device Address	See below for the Device Address Syntax. If an address is specified here, it will replace (overload) the address-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

8.13.3 Tag name convention

IO Server Name	S7200	
Topic Name	A	
	B	
	C	
Item Name	ValueName, Global Device Address	PLC address is defined Tag by Tag
	ValueName	Topic PLC Address is used.

Table 148: S7200 IO server - Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at topic level, the address specified at Tag level will be ignored.

8.13.3.1 Value Name

The syntax is the following:

<Memory Type><Modifier><address>

Symbol	Memory Type	Modifier allowed	Address
	Internal Memory	B, C, **W**, S, D, L, F	Byte offset
SM	Special Memory	B, C, **W**, S, D, L, F	Byte offset
V	Variable Memory	B, C, **W**, S, D, L, F	Byte offset
C	Counter	**W**, S	Object number
HC	High-Speed Counter	D, **L**	Object number
T	Timer	D, **L**	Object number
AI	Analog Inputs	**W**, S	Byte offset
AQ	Analog Outputs	**W**, S	Byte offset
I	Discrete Inputs	B, C, **W**, S, D, L, F	Byte offset
Q	Discrete Outputs	B, C, **W**, S, D, L, F	Byte offset

Table 149: S7200 Memory types and address scheme

Important: All addresses are always in BYTES (except for Counters and Timer that are objects).

Note: The Modifier can be omitted, the modifier in bold will be used.

Symbol	Modifier	value range	Automatic Tag type
	Byte	0 .. 255	DWord
	signed Byte	-128 .. 127	Integer
	Word	0 .. 65535	DWord
	signed Word	-32768 .. 32767	Integer
	DWord	0 .. 4294967296 (*)	DWord
	signed DWord	-2147483648 .. 2147483647 (*)	Integer
	Float	+/- 3.4e38	Float

Table 150: S7200 Modifiers

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

Examples

address	point to
MW4	the Word at address 4 (in bytes) in the Internal Memory
HCL1	the HighSpeed Counter number 1 and read it in Signed DWord
AQW5	the Word at address 5 (in bytes) in the Analog Output zone
IB3	the Byte at address 3 (in bytes) in the Discrete Inputs zone
I5#2	the bit 2 from the Byte (read the 'Bit access modifier' note below) at address 5 (in bytes) in the Discrete Inputs zone

Table 151: S7 200 register address examples

- **Bit access modifier:**

For Memory Type **M, SM, V, I and Q**, it is possible to access a single bit.
A **#x** must be appended to the Value name.
As the address in always in byte, the Bit index goes only from 0 to 7, and no modifiers are allowed.
The syntax can be used for reading bits and for writing them as well.
If Tag type "Automatic" is used, the type Boolean will be chosen.

Example:

```
AQ10#5 represents bit 5 of Byte 10 in Analog Output zone.
invalid:IW5#2 wrong because there is a Modifier
        I5#10 wrong because bit number greater than 7
```

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for the other Tags, the status Tag ValueName is composed of:

```
Status, Global Device Address
```

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 152: Tag Status meaning

8.13.3.2 Global Device Address

The device address is either appended to the ValueName in the Item Name definition or entered in the Topic global address fields.
The device address is composed like the following:

PPI	
PPI, *PPI node address*	***node address***: PPI node address of the PLC Topic Name: A Global Device Address: PPI,4 Reach by PPI the PLC with the node address 4
ISOTCP	
ISOTCP, *IP address*, *CalledTSAP*	***IP address*** : IP address of the PLC (ex: 10.0.120.204) ***Called TSAP*** : Transport Service Access Point (ex: 4D.57) Topic Name: B Global Device Address: ISOTCP,10.0.120.204,4D.57 Reach by ISOTCP the PLC at IP 10.0.120.204 with the TSAP 4D.57

Table 153: PPI/ISOTCP device address syntax

8.13.3.2.1 ISOTCP polling:

You can always use the TSAP 4D.57. This is the default TSAP for a Step 7-Micro/win connection.
If you specify your own connection in the S7-200, be sure to:
- use the same TSAP for the Server and the Client (ex: Local TSAP:12.00, Remote TSAP:12.00)
- Check the "Enable the Keep Alive function for this connection" feature for this connection otherwise the eWON will not be able to poll the device after a connection lost due to the eWON reboot.

Important:

If the PLC address is defined at the Topic level, it can be omitted in the Tag definition. In that case the Tag name will only contain the "ValueName".

If the PLC address is specified at the Topic level, it will replace any address defined Tag by Tag.

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.14 HITACHI IO Server

8.14.1 Introduction

The Hitachi IOServer allows the eWON to poll tags belonging to a HITACHI EH series PLC using its serial link or Ethernet interface.
eWON uses standard H protocol (for serial RS232), station number H protocol (for serial RS485), and Ethernet H-protocol (for Ethernet).

No remote maintenance functionality is provided by this IO server.

8.14.1.1 Setup

8.14.1.1.1 COM configuration

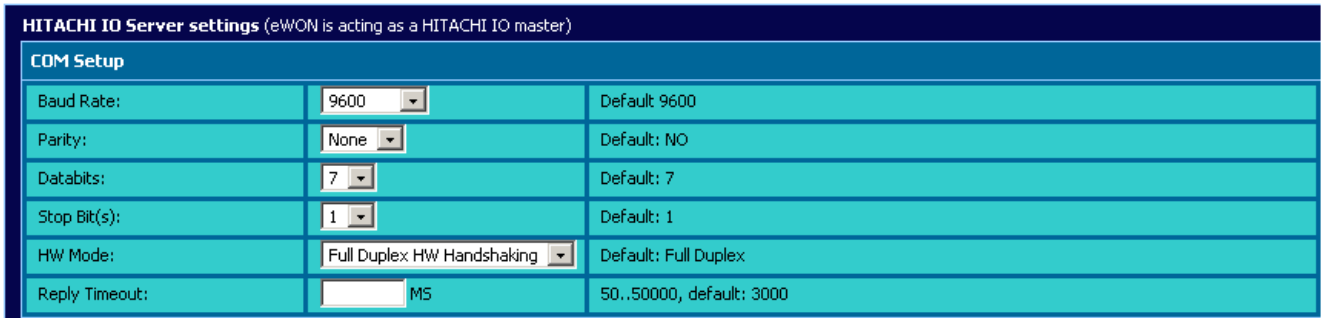


Figure 158: HITACHI IOServer: COM setup

Parameter	Description
Baud Rate	Speed of the Serial port. Available speeds are 1200, 2400, 4800, 9600, 19200 Bauds or disabled
Parity	The parity to apply (None / Even / Odd)
Databits	The number of bits in data (7 or 8)
Stop bit(s)	The number of Stop bits (1 or 2)
HW mode	Choose the Hardware mode of communication: • **Full Duplex HW handshaking (by default)** • **Full Duplex NO handshaking** • **Half duplex**
Reply Timeout	Maximum time the eWON will wait for a valid message response

Table 154: HITACHI IOServer: COM parameters

The eWON implements Transmission Control Procedure 1 (One way activation Control Procedure).

When half-duplex mode is used (RS485), the eWON acts as master. So, no other master may be on the bus (eg: control panel or host).

8.14.1.1.2 Topic configuration

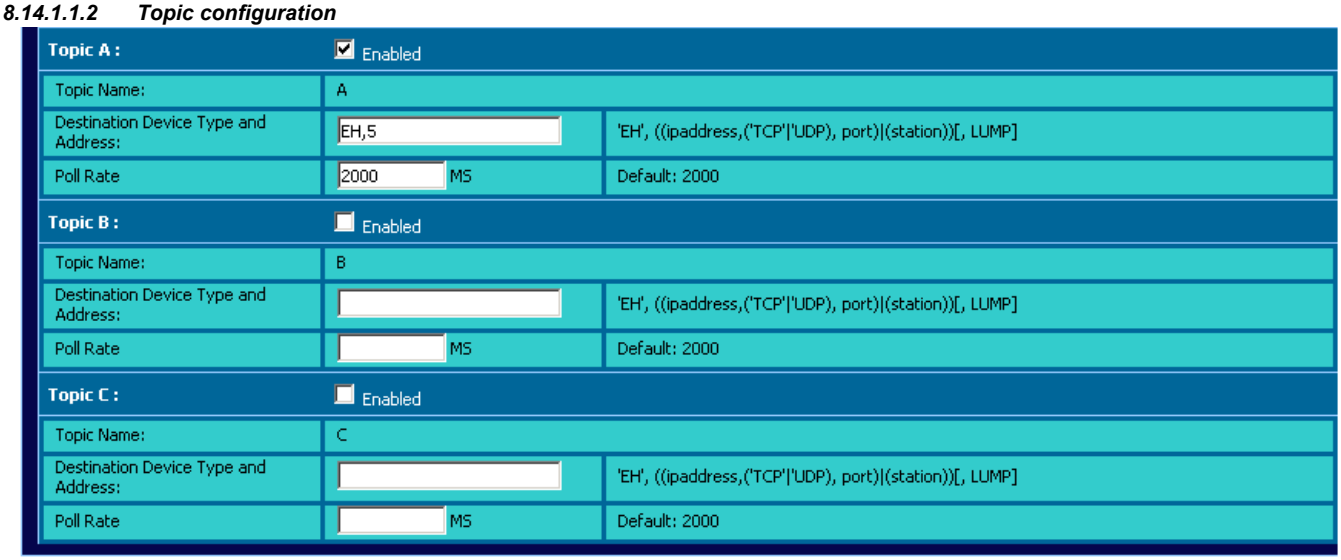


Figure 159: HITACHI IOServer: Topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of Hitachi Tags like:

- Enable/Disable
- Global Device Address
- Polling Rate

Topic configuration item	Description
	Enables or disables polling of all the Tags in the topic.
Global Device Address	See below for the Device Address Syntax. If an address is specified here, it will replace (overload) the address-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

Table 155: HITACHI IOServer: Topic configuration item definition

8.14.2 Tag name convention

IO Server Name	HITACHI	
Topic Name	A	
	B	
	C	
Item Name	ValueName, Global Device Address	PLC address is defined Tag by Tag
	ValueName	Topic PLC Address is used.

Table 156: HITACHI IOserver - Tag name convention table

The Item Name can contain the PLC address where the value is polled or not. If an address is also specified at topic level, the address specified at Tag level will be ignored.

8.14.2.1 Value Name

The syntax is the following:

<Memory Type>[<Modifier>]<address>

Symbol	Memory type	Modifier allowed (optional)	Address
X	External Input Bit		**Hrusbb** H stands for hexadecimal r: remote number (1 digit hexadecimal) u: unit number (1digit hexadecimal) s: slot number (1 digit hexadecimal) bb: bit offset (00 ..FF 2 digits hexadecimal)
WX	External Input Word	**W**, S	**Hrusw** H stands for hexadecimal r: remote number (1 digit hexadecimal) u: unit number (1digit hexadecimal) s: slot number (1 digit hexadecimal) w: word offset (1digit hexadecimal)
DX	External Input Double	**D**, L, F	**Hrusw** H stands for hexadecimal r: remote number (1 digit hexadecimal) u: unit number (1digit hexadecimal) s: slot number (1 digit hexadecimal) w: word offset (1digit hexadecimal)
Y	External Output Bit		**Hrusbb** H stands for hexadecimal r: remote number (1 digit hexadecimal) u: unit number (1 digit hexadecimal) s: slot number (1 digit hexadecimal) bb: bit offset (00..FF: 2 digits hexadecimal)
WY	External Output Word	**W**, S	**Hrusw** H stands for hexadecimal r: remote number (1 digit hexadecimal) u: unit number (1digit hexadecimal) s: slot number (1 digit hexadecimal) w: word offset (1digit hexadecimal)
DY	External Output Double	**D**, L, F	**Hrusw** H stands for hexadecimal r: remote number (1 digit hexadecimal) u: unit number (1digit hexadecimal) s: slot number (1 digit hexadecimal) w: word offset (1digit hexadecimal)
R	Internal Output Bit dedicated		**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating bit offset
WR	Internal Output Word dedicated	**W**, S	**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating word offset
DR	Internal Output Word dedicated Double	**D**, L, F	**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating word offset
M	Internal Bit Output Common		**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating bit offset
WM	Internal Word Output Common	**W**, S	**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating word offset
DM	Internal Word Output Common Double	**D**, L, F	**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating word offset

Table 157: HITACHI Memory types and address scheme

L	CPU Link Bit		**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating bit offset
WL	CPU Link Word	**W**, S	**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating word offset
DL	CPU Link Double	**D**, L, F	**Hxxxxxx** H stands for hexadecimal x: 1 to 6 digits hexadecimal indicating word offset

Table 157: HITACHI Memory types and address scheme

Note: The Modifier can by omitted, the modifier in bold will be used.

Symbol	Modifier	value range	Automatic Tag type
	Word	0 .. 65535	DWord
	signed Word	-32768 .. 32767	Integer
	DWord	0 .. 4294967296 (*)	DWord
	signed DWord	-2147483648 .. 2147483647 (*)	Integer
	Float	+/- 3.4e38	Float

Table 158: HITACHI Modifiers

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag. See "DataType of Tags" on page 38

Examples

address	point to
XH00103	selection of bit3 of word 0 of the input device located at remote:0 unit:0 slot:1
WYH0011	selection of word 0 of the output device located at at remote:0 unit:0 slot 1
RH105	bit 105 hex (261 decimal) of the Internal Output Bit Dedicated area
WRSH10	short located at word 10 hex of the WR area
WMH10	word 10 hex of the Internal Word Output Common area
DMH10	double word 10 + 11 hex of the Internal Word Output Common area
WMH000010	word 10 hex of the Internal Word Output Common area (WMH10 is more optimal)

Table 159: HITACHI register address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for the other Tags, the status Tag ValueName is composed of:

`Status, Global Device Address`

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 160: Tag Status meaning

8.14.2.2 Global Device Address

The device address is either appended to the ValueName in the Item Name definition, or entered in the Topic global address fields.

The device address syntax is the following:

EH[,[[ipaddress,TCP|UDP,port]|[station]][,LUMP]]

EH Serial	
EH,*station*	**station** : address of the PLC on the network *EH,4 the eWON will access PLC number 4.*
EH	By configuration, an HITACHI PLC could have an undefined station number. If this PLC is alone on a serial link, you don't need to specify a station number.
EH,*station,LUMP*	**station** : address of the PLC on the network **LUMP** : Link Unit Port Module *EH,4,FFFF0000 the eWON will access PLC number 4 with the LUMP FFFF0000.*
EH,*LUMP*	By configuration, an HITACHI PLC could have an undefined station number. If this PLC is alone on a serial link, you don't need to specify a station number. **LUMP** : Link Unit Port Module *EH,FFFF0000 the eWON will access PLC with the LUMP FFFF0000.*
EH ethernet	
EH,ipaddress,TCP|UDP,port	**ipaddress** : IP address of the PLC **TCP|UDP** : select the protocol used **port** : IP port used *EH,10.0.120.203,TCP,3004 the eWON will access the PLC at 10.0.120.203 with protocol TCP and port 3004*
EH,ipaddress,TCP|UDP,port,LUMP	**ipaddress** : IP address of the PLC **TCP|UDP** : select the protocol used **port** : IP port used **LUMP** : Link Unit Port Module *EH,10.0.120.203,TCP,3004,FFFF0000* *the eWON will access the PLC at 10.0.120.203, protocol TCP, port 3004 and LUMP FFFF0000*

Table 161: HITACHI device address syntax

Important:

If the PLC address is defined at the Topic level, it can be omitted in the Tag definition. In that case the Tag name will only contain the "ValueName".

If the PLC address is specified at the Topic level, it will replace any address defined Tag by Tag.

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.15 MITSUBISHI FX IO Server

8.15.1 Introduction

This MITSUFX IOServer allows the eWON to poll tags belonging to a MITSUBISHI FX series PLC using its RS-422 base unit programming connector. No remote maintenance functionality is provided by this IO server. The VCOM feature of the eWON has to be used to cover a remote maintenance.

MITSUFX IOServer is available in eWON with Firmware 5.5 and above.

8.15.2 Setup

8.15.2.1 COM configuration

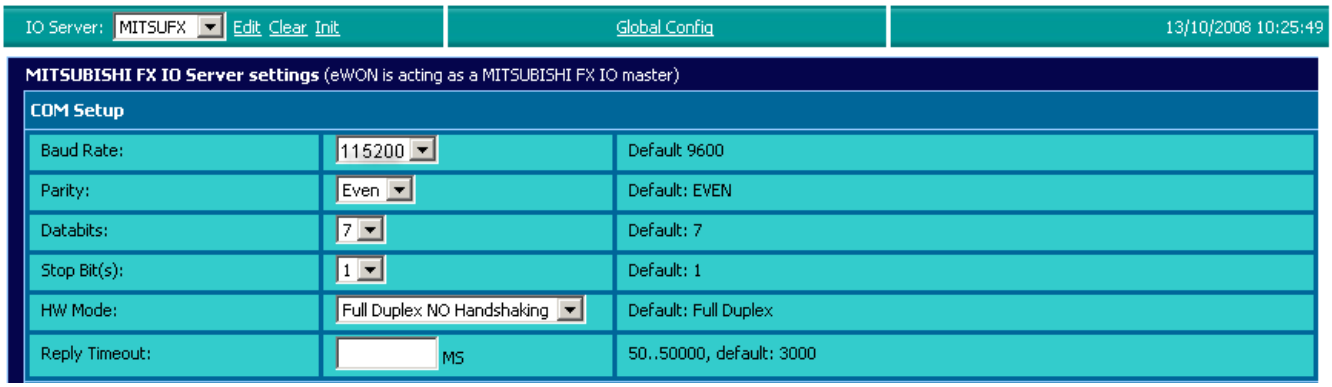


Figure 160: MITSUFX IOServer: COM setup

Parameter	Description
Baud Rate	Speed of the Serial port. Available speeds are from 9600 until 115200 Bps or disabled
Parity	The parity to apply (None / Even / Odd)
Databits	The number of bits in data (7 or 8)
Stop bit(s)	The number of Stop bits (1 or 2)
HW mode	Choose the Hardware mode of communication: • **Full Duplex HW handshaking** • **Full Duplex NO handshaking (by default)** • **Half duplex**
Reply Timeout	The maximum time the eWON will wait for a valid message response

Table 162: MITSUFX IOServer: COM parameters

The switches of the eWON must be configured in RS485/RS422 mode.

8.15.2.2 Topic configuration

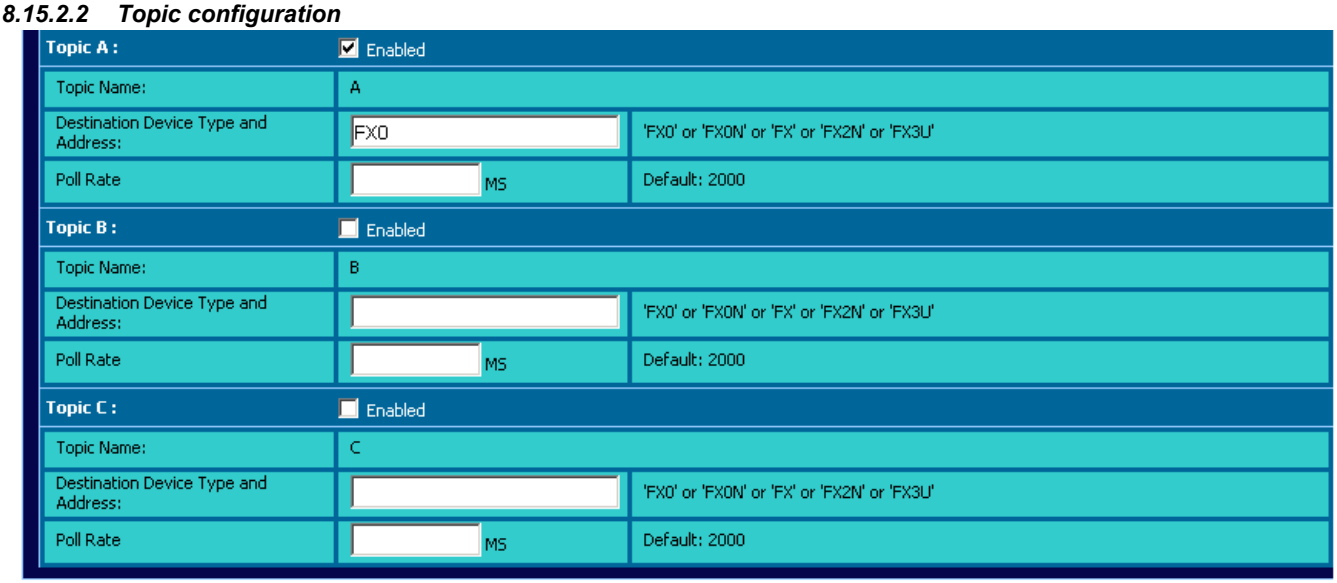


Figure 161: MITSUFX IOServer: Topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of Mitsubishi Tags like:

- Enable/Disable
- Global Device Address
- Polling Rate

Topic configuration item	Description
	Enables or disables polling of all the Tags in the topic.
Global Device Address	Select the type of Mitsubishi PLC to link. Available FX type are: • **FX** • **FX0** • **FX0N** • **FX2N** • **FX3U** There is no address (number) to add because the eWON is connected directly to one PLC by its programming port. If a device is specified here, it will replace (overload) the device-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

Table 163: MITSUFX IOServer: Topic configuration item definition

8.15.3 Tag name convention

IO Server Name	MITSUFX	
Topic Name	A	
	B	
	C	
Item Name	ValueName, Global Device Address	PLC address is defined Tag by Tag
	ValueName	Topic PLC Address is used.

Table 164: MITSUFX IOserver - Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at topic level, the address specified at Tag level will be ignored.

8.15.3.1 Value Name

The syntax is the following:

<Memory Type Symbol>[<Modifier>]<address>

Symbol	Memory type	Modifier allowed (optional)	Address
	Input Bit (Boolean)		1 to 3 **OCTAL** digits
Y	Output Bits (Boolean)		1 to 3 **OCTAL** digits
M	Auxiliary relays (Boolean)		1 to 4 decimal digits (max 7999)
M	Special Auxiliary relays (Boolean)		1 to 4 decimal digits (min 8000)
S	States (Boolean)		1 to 4 decimal digits
TC	Timer Contacts (Boolean)		1 to 3 decimal digits
CC	Counter Contacts (Boolean)		1 to 3 decimal digits
TR	Timer Reset (Boolean)		1 to 3 decimal digits
CR	Counter Reset (Boolean)		1 to 3 decimal digits
T	Timer Value	**W**, S	1 to 3 decimal digits
C	Counter Value	**W**, S	1 to 3 decimal digits (max 199)
C	High Speed Counter Value	L, **D**	1 to 3 decimal digits (min 200)
D	Data Registers	**S**, W, L, D, F	1 to 4 decimal digits (max 7999)
D	Special Data Registers	**S**, W, L, D, F	1 to 4 decimal digits (min 8000)

Table 165: MITSUFX Memory types and address scheme

Note: The Modifier can be omitted, the modifier in bold will be used.

Symbol	Modifier	value range	Automatic Tag type
	Word	0 .. 65535	DWord
	signed Word	-32768 .. 32767	Integer
	DWord	0 .. 4294967296 (*)	DWord
	signed DWord	-2147483648 .. 2147483647 (*)	Integer
	Float	+/- 3.4e38	Float

Table 166: MITSUFX Modifiers

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

Examples

address	point to
X14	input bit at octal address 14
D3	data register at address 3 (read as Signed Word)
DD3	data register at address 3 (read as DWord)
DF3	data register at address 3 (read as Float)
D8010	special data register at address 8010 (read as Signed Word)
C199	counter value at address 199 (read as Word)
C200	high speed counter at address 200 (read as DWord)

Table 167: MITSUFX register address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for the other Tags, the status Tag ValueName is composed of:

`Status, Global Device Address`

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 168: Tag Status meaning

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.16 SNMP IO Server

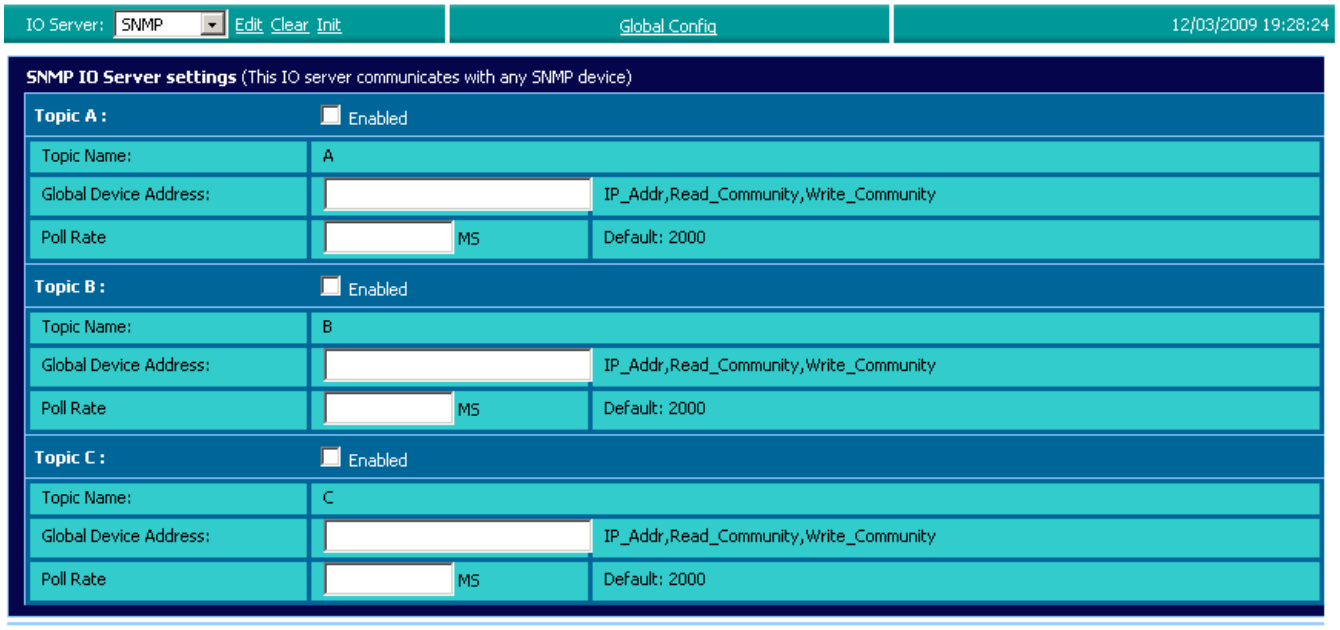
8.16.1 Introduction

The SNMP IO server (Simple Network Management Protocol) is used to communicate with any SNMPv1 device on the network. It allows both read and write operations on 32-bit objects. It supports access to several different devices at the same time.

The following object types are supported: INTEGER, 32bits COUNTER, GAUGE, UNSIGNED, TIMETICK and extracted FLOAT (see § "Value Name" on page 190). There is no handling of MIB files.

SNMP IOServer is available in eWON with Firmware 5.6s2 and above.

8.16.2 Setup



`Figure 162: SNMP IOServer: setup`

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of SNMP Tags like:

- Enable/Disable
- Global Device Address
- Polling Rate

Topic configuration item	Description
Topic enabled	Enables or disables polling of all the Tags in the topic.
Global Device Address	Select the target SNMP Server device. Syntax: • **IP_Addr,Read_Community,Write_community** **IP_Addr:** IP address of the SNMP Server **Read_Community:** Community used for Reading **Write_Community:** Community used for Writing • **IP_Addr,Community** **IP_Addr:** IP address of the SNMP Server **Community:** Community used for Reading and Writing If an address is specified here, it will replace (overload) the address-defined Tag by Tag.
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

Table 169: SNMP IOServer: Topic configuration item definition

8.16.3 Tag name convention

IO Server Name	SNMP	
Topic Name	A	
	B	
	C	
Item Name	ValueName, Global Device Address	PLC address is defined Tag by Tag
	ValueName	Topic PLC Address is used.

Table 170: SNMP IOserver - Tag name convention table

The Item Name can contain the Device address where the value is polled, or not. If the address is also specified at topic level, the address specified at Tag level will be ignored.

8.16.3.1 Value Name

As the SNMP use an Abstract Syntax Notation (ASN), encode the full OID (Object ID) of the data you want to Read/Write.
You cannot import MIB files into the eWON.
INTEGER, 32bits COUNTER, GAUGE, UNSIGNED, TIMETICK and extracted FLOAT (see Note below) are supported
For all integer objects (not for the extracted FLOAT), use the Integer type to save them. Choosing the Automatic type will use the Integer type. Otherwise, they could be truncated when eWON will store them as Float (See "DataType of Tags" on page 38).

(*) Note: *Since firmware 6.4s4 the SNMP IOServer can read STRING-type OID and converts them in FLOAT. If, for example, a tag contains the string [AnyText 6.78], the extracted result will be [6.78] while eWON converts it by keeping only the number part of the string. As FLOAT does not exist in SNMP, this is a work around to this limitation. This works in read only, not in write.*

Examples

address	point to
.1.3.6.1.2.1.4.3.0	read the .iso.org.dod.internet.mgmt.mib-2.ip.ipInReceives object
.1.3.6.1.2.1.4.3.0,10.0.0.55,public,private	read the .iso.org.dod.internet.mgmt.mib-2.ip.ipInReceives object at the IP 10.0.0.55 using community "public" for reading and the community "private" for writing.

Table 171: SNMP address examples

IMPORTANT:
The address of SCALAR objects ends with a 0 while the address of array items ends with their index in the array (starting from 1).

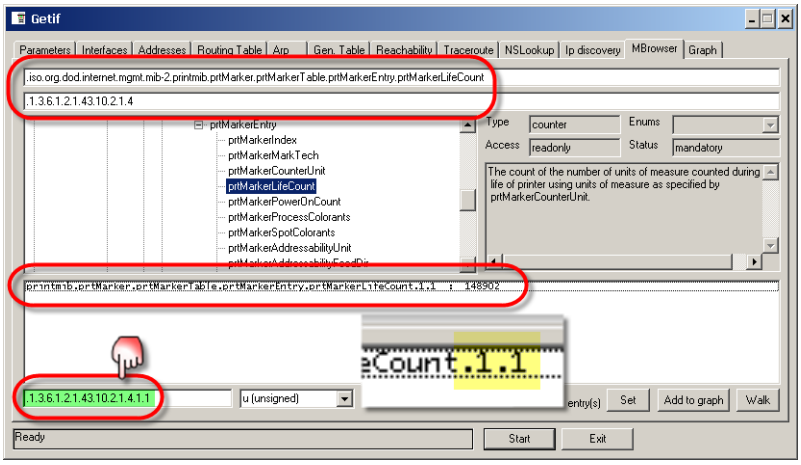
For example, to read *.iso.org.dod.internet.mgmt.mib-2.ip.ipInReceives* that have the address ".1.3.6.1.2.1.4.3", you must add a ".0" at the end to obtain ".1.3.6.1.2.1.4.3.0".

And to read *.iso.org.dod.internet.mgmt.mib-2.interfaces.ifTable.ifEntry.ifMtu* (".1.3.6.1.2.1.2.2.1.4") of the second interface, because this object is a table, you must add ".2" at the end to obtain ".1.3.6.1.2.1.2.2.1.4.2".

NOTE: We recommend you to check the SNMP address with an SNMP Client (like Getif http://www.wtcs.org/snmp4tpc/getif.htm) to find the right address.

Example: Searching in the MIB file of a network printer to find the address of the "TotalNumberOfPagePrinted", we found :
.iso.org.dod.internet.mgmt.mib-2.printmib.prtMarker.prtMarkerTable.prtMarkerEntry.prtMarkerLifeCount at address ".1.3.6.1.2.1.43.10.2.1.4"

Using the MIB file with Getif to retrieve the whole address of this Counter, we see that the Counter is in a 2 dimension table and we need to add ".1.1" to get its value.



• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for the other Tags, the status Tag ValueName is composed of:

`Status, Global Device Address`

- You can define a status Tag for each Device used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 172: Tag Status meaning

Note: Assisted Edition is enable for this IO server (C.F. page 126)

8.17 MITSUBISHI MELSEC IO Server

8.17.1 Introduction

This MELSEC IOServer allows the eWON to poll tags belonging to the MITSUBISHI Q-Series PLC using the protocol on the Ethernet interface. To cover remote maintenance for the Mitsubishi PLCs, the Ethernet routing feature or VCOM feature (serial) of the eWON have to be used.

The MELSEC IOServer is available from firmware version 6.3 onwards.

Since firmware 7.0 eWON also integrates the E1 frames of the MC protocol to allow polling the FX3U and A-Series PLC's through their Ethernet interface

8.17.2 Setup

8.17.2.1 Topic configuration

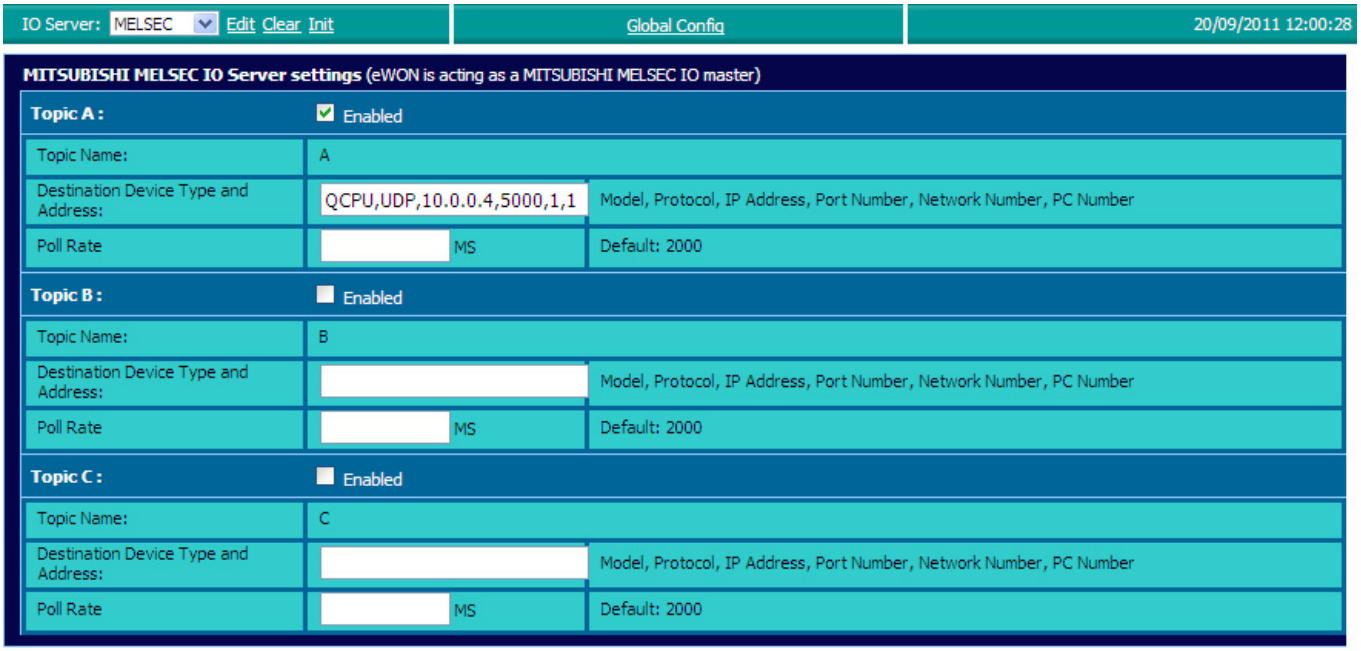


Figure 163: MELSEC IOServer: Topic configuration

Three (3) topics can be used for the IO Server. These topics are used to give a common property to a group of Mitsubishi Tags like:

- Enable/Disable
- Global Device Address
- Polling Rate

Topic configuration item	Description
Topic enabled	Enables or disables polling of all the Tags in the topic.
Global Device Address **Q-Series** QCPU,QnACPU & QOCPU	**Syntax**: Model,Protocol,IP Address,Port Number,Network Number,PC Number [,ReqDestModuleIONo,ReqDestModuleStationNo], where: • **Model**: QCPU,QnACPU or QOCPU • **Protocol**: TCP, UDP • **IP Address**: is the IP address of the PLC • **Port Number**: is the Port of the PLC on which it is listening for MC protocol • **Network Number**: network number of the target (1..239) (0) • **PC Number**: Target Station Number (1..64) (FF) • Optional **ReqDestModuleIONo** default FF 03 • Optional **ReqDestModuleStationNo** default 0 **Example**: QCPU,UDP,198.162.120.155,5000,1,1

Global Device Address **A-Series** ACPU	**Syntax**: Model,Protocol,IP Address,Port Number,PC Number where: • **Model**: ACPU • **Protocol**: TCP, UDP • **IP Address**: is the IP address of the PLC • **Port Number**: is the Port of the PLC on which it is listening for MC protocol • **Network Number**: network number of the target (1..239) (0) **Example**: ACPU,UDP,198.162.120.155,5000,1
Global Device Address **FX-Series** FX3UCPU	**Syntax**: Model,Protocol,IP Address,Port Number where: • **Model**: FX3UCPU • **Protocol**: TCP, UDP • **IP Address**: is the IP address of the PLC • **Port Number**: is the Port of the PLC on which it is listening for MC protocol **Example**: FX3UCPU,UDP,198.162.120.155,5000
Poll rate	Defines the refresh rate of the Tag name. In a complex application, we can imagine that some Tag names must be refreshed every second - typically for digital input - and other every minute - typically: temperature-.

Table 173: MELSEC IOServer: Topic configuration item definition

Temporary hidden table

Examples of Global Device Address syntax

CPU	Protocol	IP Address	Port #	Network ID of PLC	Network ID of PC	IOServer settings
Q	TCP	192.168.140.10	5000	1	5	QCPU, TCP,192.168.140.10, 5000,1,5
Q	UDP	192.168.140.10	5000	1	5	QCPU, UDP,192.168.140.10, 5000,1,5
QNA	TCP	192.168.140.10	5000	1	5	QNACPU, TCP,192.168.140.10, 5000,1,5
QNA	UDP	192.168.140.10	5000	1	5	QNACPU, UDP,192.168.140.10, 5000,1,5
QO	TCP	192.168.140.10	5000	1	5	QOCPU, TCP,192.168.140.10, 5000,1,5
QO	UDP	192.168.140.10	5000	1	5	QOCPU, UDP,192.168.140.10, 5000,1,5
A	TCP	192.168.1.70	1284	None	255	ACPU, TCP,192.168.1.70, 1284, 255
A	UDP	192.168.1.70	1284	None	255	ACPU, UDP,192.168.1.70, 1284, 255
FX3U	TCP	192.168.140.10	5001	None	None	FX3UCPU, TCP,192.168.140.10, 5001,1,5
FX3U	UDP	192.168.140.10	5002	None	None	FX3UCPU, UDP,192.168.140.10, 5002,1,5

8.17.3 Tag name convention

IO Server Name	MELSEC	
Topic Name	A	
	B	
	C	
Item Name	ValueName, Global Device Address	PLC address is defined Tag by Tag
	ValueName	Topic PLC Address is used.

Table 174: MITSUFX IOserver - Tag name convention table

The Item Name can contain the PLC address where the value is polled, or not. If the address is also specified at topic level, the address specified at Tag level will be ignored.

8.17.3.1 Value Name

The syntax is the following:

<Memory Type Symbol>[<Modifier>]<address>

Symbol	Memory type	Modifier allowed (optional)	Address
	Input		1 to 6 hexadecimal bits
DX	Direct Input		1 to 6 hexadecimal bits
Y	Output		1 to 6 hexadecimal bits
DY	Direct Output		1 to 6 hexadecimal bits
B	Link Relay		1 to 6 hexadecimal bits
SB	Special Link Relay		1 to 6 hexadecimal bits
M	Internal Relay		1 to 6 decimal digits
SM	Special Internal Relay		1 to 6 decimal digits
L	Latch Relay		1 to 6 decimal digits
F	Annunciator Relay		1 to 6 decimal digits
V	Edge Relay		1 to 6 decimal digits
S	Step relay		1 to 6 decimal digits
TS	Timer Contact		1 to 6 decimal digits
TC	Timer Coil		1 to 6 decimal digits
TN	Timer Value	**W**, S	1 to 6 decimal digits
SS	Integrating Timer Contact		1 to 6 decimal digits
SC	Integrating Timer Coil		1 to 6 decimal digits
SN	IntegratingTimer Value	**W**, S	1 to 6 decimal digits
CS	Counter Contact		1 to 6 decimal digits
CC	Counter Coil		1 to 6 decimal digits
CN	Counter Value	**W**, S	1 to 6 decimal digits
D	Data Register	**S**, W, L, D, F	1 to 6 decimal digits
SD	Special Data Register	**S**, W, L, D, F	1 to 6 decimal digits
W	Link Register	**S**, W, L, D, F	1 to 6 decimal digits
SW	Special Link Register	**S**, W, L, D, F	1 to 6 decimal digits
R	File Register	**S**, W, L, D, F	1 to 6 decimal digits
Z	Index Register	**S**, W, L, D, F	1 to 6 decimal digits

Table 175: MELSEC Memory types and address scheme

Note: The Modifier can be omitted, the modifier in bold will be used.

Symbol	Modifier	value range	Automatic Tag type
	Word	0 .. 65535	DWord
	signed Word	-32768 .. 32767	Integer
	DWord	0 .. 4294967296 (*)	DWord
	signed DWord	-2147483648 .. 2147483647 (*)	Integer
	Float	+/- 3.4e38	Float

Table 176: MELSEC Modifiers

(*) Important: To avoid loss of precision due to Integer to float conversion, choose the right storage DataType for your Tag.
See "DataType of Tags" on page 38

Examples

address	point to
X14	input bit at octal address 14
D3	data register at address 3 (read as Signed Word)
DD3	data register at address 3 (read as DWord)
DF3	data register at address 3 (read as Float)
D8010	special data register at address 8010 (read as Signed Word)

Table 177: MELSEC register address examples

• Status register:

The STATUS Tag is a special Tag that returns information about the current state of communication for a given device. As for the other Tags, the status Tag ValueName is composed of:

`Status, Global Device Address`

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as analog.

0	Communication not initialized. Status UNKNOWN. If no Tag is polled on that device address, the communication status is unknown.
1	Communication OK.
2	Communication NOT OK.

Table 178: Tag Status meaning

Note: Assisted Edition is enable for this IO server (C.F. page 126)

9 Configuring the eWON by a file upload

It is possible to configure the eWON by uploading some files with an FTP client program.

If you need to configure the eWON, you will put the config.bin file or the two config.txt and comcfg.txt files on the root directory of the eWON.

You could also put the program.bas directly on the eWON. You can edit/modify the script Basic application in your favorite text editor, save as text file with the name program.bas and upload it in the eWON.

The files config.txt and comcfg.txt are interpreted by eWON. The eWON will use only the parameters that are known by it. In addition, you can send a config.txt file containing only the parameters that you want to modify.

For instance, if the *Config.txt* file only contains the following lines, only the eWON identification will be changed.

```
:System
Identification:New_Identification
```

The *config.txt* file contains three sections: *System*, *TagList* and *UserList*. A section must only be declared if at least one field of that group is present in the file. A field must always appear after its section declaration.

A section is declared on a separated line, preceded by a colon (See example above).

Each user and Tag appears on a separated line, with its field separated by a semicolon.

Example: the following config.txt file updates the eWON identification, defines a first user named "user1", a second user named "user2", and a Tag named "tag1". Notice that for user1, the CBMode is not specified and takes the value 0 (Mandatory), while for user2, CBMode takes the value 1 (User Defined).

```
:System
```

10 Retrieving Data from eWON

10.1 List of eWON files

The eWON flash file system contains the following files (R: read, W: write). Detailed information about files format are contained in the Technical Notes that you can download from the eWON web site (***see*** ***http://support.ewon.biz/redirect/DocTN.htm***):

- **TN02: eWON files format**
- **TN03: ircAll.bin format**
- **TN12: var_lst.txt format**

File Name	Type	Description
	R	eWON events occurred (as log in, log out, error) - html format
sstat.htm	R	All the scheduled actions status for the current session - html format
estat.htm	R	Current status of the eWON - html format
rt_alm.txt	R	Real time alarms list
inst_val.txt	R/W	Contains the instant values from the Tags that have been defined in eWON - text format
inst_val.bin	R/W	Instant values from eWON's Tags - binary format
events.txt	R	eWON events occurred (as log in, log out, error) - text format
hst_alm.txt	R	Historical alarms list - text format
var_lst.txt	R/W	List of all the eWON Tag names which are logged - text format
var_lst.csv	R/W	List of all the eWON Tag names which are logged (csv format)
program.bas	R/W	The whole source code of eWON basic program
ewonfwr.edf	W	eWON's firmware file
dump.ppp	R	ppp dump file (can be analyzed by using a software that manages the .ppp format)
config.bin	R/W	eWON configuration - binary format
config.txt	R/W	eWON configuration - text format
comcfg.txt	R/W	eWON COM configuration - text format
ircall.bin	R	All the binary values from all Tags that have been defined in eWON
icr_*XXXXX*.txt	R	Incremental recording file. One file per each of the Tags that are listed inside the var_lst.txt file
remote.bas	W	Single shot execution section (max size = 3000 bytes)
backup.tar	R/W	Archive containing all necessary files to backup the eWON. config.txt, comcfg.txt, program.bas and /usr directory (with subdirs). When the archive is written, the eWON is *firstly cleared* before applying the all files.
data.tar	R/W	Archive containing all necessary files to backup the eWON. config.txt, comcfg.txt, program.bas and /usr directory (with subdirs). When the archive is written, the eWON is *not cleared* before applying the all files.

Table 179: eWON files list

- **Files *ewonfwr.edf* and *config.bin* are binary files and cannot be modify by users. The *config.bin* file is Read/Write to allow users to "copy/paste" configuration from one eWON to another.**
- **The *program.bas* file is Read/Write; this allows you to design your program offline with your text editor and to upload it to the eWON.**
- **Remote.bas is not readable. When a remote.bas (max size = 3000 bytes) file is "dropped" in the eWON root directory, this program is executed 1 time. This feature can be used to execute a single shot action in an automated way.**

- **The following files only appear if the user owns the "Config rights":**
  - **Program.bas**
  - **ewonfwr.edf**
  - **config.bin**
  - **config.txt**
- **During an FTP session, all the files are read-only, except for users who own the "Config rights".**

10.2 Files Format

Files format are text semicolon (;) separated files that may be inserted inside a program such as Excel™. The first row gives the columns names, and the next ones the values of the different columns.

For example, the content of the *rt_alm.txt* file:

```
"TagId";"AlarmTime";"TagName";"AlStatus";"AlType";"StatusTime";"UserAck";"Description"
1;"7/09/04 13:19:12";"Level tank A";"ALM";"LOW";"7/09/04 13:19:12";"";"Fuel level on Tank A"
```

10.2.1 Config.txt : New Line character (NLSeparator)

Firmware 5 specific feature

For technical purposes, the character used (LF char 0x0A) to separate parameters in some fields is replaced by a ¶.

Fields where ¶ character could be found in config.txt are: IOServerData#, Information *of eWON*, Description *of Tag*.

Fields where ¶ character could be found in comcfg.txt are: VPNSecretKey, VPNSecretCert, VPNCACert

With firmware 5, you will find the following parameter:

```
IOSrvData0:MinInterval:10¶MaxInterval:268435455¶ReverseCount:0
```

¶ has the ASCII code 182 (0xB6)

The end of the line is always CR+LF (0x0D 0x0A).

With firmware 4, you will find the following parametesr:

```
IOSrvData0:MinInterval:10      ended by a LF character 0x0A
MaxInterval:268435455          ended by a LF character 0x0A
ReverseCount:0                 ended by a CR+LF characters 0x0D 0x0A
```

In firmware 5, you can force the use of '**LF**' or '**¶**' with the **NLSeparator** parameter (in config.txt file).

NLSeparator	**0** (default) : use the '**¶**' (0xB6) as separator in IOServerData# field. **1** : use the '**LF**' (0x0A) as separator in IOServerData# field (for compatibility with firmware 4).

note: If the config is cleared or if the eWON is formatted, the NLSeparator returns to 0.

note: When you put a config.txt file by FTP to an eWON with firmware 5, it handles correctly the 2 kinds of separator.

10.3 FTP transfer

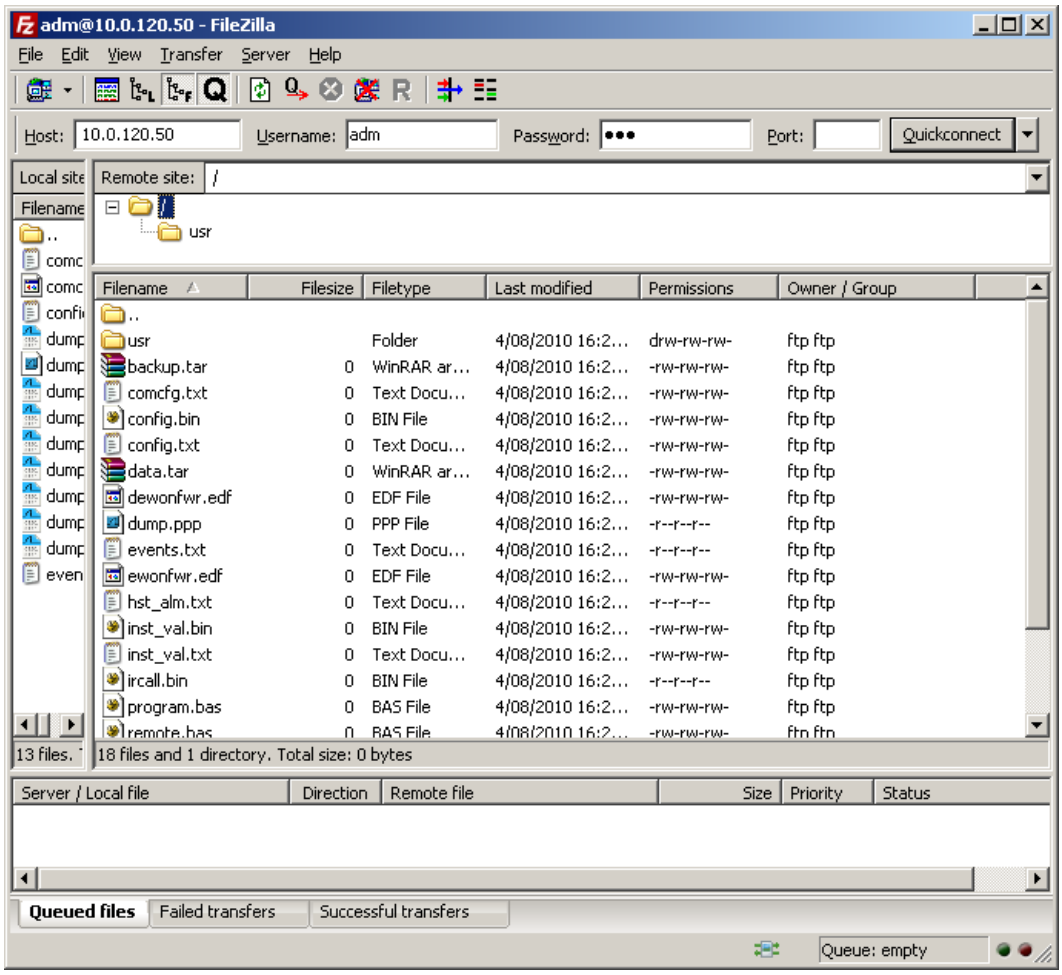
FTP stands for the classical File Transfer Protocol used on the Internet.

10.3.1 FTP Software tools

A lot of FTP software tools are available on the market. A very professional freeware FTP software called ***FileZilla*** is available at http://filezilla-project.org/download.php. This tool allows you to easily manage file retrieving by drag and drop. Please refer to this product's user manual in order to connect to the eWON.

The settings needed to open a TCP/IP connection to the eWON are (with factory settings)

IP address	10.0.0.53
Login	adm
Password	adm
Port	21 (default FTP port)
Anonymous unchecked (you are connecting with the above login and password)	



10.3.2 FTP session

Using a common FTP session and using all standard FTP command, you can also easily retrieve data from the eWON. The main interest of this method is to automate the upload by an FTP scripting executed automatically.

10.3.3 Via eWON web site

One of the Web pages available within the eWON Web Interface is called *Files Transfer*. This page contains a table with a list of hyperlinks. The Hyperlinks can be used to download files directly from the eWON Web Interface.

11 Export Block Descriptor

Exports are used to export eWON data.
Export block can be used in the following situations:

- **Attach the eWON data to an email**
- **Include eWON data into an eMail content**
- **Make an FTP PUT of eWON data from the eWON to a FTP server**
- **Make an FTP GET from a FTP client out of the eWON FTP server**
- **Include data in an eWON HTML custom page.**
- **Access data in Basic with OPEN "exp:....."**

In all these cases, an Export Block Descriptor will be used to describe the data to export.

11.1 Export block descriptor

An Export Block Descriptor is a string of characters describing the eWON data to export with a precise syntax.
Typically, the Export Block Descriptor will answer the following questions:

- **What eWON data to export (Event log, Historical logging, etc.)?**
- **How to format the data to export (Binary, Text, Html table, Graphic)?**
- **From what time?**
- **To what time?**
- **What Tag is concerned?**
- **…?**

This list is NOT complete, and this information is not required for each type of data to export, but it gives an idea of what is described in an Export block descriptor.

Example of Export blocks descriptor:

```
$dtHL $ftT $st_m10 $et_0 $tnMyTag $fnData.csv
```

The export syntax is composed of a sequence of fields followed by its value. A field is a 3 characters identifier starting with $ and followed by 2 lower cap letters (case sensitive).

- **The first letter of the parameter value follows immediately the second letter of the field.**
- **The parameter is considered up to the first space found or until a $ or a [is detected.**
- **The parameter can also be placed between quotes ("). In that case the parameter value is the value between the quotes.**

The following fields are defined:

Fields	Description
$dt	Data type
$ft	Export format
$st	Start time
$et	End time
$tn	Tag name
$ut	Update last time
$ct	Compression type
$fl	Group filter
$fn	File name

Table 180: Export Block Descriptor fields description

11.2 Export fields syntax definition

The syntax for the different fields is defined in the following chapters.

11.2.1 $dt [Data Type]

The $dt field defines what data to export from the eWON. The $dt parameter is made up of 2 upper case letters (case sensitive) that can take one of the following values:

$dt Parameter	Description	Binary	Graph	Text	Html
AH	Alarm history			T*	H
AR	Alarm Real time			T*	H
CF	Config	B*		T	
ES	estat file			T	H
EV	Event file			T*	H
FW	Firmware	B*			
HL	Historical Logging	B*	G	T	H
HT	Historical Table			T*	H
IV	Instant values	B*		T	
PG	Program			T*	
PP	PPP dump file	B			
RL	Real time logging	B*	G	T	H
SC	Communications configuration file			T	H
SE	Script Expression	B*		T	H
SS	Scheduled status			T*	H
SV	System Variable			T	
TL	Tag list			T*	H
UF	User file	B*		T	H
RE	Real Time diagnostic			T*	
TR	TAR File	B*			

Table 181: $dt parameters description

(*) The asterisk in the previous table denotes the default value of the $ft (export format). For example, for the DataType HL (Historical Logging), the default export format will be B (Binary) if you do not specify a $ft in your Export Bloc Descriptor (using [$dtHL] is equivalent to [$dtHL $ftB]).

11.2.2 $ft [Format]

The $ft field defines how to format the data exported. The following formats are available:

$ft Parameter	Format description
B	Binary
G	Graph
T	Text
H	HTML Table

Table 182: $ft parameters description

- **Binary: the data are sent in a raw binary format, not modified by the export module.**
- **Graph: the data are used to produce a PNG (Portable Network Graphic) image representing a graph of the values (historical trend or real time graph).**
- **Text: The data are formatted as a CSV file, this means that each record is represented with each field on a line separated by a semicolon (;). The string fields are written between quotes, each line is ending by a CRLF (0x0D, 0x0A) sequence.**
- **Html: Instead of the text format, the data are placed in a simple HTML table. This format is useful for inserting data in the user custom HTML pages.**

11.2.3 $st [Start Time] and $et [End Time]

These 2 fields are used to limit the time range of an export operation. $st and $et provide the start and end time of the export. The parameter format is the same for both fields. There are 3 different formats for the $st, $et parameter:

- **Relative time**
- **Absolute time**
- **From last $ut (see also "$ut [Update Time]" on page 205).**

11.2.3.1 $st, $et with relative time

Syntax:

```
$st_([s]|[m]|[h]|[d])100 _ = back
```

(h,m,s,d = Hour, min, sec, day. 100 is the amount)
This represents a time regarding to the current time expressed in days, hour, minutes or seconds. If no letter is specified minutes are considered.

Examples:

$st_m10	10 minutes in the past
$et_0	0 minutes in the past (= now)
$st_d2	2 days in the past

Table 183: $st with relative time examples

11.2.3.2 $st, $et with absolute time

Syntax:

```
$stDDMMYYYY[[_HHMMSS][[_mmm][[_I][[_T]]]]]
```

Where:

DDMMYYYY	Means Day, Month, Year, 8 characters. This parameter is required.
HHMMSS	Means Hour, Minute, Second, 6 characters. This parameter is optional (0 used by default)
mmm	Means milliseconds (000 to 999) 3 characters. This parameter is optional but if present, HHMMSS must also be specified.
I	Means intra sec counter. This value is present when receiving a historical logging from the eWON. It can be specified in export request to allow precise repositioning in the historical file. This parameter is optional, but if present, HHMMSS and mmm must also be specified.
T	Means Tag id. As for I, this parameter is used for precise positioning in historical file. This parameter is optional, but if specified, HHMMSS, mmm and I must be present also.

Table 184: $st parameters

When ALL the Tags are specified, the Tag values are output in chronological order. For the same time there can be 2 Tag values. In order to reposition correctly in the file, it is necessary to provide the last Tag output during a previous export.

Examples:

$st01012000_120000	1 jan 2000 at 12 AM
$st01012000_120000_010	1 jan 2000 at 12 AM + 10 msec

Table 185: $st with absolute time examples

11.2.3.3 $st , $et with Last time

By adding the $ut command in an Export Block Descriptor, you can ask the eWON to remember the time of the last point exported, this time can be used for the next export.
The last time is reset when the eWON boots.

Syntax:

```
$stL
```

L is the time parameter meaning last time.

11.2.4 $ut [Update Time]

This field has no parameter, it means that at the end of this export, the time of the last point exported must be saved in the eWON so that it can be used as a reference time for a later call.

Example:

```
$stL$et_0$ut
```

This sequence will specify a time range from last time to current time AND will ask to update the last time at the end of the export.
The last time is stored on a per Tag basis if one Tag is specified for the export. A global last time can also be saved if "ALL Tag" is specified in an export.

11.2.5 $tn [Tag Name]

This field is used to specify a Tag name. It is required for graph commands. The parameter specified is the name of the Tag. When a $tn field can be specified for an export and no $tn is given, then the command is executed for ALL the Tags.

Example:

```
$tnMyTag
```

(MyTag is the name of the Tag)

11.2.6 $ct [compression format]

This field is only applicable when sending a file from the eWON to an FTP server, or as an attachment to an email.
The compression format is gzip (http://www.gzip.org). So that the unique argument to add after the field "$ct" is "G".

Example:

```
Putftp "test2.txt.gz","[$dtUF $ctG $uf/test.txt]"
```

Or:

```
SENDMAIL "destinator@provider.net", "", "Subject", "Mail body &[$dtUF $ctG
$uf/usr/test.txt $fntest2.txt.gz]"
```

Note:

If you give to the destination file the ".gz" extension only (and not ".txt.gz" for example), the destination file will be correctly exported, but in this case you will have to indicate the extension when uncompressing (".txt" in the above case).

You can then use a tool such as Winrar to extract the file; it will be extracted in a folder named "test2.txt".*

**You can download a free trial version of this tool at the following address: http://www.rarlab.com/download.htm.*

11.2.7 $se [Script Expression]

This field is only required for $dtSE export data. The $se parameter specifies the "script expression" to compute. Usually, the $se parameter will be inserted between quotes because if a $ is found in the expression it will be considered as the end of parameters.

Example:

```
$dtSE $se"A$"
```

(Exports the content of A$)

11.3 Data Types description and syntax

A Data type defines what is exported from the eWON. The data type is defined by the $dt field followed by 2 uppercase letters. The $dt field is mandatory for each "Export Block Descriptor" and usually the $ft (Format) field will also be present to define the output format of your data (although a default format is defined for each data type).
For each Data type, a set of other fields must be provided (some are mandatory and others are optional).

Note:

If you specify an unused field (neither mandatory nor optional), it will then be ignored.

This section will describe the syntax for each data type with the specific features for each of them.

11.3.1 $dtHL [Historical Logging]

11.3.1.1 Export content

The Historical logging outputs the data from the File system for ONE or ALL the fields. The output format can be TEXT, HTML Table or BINARY. The GRAPH format is also available IF only ONE Tag is specified.
A time range can also be specified for this export.

11.3.1.2 Detailed Example

```
$dtHL $ftT $st_h4 $et_m0 $tnA1
```

$dtHL	data type historical logging
$ftT	output format requested is CSV
$st_h4	start time is current time – 4 hours
$et_0	end time is current time – 0 minutes ⇔ NOW
$tnA1	Tagname “A1” history to output

Table 186: $dtHL detailed example

11.3.1.3 Used Fields

Fields	Value if not specified
Mandatory	
Optional	
	Binary
$st	01/01/1970
$et	31/12/2030
$tn	All tags
$fl	All tags groups
$ut	No time update
$fn	Export block descriptor
$ct	Compression type

Table 187: $dt - used fields

11.3.1.4 Special parameters and fields

`$st $et`

If Last time is specified: ($stL or $etL): there is a last time logged for each Tag plus a last time logged for all Tags. If you specify a given Tag, its own last time will be used. If a specific Tag is not requested, the export is performed for Tags concerned by historical logging and another last time memory is used.
If the output format is graph: $et_0 should be used instead of default value, otherwise the graph would span up to 31/12/2030. For binary or text output, the default value can be kept.

$ft

Acceptable values			
Binary	**Text**	**HTML**	**Graph**

Table 188: [$dtHL] $ft acceptable values

The Graph format is only allowed if a Tag has been specified.
The Text format will output a comma-separated file. The separator is ';' to avoid any confusion with decimal point. If all the Tags are output they will be output in a chronological order in the file.

$ut

If only one Tag is specified, the time of the last point for that Tag will be memorized. All the Tags can be output individually and last time is saved for each point. Another memory is available if $ut is requested for ALL the Tags.

$tn

If this Tag is not specified, ALL the Tags will be selected for export. Otherwise, the Tag with the given name will be selected.

$fl

The group selection is only available with binary, text and HTML formats (not allowed for Graphic format $ftG).

11.3.1.5 examples

$dtHL	export all the Tags records in binary format
$dtHL $ftT	export all the Tags records in (*$ftT)* Text format (like CSV file)
$dtHL $ftT $tnTemp	export all the values of the *($tnTemp)* Tag named “Temp” in (*$ftT)* Text format
$dtHL $ftB $flAB	export all the values of *($flAB)* tags belonging to group A and B in *($ftB)* Binary format
$dtHL $ftT $tnTemp $st_h1 $et_s0	export the values *($st_h1)* from 1 hour to *($et_s0)* now of *($tnTemp)* Tag named “Temp” in *($ftT)* Text format
$dtHL $ftT $flCD $st_h1 $et_s0	export the values *($st_h1)* from 1 hour to *($et_s0)* now of *($flCB)* Tags belonging to group C and D in *($ftT)* Text format

Table 189: [$dtHL] examples

11.3.2 $dtHT [Historical Table]

11.3.2.1 Export content

The historical table is a representation of the IRCALL.BIN (incremental recording).
This representation provides a recordings representation as a table where columns are Tag names and rows are recording times.
The features is also used in the VIEW area (see “Historical table” on page 16).

11.3.2.2 Detailed Example

```
$dtHT $ftT $st_h4 $et_m0 $flAB $in10
```

$dtHT	data type historical table
$ftT	output format requested is text (CSV)
$st_h4	start time is current time – 4 hours
$et_0	end time is current time – 0 minutes ⇔ NOW
$flAB	Filter to Instant value groups A and B
$in10	Interval fixed to 10 seconds

Table 190: $dtHT detailed example

11.3.2.3 Fields used

Fields	Value if not specified
Mandatory	
Optional	
	Text
$st	01/01/1970
$et	31/12/2030
$fl	All tags are displayed
$in	interval from the ircall.bin file

Table 191: $dt - used fields

11.3.2.4 Special parameters and fields

`$ft`

Acceptable values	
Text	**HTML**

Table 192: [$dtHT] $ft acceptable values

Text format will output a comma-separated file. The separator is ';' to avoid confusion with decimal point.

`$fl (filter)`

The filter can be used like for the instant values ($dtIV), with an additional option 'X'
The $fl can be any string containing A,B,C,D,X.
Example: ACX or BDAX or X
If no filter is specified then all the Tags with an enabled Historical logging are output.
If filter include "X", then tags without Historical logging enabled are also included, this is provided in case recording has been disabled but tags have been previously recorded in the file.
If filter include any of the A,B,C,D, then only the tags that belong to those groups are included in the output.

`$in (interval)`

The Historical Table time interval definition can follow 2 different standards:

- **Historical file defined interval**
- **Fixed interval**

For fixed interval, $in parameter must be used. The interval is defined in seconds.
Example: $in10 to output one value every 10 seconds

If $in is not specified, then the output time is defined by the time in the recording file.

Example:

Let's assume that we have 2 Tags logged with the following time and values (for clarity, the date has been omitted):

Time	Tag	Value
10:01:00	Tag1	1
10:10:00	Tag1	1.5
10:10:00	Tag2	1
10:11:00	Tag1	2
10:12:00	Tag1	3
10:21:00	Tag2	2
10:30:00	Tag1	4

If the fixed interval is not requested, then the following output will be produced

	Time	Tag1	Tag2
1	10:01:00	1	Undef
2	10:10:00	1.5	1
3	10:11:00	2	1
4	10:12:00	3	1
5	10:21:00	3	2
6	10:30:00	4	2

Notes:

At line 1, Tag2 is **Undef**, because no value are available in the log file.
At line 2, Tag1 and Tag2 are updated at on the same line, although there are 2 records in the incremental recording file, only 1 line is produced.
So, except for the case when multiple Tags changed at the same time, when no interval is specified, the output contains one line for every record that has been logged.

If an interval of 10 minutes has been requested ($in600), then the following output would be produced.

	Time	Tag1	Tag2
1	10:01:00	1	Undef
2	10:11:00	2	1
3	10:21:00	3	2

Notes:

The output starts with the first time found in the file then it increases by 10 minutes.
There is no record with time equal (or higher) to 10:31, so the last line is 10:21

If an interval of 10 minutes is requested and the start time is 10:00, then the following output would be produced.

	Time	Tag1	Tag2
1	10:00:00	Undef	Undef
2	10:10:00	1.5	1
3	10:20:00	3	1
4	10:30:00	4	2

Notes:

On the first line, no values are available for Tag1 or Tag2 before 10:01:00 (for tag Tag1) in the recording file, so the values are **Undef**.

11.3.3 $dtRL [Real time Logging]

11.3.3.1 Export content

The Real time logging outputs the data from the File system for ONE Tag. The output format can be TEXT, HTML Table, BINARY or GRAPH. A time range can also be specified for this export.

11.3.3.2 Detailed Example

```
$dtRL $ftG $st_m10 $et_m0 $tnA1
```

$dtRL	data type Real time logging
$ftG	output format requested is GRAPH
$st_m10	start time is current time – 10 minutes
$et_0	end time is current time – 0 minutes ⇔ NOW
$tnA1	Tag log to output
A1	Name of the Tag

Table 193: $dtRL - detailed example

11.3.3.3 Used Fields

Fields	Value if not specified
Mandatory	
$dt	
$tn	
Optional	
$ft	Binary
$st	01/01/1970
$et	31/12/2030
$ut	No time update
$fn	Export block descriptor
$ct	Compression type

Table 194: $dtRL - fields used

11.3.3.4 Special parameters and fields

`$st $et`

If the output format is "graph", $et_0 should be used instead of default value, otherwise the graph would span up to 31/12/2030. For binary or text output, the default value can be kept.

`$ft`

Acceptable values			
Binary	**Text**	**HTML**	**Graph**

Table 195: [$dtRL] $ft - acceptable values

Text format will output a comma-separated file. The separator is ';' to avoid any confusion with the decimal point.

`$tn`

A Tag MUST be specified for this export (does not work on ALL the Tags).

11.3.4 $dtAH [Alarm History]

11.3.4.1 Export content

The Alarm History outputs data from the File system for ONE or ALL the Tags. The output format can be TEXT or HTML Table.
A time range can also be specified for this export.

11.3.4.2 Detailed Example

```
$dtAH $ftH $st01012001
```

$dtAH	data type Alarm history logging
$ftH	output format requested is HTML table
$st01012001	1st of January 2001
$et	not specified ➔ until the end of file
$tn	not specified ➔ all the Tags

Table 196: $dtAH - detailed example

11.3.4.3 Fields used

Fields	Value if not specified
Mandatory	
$dt	
Optional	
$ft	Text
$st	01/01/1970
$et	31/12/2030
$tn	All
$ut	No time update
$fn	Export block descriptor
$ct	Compression type

Table 197: $dtAH - fields used

11.3.4.4 Special parameters and fields

$ft

Acceptable values	
Text	**HTML**

Table 198: [$dtAH] $ft - acceptable values

Text format will output a comma-separated file. The separator is ';' to avoid any confusion with the decimal point. If all Tags are output they will be output in a chronological order in the file.
Line content of output file:

```
"EventDate";"TagName";"Status";"UserAck";"Description"
```

$tn

If this Tag is not specified, ALL the Tags will be selected for export. Otherwise, the Tag with the given name will be selected.

11.3.5 $dtAR [Alarm Real time]

11.3.5.1 Export content

The Alarm Real time outputs the real time data for ONE or ALL the Tags. The output format can be TEXT or HTML Table. If only ONE Tag is specified, 1 or 0 lines will be appended to the output header line (Time range is not applicable here).

11.3.5.2 Detailed Example

```
$dtAR $ftT
```

$dtAR	data type Alarm Real time
$ftT	output format requested is CSV
$tn	not specified ➔ all Tags

Table 199: $dtAR $ft - detailed example

11.3.5.3 Fields used

Fields	Value if not specified
Mandatory	
$dt	
Optional	
$ft	Text
$tn	All
$fn	Export block descriptor

Table 200: $dtAR - fields used

11.3.5.4 Special parameters and fields

$ft

Acceptable values	
Text	**HTML**

Table 201: [$dtAR] $ft -acceptable values

Text format will output a comma-separated file. The separator is ';' to avoid confusion with the decimal point. If all the Tags are output, they will be output in a chronological order in the file. Line content of output file:

```
"TagId";"AlarmTime";"TagName";"AlStatus";"AlType";"StatusTime";"UserAck";"Description"
```

$tn

If this field is not specified, ALL the Tags will be selected for export. Otherwise, the Tag with the given name will be selected.

11.3.6 $dtEV [EVent file]

11.3.6.1 Export content

The Event file outputs data from the File system. The output format can be TEXT or HTML Table.
A time range can also be specified for this export.

11.3.6.2 Detailed Example

```
$dtEV $ftT $st_m30
```

$dtEV	data type events logging
$ftT	output format requested is CSV
$st_m30	last 30 minutes
$et	not specified ➔ until now

Table 202: $dtEV - detailed example

It will output a CSV file containing the events during the last 30 minutes.

11.3.6.3 Fields used

Fields	Value if not specified
Mandatory	
$dt	
Optional	
$ft	Text
$st	01/01/1970
$et	31/12/2030 ⇔ NOW
$fn	Export block descriptor
$ct	Compression type

Table 203: $dtEV - fields used

11.3.6.4 Special parameters and fields

$ft

Acceptable values	
Text	**HTML**

Table 204: [$dtEV] $ft - acceptable values

Text format will output a comma-separated file. The separator is ';' to avoid any confusion with the decimal point.
Line content of output file:

```
"EventTimeInt";"EventTimeStr";"Event"
```

EventTimeInt	Time provided as an integer (number of seconds since 1/1/1970)
EventTimeStr	Date and time as text

Table 205: EventTime types

11.3.7 $dtSS [Scheduled Status]

11.3.7.1 Export content

The scheduled actions are actions that are executed in a scheduled manner, for example: PutFTP, Send Mail, Send SMS.
When one of these actions is requested, it does not occur immediately, but it is queued for a sequential execution. This export allows checking the content of this queue and giving the status of all the actions in queue: "in progress", "executed (success)" and "executed with error".

11.3.7.2 Detailed Example

```
$dtSS
```

11.3.7.3 Fields used

Fields	Value if not specified
Mandatory	
$dt	
Optional	
$ft	Text
$fn	Export block descriptor

Table 206: $dtSS - fields used

11.3.7.4 Special parameters and fields

```
$ft
```

Acceptable values	
Text	**HTML**

Table 207: [$dtSS] $ft - acceptable values

Text format will output a comma-separated file. The separator is ';' to avoid any confusion with the decimal point. Line content of output file:
"ActionId","ActionType","StatusCode","StatusText","Start","End"

11.3.8 $dtSE [Script Expression]

11.3.8.1 Export content

This export provides a means to get the content of a script expression. The script expression is a standard eWON Basic-like expression returning a STRING, and INTEGER or a FLOAT. The evaluation of the expression will always occur between 2 scripts execution, for example between 2 ONTIMER executions, or between 2 cycles of the cyclic sections.

11.3.8.2 Detailed Example

```
$dtSE $se"A$"
```

11.3.8.3 Fields used

Fields	Value if not specified
Mandatory	
$dt	
$se	
Optional	
$ft	Binary
$fn	Export block descriptor

Table 208: $dtSE - fields used

11.3.8.4 Special parameters and fields

$ft

Acceptable values		
Text	**HTML**	**Binary**

Table 209: [$dtSE] $ft - acceptable values

Binary and Text format means that the output is the content of the Script Expression itself.
HTML output supposes that the content of the script expression is a comma-separated data (string between quotes, items separated by ';' and end of lines marked with CRLF (0x0d, 0x0a)). Then the exported output is an HTML table containing these data.

$se

Defines the script expression to output, usually this expression is typed between quotes because $ characters are considered as separator otherwise.

11.3.9 $dtUF [User File]

11.3.9.1 Export content

The User File export returns the content of a file in the User File area (/usr/ directory – or subdirectory).

When the file is exported, the <%#ParamSSI> and <%#TagSSI> Tags are replaced by the actual values.

11.3.9.2 Detailed Example

```
$dtUF $uf/ufdir/uf1.txt
```

$dtUF	User file
$uf/ufdir/uf1.txt	Will export the *uf1.txt* file located in the */usr/ufdir* directory

11.3.9.3 Used Fields

Fields	Value if not specified
Mandatory	
$dt	Must always precede "UF": dtUF (means Data Type= User File)
$uf	
Optional	
$fn	
$ft	Binary
$ct	no compression
$fl	

Table 210: $dtUF - used fields

11.3.9.3.1 $uf [User File Name]

This field is the name of the user file that you want to export (source name).
The file name can be preceded by the name of the subdirectory inside the /usr directory:

/myfile.txt
(myfile.txt is in the /usr directory)

Note: The first "/" is optional.

/mydir/myfile.txt
(myfile.txt is in the /usr/mydir directory)

Note: The first "/" is optional.

The complete path can also be specified:

/usr/myfile.txt
(myfile.txt is in the /usr directory)

Note: The first "/" is optional.

/usr/mydir/myfile.txt
(myfile.txt is in the /usr/mydir subdirectory)

Note: The first "/" is optional.

Example:

```
Putftp "/test.txt","[$dtUF $uf/myfile.txt]"
```

11.3.9.3.2 $fn [Destination File Name]

This field is used for specifying a file name to the export data (destination name). Usually this file name is used to specify the output of the data, for example when sending an attachment to an email. In this case, the $fn file name gives the name of the attachment:.

```
SENDMAIL "MailReceiver@YourMail.com", "", "Mail Subject", "&[$dtUF $uf/myfile.txt $fnNewName.txt]"
```

The above example will attach to an eMail a file named “NewName.txt” that is a copy of the file “/usr/myfile.txt”.

There is also one special use of the $fn: when a user file ($dtUF$fn) is exported and you do not specify the *source name ($uf)*; in that case, the $fn parameter is used as source and as destination file name.

Using only $fn in a send mail string:

```
SENDMAIL "MailReceiver@YourMail.com", "", "Mail Subject", "Mail text &[$dtUF$fnmyfile.txt]"
```

Use the above syntax will attach a file with its name (and not with the EBD syntax as name).
note: pay attention that all '/' (slash) character into the $fn parameter will be replaced by a '_' (underscore) character.

When doing a PUTFTP, then $fn does not need to be specified, because the PUTFTP command manages the name of the destination file:

```
PUTFTP "MyFileWithANewName.txt", "[$dtUF $uf/myfile.txt]"
```

11.3.9.3.3 Special parameters and fields

- **$ftB "File Type" binary (default). Other types are unavailables (HTML, Text or Graph)**
- **$ctG "Compression Type" GZ.**
- **$flNOSSI "Disable SSI parsing in $dtUF".**
  When the $dtUF export bloc descriptor is used to export a user file then eWON will parse the user file during export for any SSI tag (tags starting with <%#). In some cases this behavior is not wanted (in case the file may contain the <%# sequence but no SSI are used).

  The $flNOSSI can be used to disable SSI parsing in $dtUF
  IMPORTANT: NOSSI must be entered in caps (case sensitive)

  example:
  $dtUF $uf/usr/MyFile.bin $flNOSSI $fnOutFile.bin

11.3.10 $dtIV [Instant Values]

11.3.10.1 Instant value - general information

Instant value means values of Tags at a given time. The file of instant value contains for each Tag the following information:

TagId	Id of the Tag
TagName	Name of the Tag (in text mode)
Value	Current value of the Tag
AlStatus	Current alarm status of the Tag
AlType	Type of the current alarm

Table 211: $dtIV - instant value file's informations

- **The file containing the instant values for every Tag is available in binary or text format; you can download the instant values file directly from the root of the eWON root file list, or you can address it by using an Export Block Descriptor.**
- **The instant values file normally contains all the Tags, but there is an additional feature that allows obtaining only the instant values from specific Tags.**
- **In the Tag definition, there is a new config in the "Tag visibility section".**
- **There is a group of 4 check boxes, each of them being associated to a group called A, B, C, D (4 groups).**
- **Every Tag can belong to no group, one group, or more than one group.**
- **These groups are only used when reading the instant values using an Export Block Descriptor; in that case there is an additional field in the Export Block Descriptor. That allows to request the instant values for the Tags belonging to one or more groups.**

  IMPORTANT:

  Regardless of the group definition for each of the Tags, the inst_val.txt and inst_val.bin files (see below) always return the instant value for ALL Tags.

  These groups have nothing in common with the A, B, C topics of the IO servers. They are defined in the context of the Instant Values!

- **Root file access**

In the eWON root folder (FTP access or file transfer) you will find the following 2 files:

inst_val.txt	instant values in text mode
inst_val.bin	instant values in binary mode

11.3.10.2 Alarm status code values

The below table lists the different values that the field ***AlStatus*** can have, depending on the Alarm State and of the action the user has performed on it:

Alarm Status	Alarm Status Value	Alarm status explanations
NONE	0	Tag is not in alarm status
PRETRIGGER	1	Tag is in pretrigger alarm status**Warning**: we assume there is no alarm if AlStatus value <= Alarm Pretrigger
ALM	2	Tag's alarm status is active
ACK	3	Tag's alarm has been acknowledged
RTN	4	Tag's alarm returns from an active status

Table 212: inst_val.txt file - alarm status code values

11.3.10.3 Alarm type values

The table below lists the different values that the field ***AlType*** can have, depending on the type of threshold that has been stepped over by the Tag value, depending on the configuration set in the Tag's configuration page:

Alarm Type	Alarm Type Value	Alarm type explanations
NONE	**0**	The Tag value is inside of the limits beyond of which the alarm is triggered
HIGH	**1**	The Tag value exceeds the value entered in the ***Alarm Level High*** field from the Tag configuration page
LOW	**2**	The Tag value is less than the value entered in the ***Alarm Level Low*** field from the Tag configuration page
LEVEL	**3**	The Tag value matches the ***Boolean Alarm Level*** value defined in the Tag configuration page
HIGH_HIGH	**4**	The Tag value exceeds the value entered in the ***Alarm Level HighHigh*** field from the Tag configuration page
LOW_LOW	**5**	The Tag value is less than the value entered in the ***Alarm Level LowLow*** field from the Tag configuration page

Table 213: inst_val.txt file - alarm type values

11.3.10.4 Writing Instant Values to the eWON

The instant values file can also be written to the eWON. The file must be written by FTP to the ftp root folder and must be written to the file. All the Tags value present in the file will be used to change the corresponding Tag in the eWON. If a Tag is not found, then it will be ignored.

- **Writing in binary format:**
  - **The file format must comply exactly with the definition (see below) and all Tags are identified by their Tag ID.**
- **Writing in text format:**
  - **When writing the instant value in text format, there are different possibilities to address the Tag:**
  - **If a "TagName" column is present, then the Tags will be accessed by their name (even if a "TagId" column is present)**

```
Example:
"TagId";"TagName";"Value";"AlStatus";"AlType"
1;"M1";10.000000;0;0
2;"M2";20.000000;0;0
```

If a "TagName" column is NOT present, the Tags will be accessed by their id:

```
"TagId";"Value";"AlStatus";"AlType"
1;10.000000;0;0
2;20.000000;0;0
```

WARNING:

Remember that the Tag Id is not an index, but a unique number that has been allocated to the Tag when created, and cannot be reused unless the configuration is erased and a new configuration is created.

11.3.10.5 Binary file format

The file starts with a Header that can be represented by the following C structure:

```
struct InstantValueHeader
{
   int    Rev;
   int    RecSize;                 //Record size
   int    NbTag;                   //Number of Tags exported
   int    RecFlag;                 //Reserve (must be set to 0)
   int    Reserved2;
}
```

Then there is a record number for each Tag (the record number can be obtained from the header (NbTag):

```
struct InstantValueRecord
{
   int   TagId;
   float Value;
   int   AlStatus;
   int   AlType;
   int   Reserved;
}
```

WARNING:

All data in these records are stored in BigEndian

Until more information is available in this chapter, please refer to "Technical Note 03" for more information about eWON's data representation of floats and big endian format (http://support.ewon.biz).

11.3.10.6 Export content

The $dtIV Tag exports either the entire content of the Instant Value file (txt or binary format) or only a part of it, depending on the parameters that might have been defined with the $fl field.

11.3.10.6.1 Detailed examples

$dtIV $flAB	Will export all the Tags belonging to group A or B
$dtIV $flA	Will export all the Tags belonging to group A
$dtIV $fl	Will export no Tag (useless)
$dtIV $flABCD	Will export all the Tags belonging to group A or B or C or D (but missing Tags that belong to no group)
$dtIV	Will export all the Tags regardless of group definition

Table 214: $dtIV - detailed examples

11.3.10.6.2 Fields used

Fields	Value if not specified
Optional	
$fl	
$ft	Text

Table 215: $dtIV - used fields

11.3.10.7 $fl [Group or Groups]

The $fl (for filter) field must be directly followed by a list of one or more groups A, B, C or D (that have been checked in the Tag's configuration). There must be no other character in the filter and all the groups must be in uppercase.

Example:

```
$dtIV $flAB
```

It will export all the Tags belonging to group A or B.

11.3.11 $dtSV

11.3.11.1 Export content

$dtSV returns the value of a defined eWON system variable. A typical use is when the user wants to include the eWON online IP address in an email by using the sendmail Basic syntax. The output format can only be of TEXT type.

11.3.11.2 Detailed Example

```
sendmail "user@user.be","","Ip","The eWON online IP'address is:
[$dtSV$seOnlineIpAddr]"
```

$dtSV	Data type system variable
$se	Will export a system expression
OnlineIpAddr	The current eWON online IP address (ie. 192.168.10.15)

Table 216: $dtSV - detailed example

Will include the eWON online IP address in the body from a sent eMail.

11.3.11.3 Used Fields

Fields	Value if not specified
Mandatory	
$se	System expression. At this time, only "OnlineIpAddress" is available

Table 217: $dtSV - fields used

11.3.12 $dtPP

11.3.12.1 Export content

$dtPP exports the dump.ppp file (binary format): the file in which the online eWON activity is logged. The output format can only be of BINARY type.

11.3.12.2 Detailed Example

```
sendmail "user@user.be","","eWON PPP dump","&[$dtPP$fndump.ppp]"
```

$dtPP	Data type PPP dump
$fn	Will give the required name to the file

Table 218: $dtPP - detailed example

Will attach the eWON PPP dump file to a the eMail.

11.3.12.3 Used Fields

Fields	Value if not specified
Optional	
$fn	File name

Table 219: $dtPP - used fields

11.3.13 $dtES

11.3.13.1 Export content

$dtES exports the estat.htm file : the file that lists the current status from the main eWON features. The output format can be TEXT or HTML.

11.3.13.2 Detailed Example

```
sendmail "user@user.be","","eWON estat file","&[$dtES$ftH$fnestat.htm]"
```

$dtES	Data type estat file
$ftH	Will export the file in htm format
$fn	Will give to the file the required name

Table 220: $dtES - detailed example

Will attach the eWON estat.htm file to the eMail.

11.3.13.3 Fields used

Fields	Value if not specified
Optional	
$ft	File type
$fn	File name

Table 221: $dtES - fields used

11.3.14 $dtSC

11.3.14.1 Export content

$dtSC exports the communications configuration file (comcfg.txt): the file that lists the current status of the main eWON communication features. The output format can be TEXT or HTML.

11.3.14.2 Detailed Example

```
sendmail "user@user.be","","eWON COM config file","&[$dtSC$ftH$fncomcfg.htm]"
```

$dtSC	Data type COM config file
$ftH	Will export the file in htm format
$fn	Will give to the file the required name

Table 222: $dtSC - detailed example

It will attach the eWON comcfg.htm file to the eMail.

11.3.14.3 Used Fields

Fields	Value if not specified
Optional	
$ft	File type
$fn	File name

Table 223: $dtES - used fields

11.3.15 $dtRE [Real Time Diagnostic]

11.3.15.1 Export content

$dtRE exports the Real Time Diagnostic data (equivalent to the real tiime log, see “Real Time Log” on page 26)
The output format can be TEXT only.

11.3.15.2 Detailed Example

```
sendmail "user@user.be","","eWON Real Time Log","&[$dtRE$fndiag.txt]"
```

It will attach to an email the file "diag.txt" holding the real time diagnostic of the eWON.

$dtRE	Data type : Real Time Diagnostic
$fn	Will give to the file the required name

Table 224: $dtRE - detailed example

11.3.15.3 Used Fields

Fields	Value if not specified
Optional	
$ft	File type (only **T** available)
$fn	File name

Table 225: $dtRE - used fields

11.3.16 $dtTR [TAR file]

11.3.16.1 Export content

$dtTR exports the eWON file(s) inside a TAR formated file.
The data to include in the TAR file can be defined using a single file list, a directory and wildcard '*', or/and another export block descriptor's.

11.3.16.2 Detailed example

```
$dtTR $fnmytar.tar $td{/usr/*}
```

Put the complete /usr directory in the mytar.tar file.

$dtTR	Data type : TAR file
$td	Data : {/usr/*} the complete /usr directory
$fn	mytar.tar

Table 226: $dtTR - detailed example

11.3.16.3 Used Fields

Fields	Value if not specified
Mandatory	
$td	Data
$fn	File name
Optional	
$ft	**B**
$ct	

Table 227: $dtTR - used fields

11.3.16.3.1 $fn [output filename]

$fn is used to define a name for the output file.

```
example: $fnMyDataFile.tar        will produce a TAR file with the name "MyDataFile.tar".
```

11.3.16.3.2 $td [TAR data]

The data consists in a list of items separated by ',' (comma).
The items are specified between "{ }" (curly brackets).

```
$td {item1},{item2},...,{itemX}
```

Each item is one of these:
- **A /usr file name (complete path to file)**
- **A /usr directory name (complete path to directory) followed by ***
- **An export block descriptor**

If the path represents a directory followed by * then the whole tree is exported.

11.3.16.4 TAR format and eTAR modified format

The TAR file produced by the eWON could be :
- a standard TAR file, compliant to the USTAR (Uniform Standard Tape Archive) format.
- a modified TAR file, called *eTAR*.

Standard TAR file can be opened by most of Packager Program like Winzip, WinRar.

Due to technical reasons, the eWON produces an eTar format when the package holds file(s) belonging to the eWON root directory.
This eTAR file is viewed as a "corrupted file" by Packager Program. But, you can use our eTar.exe tools to reformat this eTAR as a valid TAR file.

You can find this eTar.exe program on http://ftp.ewon.biz/software/divers/etar.zip .

11.3.16.5 Examples

```
$dtTR $fnmytar.tar $td{/usr/file1.txt}
```

Will make a TAR file named "mytar.tar" containing the file /usr/file1.txt

```
$dtTR $fnmytar.tar $td{/usr/MyFile1.txt},{/usr/MyFile2.txt}
```

Will make a TAR file named "mytar.tar" containing the files /usr/MyFile1.txt and /usr/MyFile2.txt

```
$dtTR $fnmytar.tar $td{$dtCF $ftT $fnMyConfig.txt}
```

Will make an eTAR file named "mytar.tar" containing the eWON configuration file named "MyConfig.txt"

```
$dtTR $fnmytar.tar $td{/usr/file1.txt},{$dtCF $ftT $fnMyConfig.txt}
```

Will make an eTAR file named "mytar.tar" containing the eWON configuration file named "MyConfig.txt" and the file /usr/file1.txt

```
$dtTR $fnmytar.tar $td{/usr/*}
```

Will make a TAR file named "mytar.tar" containing all the /usr directory

```
$dtTR $fnmytar.tar.gz $ctG $td{/usr/*}
```

Will make a *compressed* TAR file named "mytar.tar.gz" containing all the /usr directory

```
$dtTR $fnmytar.tar $td{/usr/*},{$dtPG $fnprogram.bas},{$dtCF $ftT
$fnconfig.txt},{$dtSC $ftT $fncomcfg.txt}
```

Will make an eTAR file named "mytar.tar" containing
all the /usr directory,
the program file named "program.bas",
the configuration file named "config.txt"
and the communication configuration file named "comcfg.txt"

```
putftp "Test_TAR.tar","[$dtTR $td{/usr/Page1.shtm},{/usr/Page2.shtm}]"
```

Will put by FTP the file "Test_TAR.tar" containing the files Page1.shtm and Page2.shtm.
Note that for FTP action, the filename is the first parameter of the PutFTP instruction, then the $fn parameter is not required in the TAR command.

note: It is forbidden to include an item that described a TAR format itself.
THE TAR IS NOT RECURSIVE !
Forbidden example: $dtTR $td{ $TR ……. }

11.3.17 Additional exports available

$dtTL	Tag List
$dtPG	Program
$dtCF	Configuration File

Table 228: additional exports available

These are all the files from the eWON configuration. They are equivalent to the file available through the eWON FTP server.

12 Upgrading the eWON firmware

12.1 Purpose

There are two ways to upgrade the eWON firmware: by using eBuddy, the eWON utility designed to set up the eWON, or by directly uploading a new firmware on the eWON by means of a FTP client.

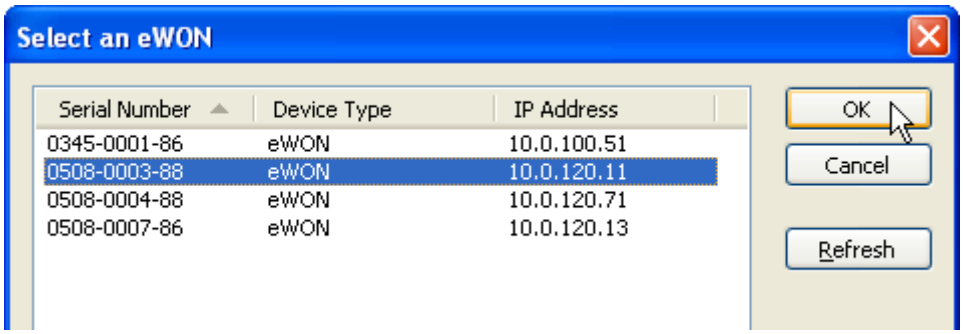
12.2 Update firmware with eBuddy

eBuddy allows you to update your eWONs with the latest firmware versions that are available for download from the eWON web site.
eBuddy downloads the firmwares and it stocks them in a folder on the local machine.
When you use the *Update Firmware* feature, eBuddy compares the firmware on the selected eWON with the latest firmwares, and it proposes to you to upgrade your eWON with one of the stored and up-to-date firmwares.
That means you first have to update eBuddy itself prior to upgrade the eWON firmware (please refer to the “eBuddy User Guide” you can download from Support/Documentation/User guides on http://wiki.ewon.biz/support/07_Documentations/01_RG).
The second link in the eBuddy Wizard home page is used if you want to update the firmware from one of the eWONs on your network. Click on the link to launch the wizard.

Note for the eWON Flexy: In addition to the ***Update Firmware*** function, the eWON Flexy family features a ***Flexy Recovery*** procedure. The Flexy Recovery procedure is required in two cases:

- When the Update is major (has low level impact)
- When trying to recover after a system crash

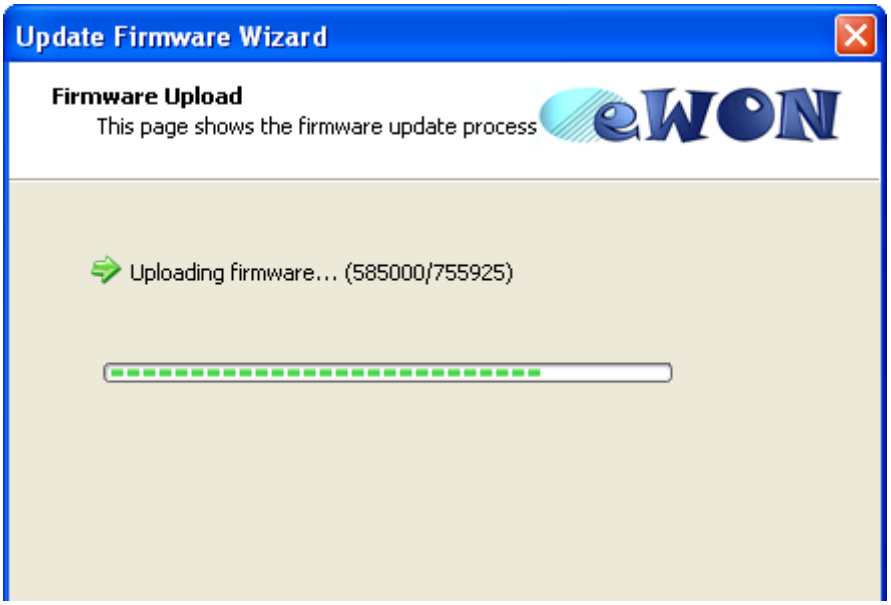
The Flexy recovery procedure is explained in §12.4 “The Flexy Recovery procedure”



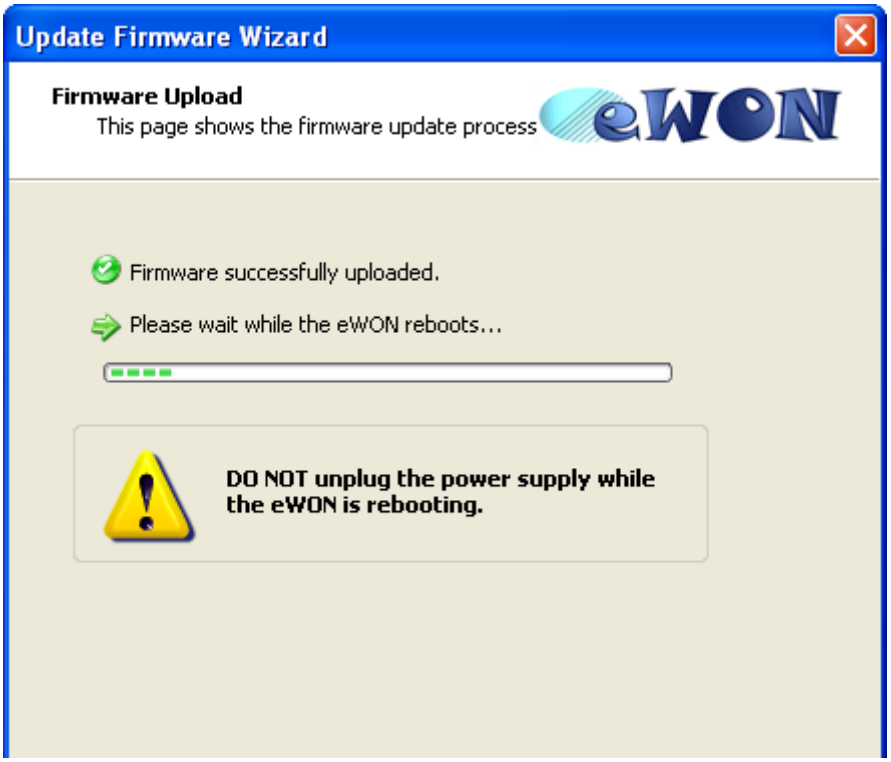
Select an eWON, either by entering directly its serial number or by choosing it in the *Select an eWON* dialog box; enter the login and password for the eWON, then click on ***Next*** in the *Update Firmware Wizard*.

Select the firmware ***Language*** and ***Version*** you want to apply, then click ***Next***.

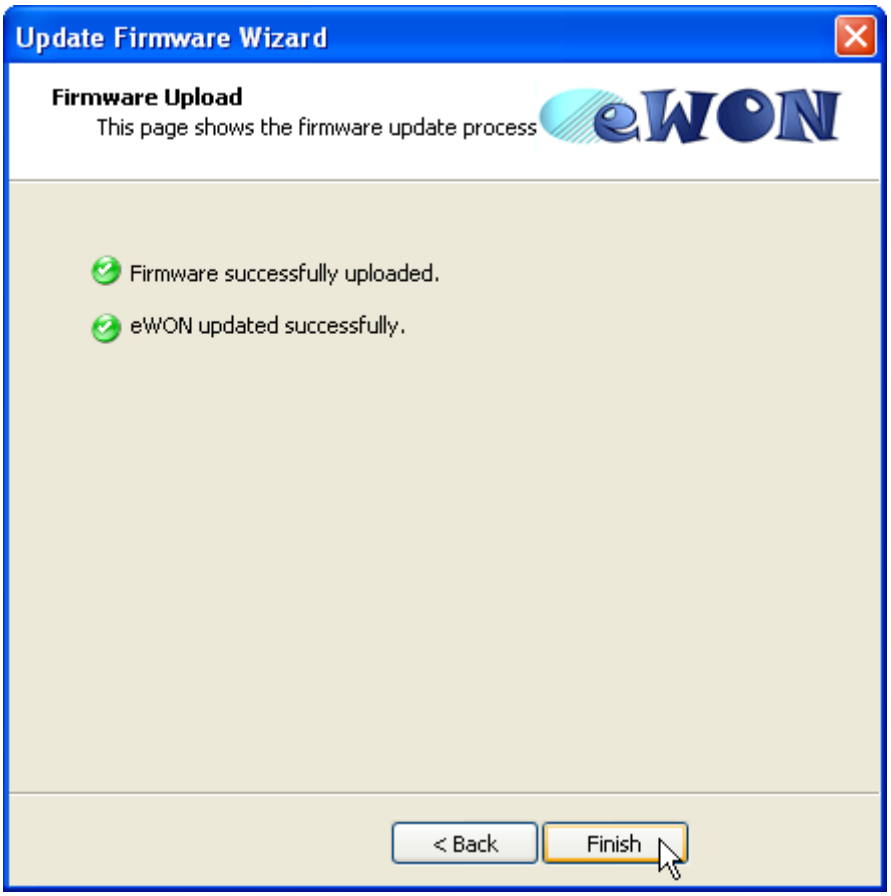
The new firmware is uploaded to the selected eWON:



Click on Next when upload is complete, the following dialog box then appears. Please DO NOT power OFF the eWON when it restarts, or this could lead to make it unusable.



Click on the ***Finish*** Button when the upgrade is complete and exit from the Wizard.



12.3 Upgrading the eWON firmware by a direct upload

The eWON's firmware can also be upgraded using FTP.
Just download the eWON firmware file (ewonfwr.edf) corresponding to your eWON type from our web site (http://support.ewon.biz), and put this file on your eWON using FTP.
You can do this using any FTP client program, just be sure that you use the binary transfer mode and not ASCII.
If you don't have a FTP client program, you can download the SmartFTP tool available on our Web site http://support.ewon.biz.

To upgrade the eWON firmware using for example SmartFTP as FTP client, please follow the following instructions:
- **Start the SmartFTP program.**
- **Type in the eWON IP address in the "URL" field, the user name in the "Login" field and the user password in the "Password" field.**

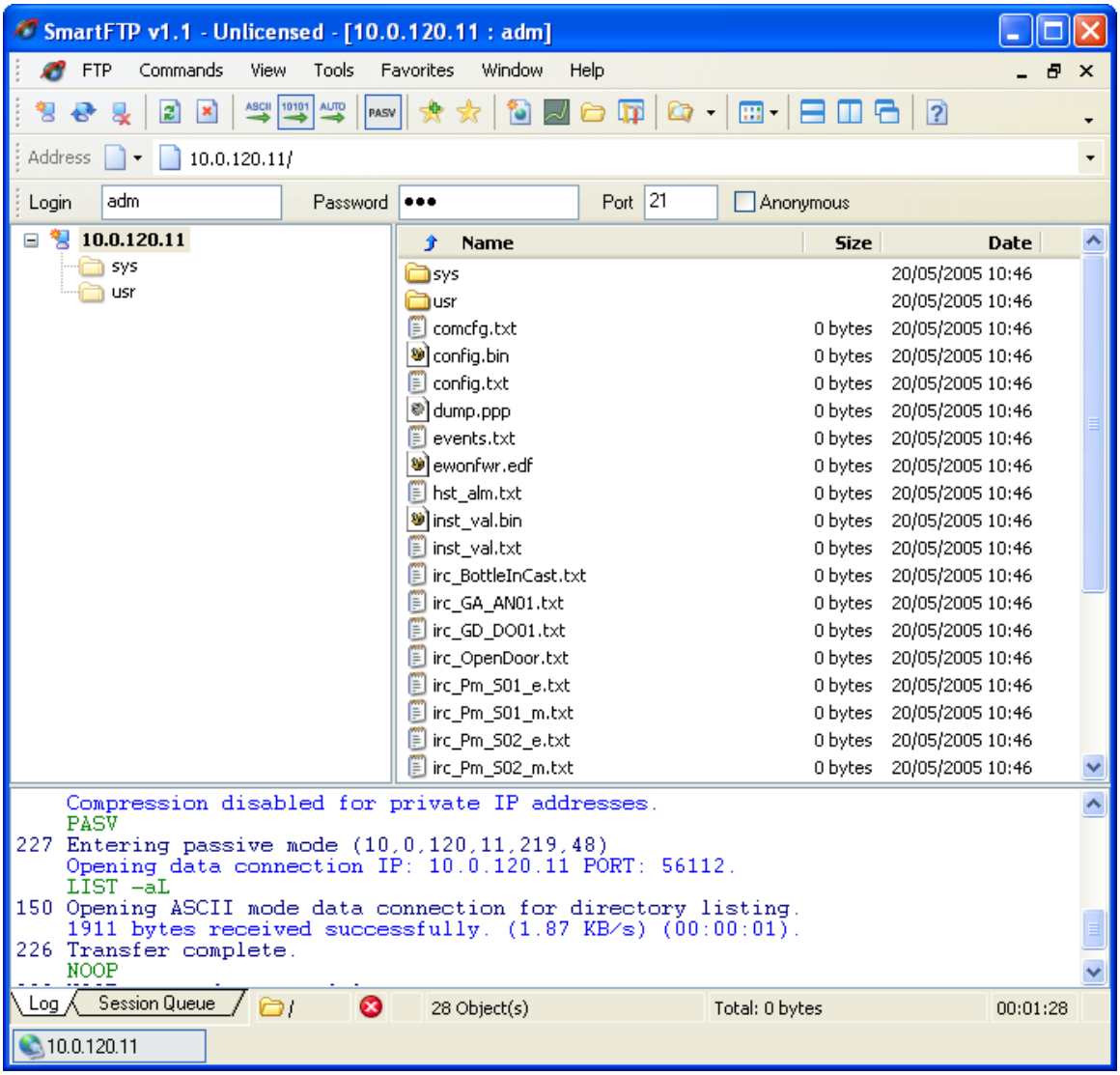


Figure 164: Connection to eWON through SmartFTP

- Click on the "Connect" icon in the SmartFTP window to connect to the eWON with the parameters that you entered. A new window appears showing all the files that are present in the WON.

- **Simply drag the new firmware to be uploaded (from your local hard disk or from another FTP folder) and drop it to the root of the eWON file system (here the window is named "10.0.120.11"). A confirm window will appear asking you the action to be performed.**

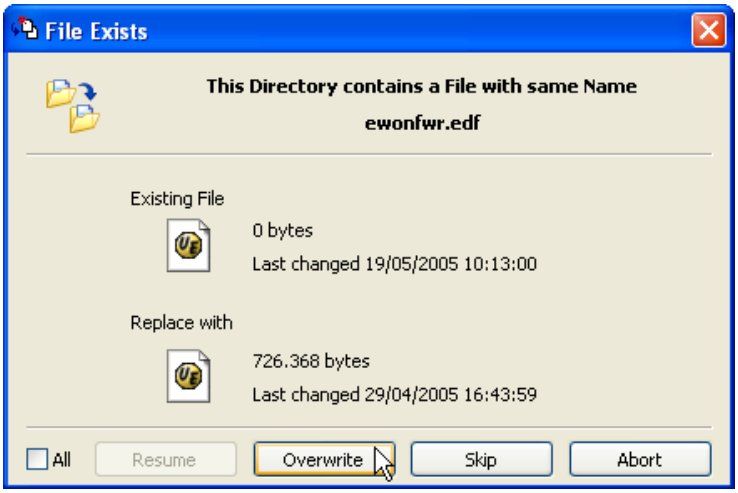


Figure 165: eWON firmware overwrite confirmation window

- **Click on the *Overwrite* button and wait the fill in (blue) of the progress bar in the left bottom side of the window.**

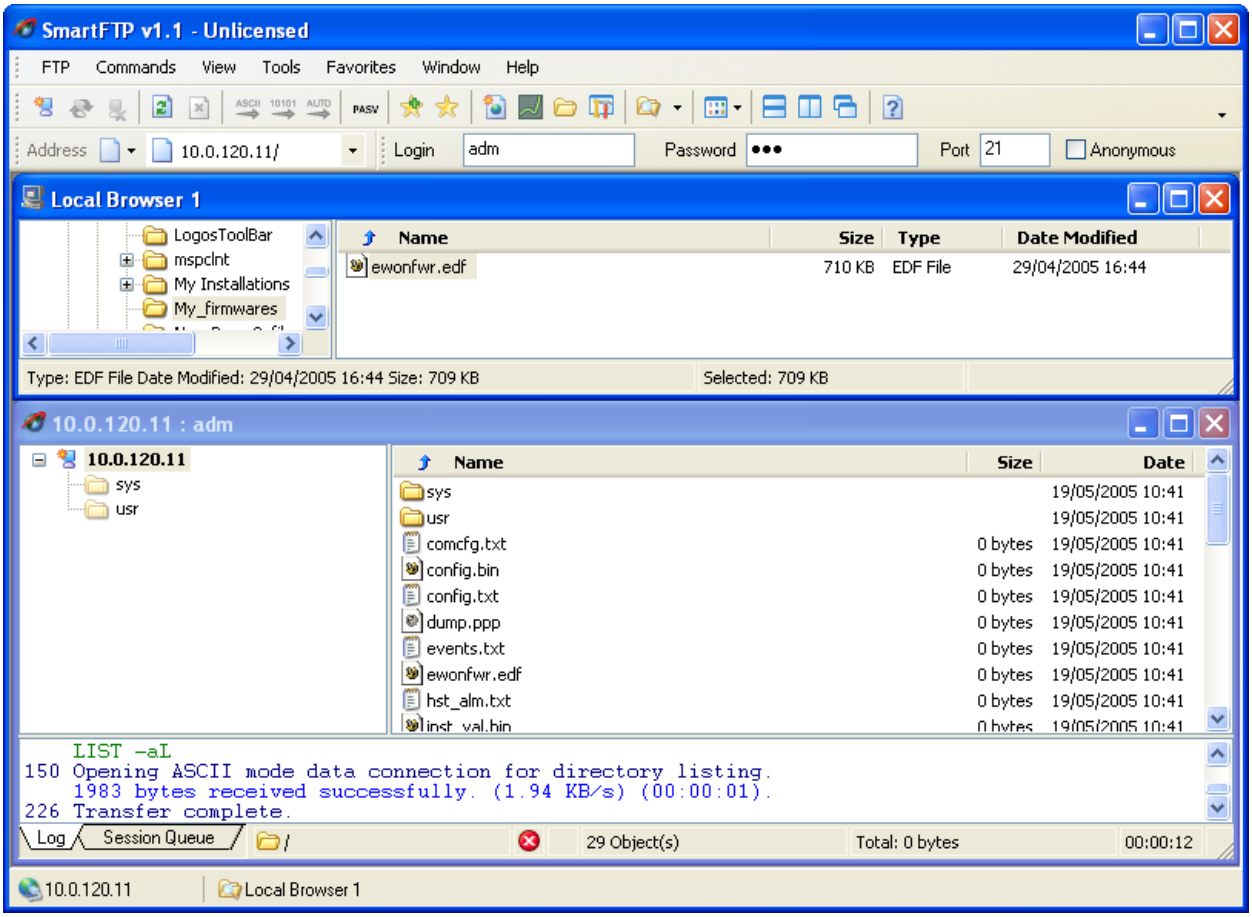


Figure 166: eWON upload firmware action

- **Click on the "Disconnect" icon to exit the connection to the eWON and quit the SmartFTP program.**

WARNING:

When you click on the "Disconnect" icon, the eWON begins a flash memory programming operation (about one minute long).

Do NOT power off the eWON during this operation. If you have a look at the eWON STATUS led, it will be blinking red about once a second. When it finishes blinking, the eWON will reboot. The reboot operation can be observed on the Ethernet link led, going off and then back on again.

Please do NOT remove power until you can get access to the eWON using your web browser of FTP browser. Failure to do so can lead to the destruction of the eWON and a factory return would be unavoidable.

12.4 The Flexy Recovery procedure

The Flexy Family features a Recovery Mode that is basically meant to replace both the firmware and the kernel (operating system). The Flexy Recovery procedure is meant either to implement major firmware updates OR to recover from a system crash.

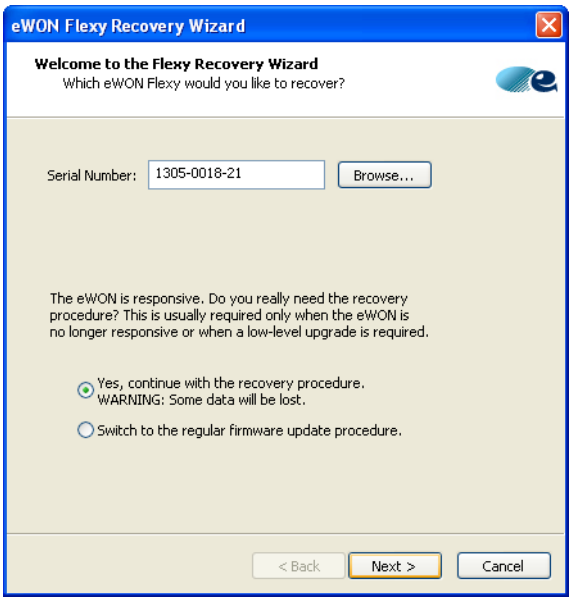
Warning: ALL data will be lost!

Before starting, you should:

- Make a backup of your eWON if you need the data of it (provided your eWON is still accessible).
- Have downloaded the recovery firmware file with eBuddy (using Update eBuddy)
- Connect your PC and your eWON Flexy **to a hub or a switch** (a direct connection PC > Flexy is most unlikely to work)

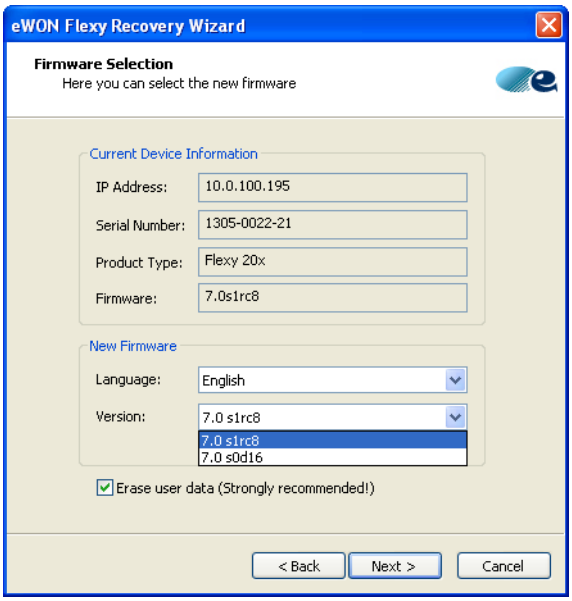
Open eBuddy (version 3.0 or later). Select ***Tools > Flexy Recovery*** from the main menu..

Fill-out the serial number of the eWON Flexy to recover and click ***Next***



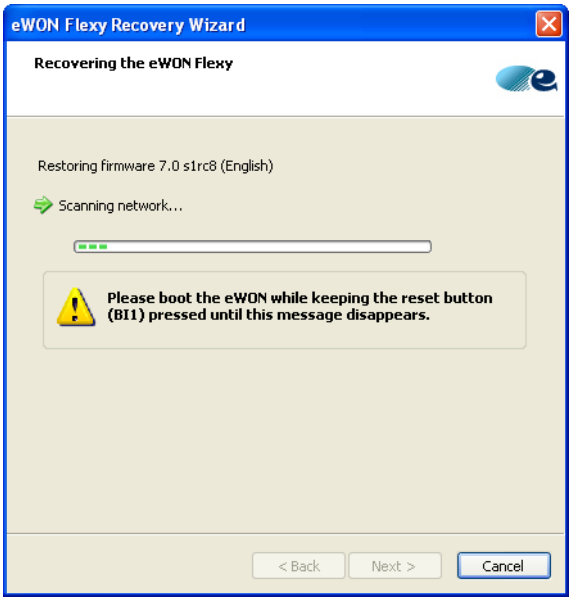
eBuddy checks whether the eWON Flexy is reponsive or not. If it is, then a warning suggests to switch to the regular update procedure. If not of if you need to upgrade the kernel keep the recovery option and click ***Next*** to continue.

Select the recovery firmware file version from the dropdown menu. This is the file you have downloaded before starting, using the function update eBuddy..

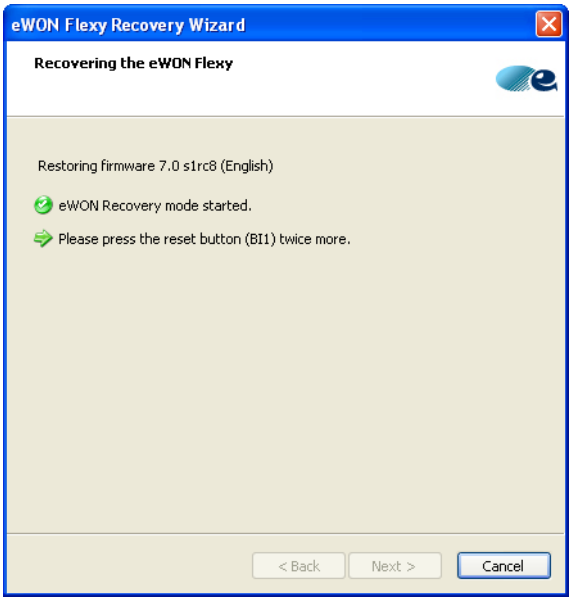


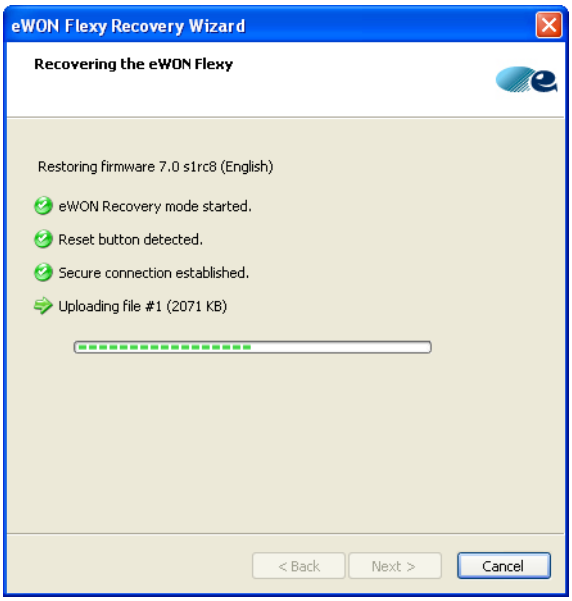
Follow the instructions of the next step: unpower the eWON Flexy, press the BI1 (reset) button and power it back while BI1 remains pressed. You can release the button as soon as the message disappears.

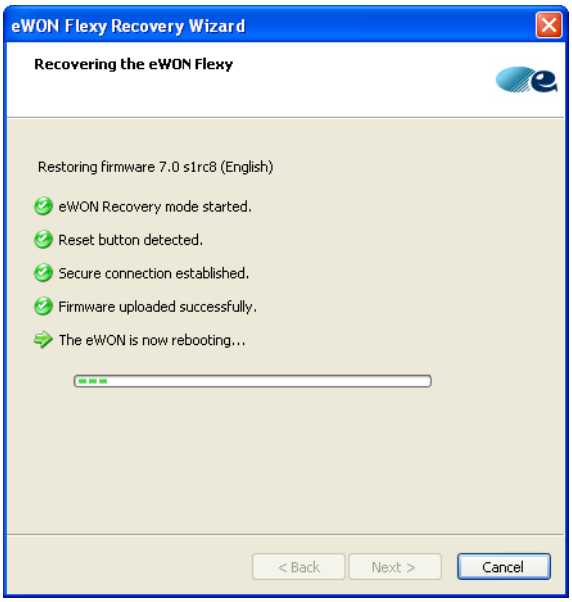
Troubleshooting: If the process of ***Scanning network*** remains running and that the message does not disappear, it probably means that you connected your PC to the eWON Flexy directly. Retry with a connection through a hub or switch.



Now the wizard asks you to press the BI1 button twice, do so and allow some time for the Flexy Recovery process to complete







When the Flexy Recovery procedure is completed, you need to make a reset level 2 before starting to use your eWON.

12.5 Downgrade firmware

12.5.1 Firmware prior to 5

On firmware version prior to 5.x, the downgrade procedure is the same as the upgrade procedure :
- use the "ewonfwr.edf" of the target firmware and copy it on the eWON root directory by FTP.

Note: After a downgrade, it is recommended to format completely your eWON.

12.5.2 Firmware version 5.x (and above)

On firmware version 5.x (and above), to downgrade your eWON:
- the firmware file "ewonfwr.edf" need to be renamed in "**dewonfwr.edf**" (note the leading '**d**')
- copy this dewonfwr.edf on the eWON root directory by FTP.

Note: You need to rename the ewonfwr.edf file only for downgrading !

Service release firmware versions are not considered as downgrade.

Examples:

```
5.0 is lower than 5.1
5.0 S4 is not lower thant 5.0 S7  (Service release on the same firmware version 5.0)
4.3 is lower than 5.0
```

The download operation is slightly diffrent: when the flashing operation starts, the led will first flash red – green – off repetitively, then the normal flashing sequence with red flash will start.
The first operation consists in a complete memory erasure.

Important : This downgrade erases ALL eWON configuration files (comcfg.txt too) !
The eWON IP address return to 10.0.0.53 and modem parameters return to default.

Never do a downgrade from a 5.x firmware version remotely !

So please backup the txt config version, comcfg, and /usr data before downgrading.

12.6 Upgrade Bootloader (to upgrade to firmware >= 5.2)

Since firmware version 5.2, the Bootloader of the eWON must be greater than 2.0.
Every eWON produced with a serial number greater or equal to 0648-xxxx-xx have already this bootloader 2.0.

The eWON produced before 0648-xxxx-xx exceptionally need to be upgraded. The Bootloader 2.0 is required to upgrade eWON to firmware 5.2.
In order to do that, a *bootldr.bin* file must be downloaded in the eWON by FTP. There is no need to reboot after the bootloader upgrade.
You can find the bootldr.bin file on the eWON website http://support.ewon.biz in the *"Support - Download Firmware"* section.

The eWON data or config is NOT affected by this upgrade.

***Important**: You should not remove the power during a bootldr upgrade.*

12.6.1 Error Message

If a firmware with revision >=5.2 is downloaded in the eWON, and the bootloader has not a version > 2.0, the eWON will generate an error and the firmware will be refused.
A simple download of the bootloader will solve the problem and allow you to download the >=5.2 firmware.

For firmware <5.1 (5.0, 4.3, etc..), in the Event Log (or in Events.txt file) the message will be ***"riftp-Invalid EDF revision"***

For firmware >=5.1 (5.1, 5.1s1, 5.1s2) , in the Event Log (or in Events.txt file) the message will be ***"Bootloader upgrade required"***

12.6.2 Checking your boot loader version

It can be checked in the estat.htm file or with *Export Bloc Descriptor* $dtES.

```
SIFBootldrRev:00020003
```

Or in the Diagnosis/status/Info page:

Features	EF0000
Boot loader revision	00020003

In the above examples, the Bootloader version is 2.3.

note: bootloader version display only available since eWON firmware 5.2

13 Appendix

13.1 Access to the eWON Technical Support

To find answers to your questions, first check our Support website on: http://support.ewon.biz
If you need further assistance please fill-out the support request sheet on: http://www.ewon.biz/en/support/support.html

13.2 Tips for Internet setup

13.2.1 Finding the IP address of a given host

The eWON does provide DNS (Domain Name Server) resolution. But, sometimes, it's faster to access Internet nodes by its IP address. In order to find the address corresponding to a given name, you can use the **ping –a NodeName** command. This command will return miscellaneous information including the IP address of **NodeName** that you need.

Example:

```
C:\>ping -a microsoft.com
Pinging microsoft.com [207.46.197.101] with 32 bytes of data:
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Destination host unreachable.
Ping statistics for 207.46.197.101:
Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),
Approximate round trip times in milli-seconds:
 Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

The microsoft.com IP address reported is 207.46.197.101 for this example.

13.3 Finding your PC IP address

Under Windows 95/98, the **WINIPCFG** command (executed from a command prompt or from the ***START/RUN*** menu) will return your Ethernet and PPP adapter IP address. If not currently connected through PPP, the PPP IP address is N/A.
WINIPCFG DOS command does not exist anymore on Millennium, Windows NT, 2000 and XP systems.
The **IPCONFIG** command can be used instead. This command must be executed from a command prompt and displays as text the IP address of all the TCP/IP adapters that are detected.

Example:

```
C:\>ipconfig
Windows 2000 IP Configuration
Ethernet adapter Local Area Connection:
Connection-specific DNS Suffix . :
      IP Address. . . . . . . . . . . . : 10.0.0.11
      Subnet Mask . . . . . . . . . . . : 255.255.255.0
      Default Gateway . . . . . . . . . :
```

13.4 Resetting the eWON

13.4.1 Overview

In some situation it may be desired or required to initialize the eWON.

The eWON has a non volatile memory which is used to store configurations and acquired data. Non volatile information is basically divided into 2 groups:

- **Communication configuration**
- **The rest of the non volatile data (file system, Tag Config, user defined web site, etc.)**

The reset button is located between the ***SERIAL*** and ***LINE*** connectors. A very small hole is located in the box; you will need a thin tool like a paper clip to push the button.

The button must be pressed while the eWON is powered up. The button must be maintained until correct initialization level has been reached (see below):

Figure 167: eWON - reset hole and "USER" led

13.4.2 Reset sequence

There are 2 initialization levels:

- **The first level (the more usual) will force a format of the eWON.**
- **The second level will reset the eWON in a state corresponding to the "out of the box" configuration. By doing this you will also perform a thorough self test of the eWON.**

13.4.2.1 First level reset

When the eWON boots with the reset button pressed, after few seconds, the "USER" led will start blinking in **red** at a 1 flash per second rate. As soon as the led starts blinking at that rate, release the switch. The Format request will be set.
The blinking will continue during 4 seconds, after the eWON will enter in “Second level reset” (see next paragraph), so there is no need to hurry, but you must release the switch before the 4 seconds elapse.

13.4.2.2 Second level reset

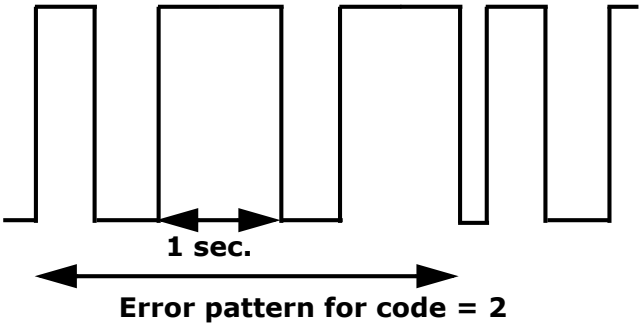
If the reset button is maintained for more than 4 seconds (wait 15 seconds with Firmware prior 6.0s3) after blinking starts, the "USER" led will stop blinking and will become **solid red**, at that moment the "Out of the box reset" is registered, the reset button can be released and all the data of the eWON will be erased, including its communication, IP address,… parameters.
The eWON configuration tool **eBuddy** will be required to define your eWON working IP address.

Note: if you have waited too long and the "USER" led becomes "solid red" while you only needed to format the eWON, the only solution is to keep the reset button pressed and remove the eWON power, this will avoid entering the "Full Erase" procedure.

13.4.3 Second level initialization diagnostics

When the second level initialization is requested, the eWON will also perform a self test. When the initialization ends, the test result is displayed via the "USER" led. If the test is successful, the following pattern will be displayed on the led.
The led will flash for 200msec every 1.5 seconds. The pattern is repeated indefinitely until the eWON is manually rebooted (Power OFF/Power ON).

If an error is detected during the test, the led will show the error code with the following pattern:



This example shows error code 2. The pattern is repeated indefinitely until the eWON is manually rebooted (power OFF/Power ON).
The pattern starts with a short blink of 200msec indicating the pattern start, then N blinks, each during 1 second are displayed. Then the pattern is repeated, etc.
The number of 1 second blinks is defined by the type of error detected:

Number of blinks	Error meaning
1	RAM Test error
2	Flash erase error
3	Flash write error
4	Real Time Clock error
5	Flash identification failed
6	IO CPU not responding

Table 229: eWON USER led blinks meaning

13.4.4 Reset of the eWON Flexy

The reset button BI1 is located on the right side of the eWON Flexy (see picture, more information in the Installation Guide IG-014-0-EN).

In the LED array on the left side of the eWON Flexy, the LED labelled BI1 goes ON when the reset button BI1 is pressed. The basic principle of reset level 1 and 2 are applying the same way to the Flexy family. There are some specifics though, mainly in timing.

- Time to reach the first level LED status (flashing RED): approximately 30 seconds
- Time to reach the second level LED status (RED steady): approximately 35 sceonds
- Time to perform the level 2 reset and autotest itself: approximately 2 seconds

As for the other eWONs, the Flexys do restart on their own after a level 1 reset but need to be rebooted afer a level 2 reset.

13.4.5 Entering level 2 initialization without request

The eWON may enter level 2 test without request in the following case:

- **If the IO CPU is not responding at boot time**

In that special case you may detect the typical led blinking of the level 2 initialization, without having requested that mode. Just reboot the unit (power if OFF and ON again).

13.4.6 What to do in case of error?

If an error is detected during the self test, run the test again to confirm the result. If test error persists, your local reseller to organize a factory return and repair.

13.4.7 Important remark

When performing a level 2 self test, it is important to let the test run until the end, if you stop the test before the end, the flash memory may contain random data that may cause unexpected operation of the eWON when it starts. For this reason, the self test procedure after a level 2 reset should NOT be interrupted until the "***USR***" led displays the test result.
Note: This process can take up to 10 minutes except on the eWON Flexy where performing a level 2 reset takes only 2 seconds, self test included. In case if trouble, redo a level 2 reset again to return to a normal situation.

13.5 Table of comparison between eWON types

13.5.1 eWON Flexy devices

13.5.1.1 Hardware features

	eWON Flexy Type					
	Flexy 101	Flexy 102	Flexy 103	Flexy 201	Flexy 202	Flexy 203
2 Digital input	■	■	■	■	■	■
1 Digital output	■	■	■	■	■	■
Isolated Serial port		■			■	
MPI port (instead of serial)			■			■
Ethernet LAN port	■	■	■	■	■	■
LAN switch	■			■		
Flash memory (MB)	128	128	128	128	128	128
RTC battery	■	■	■	■	■	■

13.5.1.2 Software features

	eWON Flexy Type					
	Flexy 101	Flexy 102	Flexy 103	Flexy 201	Flexy 202	Flexy 203
Basic scripting	■	■	■	■	■	■
Ethernet to serial gateway				■	■	■
Eth. routing features (IP & Port forwarding, NAT)				■	■	■
VPN (Talk2M)	■ (*)	■ (*)	■ (*)	■ (*)	■ (*)	■ (*)
IO-Server	■	■	■	■	■	■
Historical Data logging	■	■	■	■	■	■
ViewON	■	■	■	■	■	■
Data management	■	■	■	■	■	■
Java scripting	■	■	■	■	■	■
GUI - Talk2M 123 Setup						
GUI - standard interface and configuration pages	■	■	■	■	■	■

(*) VPN (Talk2M) if a WAN extension card is inserted inside the Flexy, as for example a Single Ethernet, a 3G GSM, etc.

13.5.2 eWON CD devices

13.5.2.1 Hardware features

	eWON Type											
	500	500IT	4001	4002	4102	2101CD	4101CD	2005CD	4005CD	2104CD	4104 CD	Cosy 141
1 Digital input	■	■	■	■	■	■	■	■	■	■	■	■ (*)
1 Digital output	■	■	■	■	■	■	■	■	■	■	■	■ (*)
Serial port	■	■	■	■	■	■	■	■	■	■	■	■
Isolated serial port		■	■	■	■		■		■		■	
MPI port (instead of serial)	■ (V1)	■ (V1)	■			■	■	■	■	■	■	■
Ethernet LAN port	■	■	■	■	■	■	■	■	■	■	■	■
LAN switch								■	■	■	■	■
Ethernet WAN port								■	■			■
ADSL WAN										■	■	
Modem (PSTN,ISDN, GSM 2G or 3G)			Option		Option	■	■	Option	Option	Option	Option	
Flash memory (MB)	8/16 (V2)	8/16 (V2)	8/16 (V2)	8	16	32	32	32	32	32	32	32
Additional 8DI, 2DO, 4AI, 2PT100, 2 serial ports				■	■							
RTC battery			■	■	■	■	■	■	■	■	■	■

(*) On Cosy devices the digital input is dedicated to enable/disable Internet access and the digital output to reflect the VPN status.

Note: This table only shows the hardware features of the eWON Flexy base unit. Additional hardware features are available by inserting Extension Cards inside the Flexy base unit. Please check the Flexy installation guide for detailed information.

13.5.2.2 Software features

	eWON Type											
	500	500IT	4001	4002	4102	2101CD	4101CD	2005CD	4005CD	2104CD	4104 CD	Cosy 141
Basic scripting	■	■	■	■	■	■	■	■	■	■	■	
Ethernet to serial gateway	■	■	■	■	■	■	■	■	■	■	■	■
Eth. routing features (IP & Port forwarding, NAT)					■	■	■	■	■	■	■	■
VPN (Talk2M)					■ (*)	■ (*)	■ (*)	■	■	■ (*)	■ (*)	■
IO-Server	■	■	■	■	■	■	■	■	■	■	■	
Historical Data logging			■	■	■		■		■		■	
ViewON			■	■	■		■		■		■	
Data management			■	■	■		■		■		■	
Java scripting	■ (V2)	■ (V2)	■ (V2)		■	■	■	■	■	■	■	
GUI - Talk2M 123 Setup												■
GUI - standard interface & configuration pages	■	■	■	■	■	■	■	■	■	■	■	

(*) VPN (Talk2M) connection only using the 2G, 3G or ADSL modem connection

13.5.3 Obsolete Types

The products listed below are no longer available but are still supported.

13.5.3.1 Hardware features

	eWON type				
	2001	2005	4005	2001CD	4001CD
1 Digital input	■	■	■	■	■
1 Digital output	■	■	■	■	■
Serial port	■	■	■	■	■
Isolated serial port			■		■
MPI port (instead of serial)	■			■	■
Ethernet LAN port	■	■	■	■	■
LAN switch		■	■		
Ethernet WAN port		■	■		
ADSL WAN					
Modem (PSTN,ISDN, GSM 2G or 3G)	■	Option	Option	■	■
Flash memory (MB)	8	16	16	32	32
Additional 8DI, 2DO, 4AI, 2PT100, 2 serial ports					
RTC battery		■	■	■	■

13.5.3.2 Software features

	eWON Type				
	2001	2005	4005	2001CD	4001CD
Basic scripting	■	■	■	■	■
Eth. to serial gateway	■	■	■	■	■
Eth. routing features (IP & Port forwarding, NAT)	■	■	■	■	■
VPN (Talk2M)		■	■		
IO-Server	■	■	■	■	■
Historical Data logging			■		■
ViewON			■		■
Data management			■		■
Java scripting		■	■	■	■
GUI - Talk2M 123 Step Setup					
GUI – standard visualization and configuration pages	■	■	■	■	■

13.6 Duplicate IP detection (User Led blinking Red)

Since firmware 4.3, eWON performs a check on the IP network in order to avoid duplicate IP.
eWON makes this test at power up to see if its IP address is not conflicting with another device.

If eWON is configured with the same IP address than another device, eWON will not start and the USER LED blinks continuously with the following pattern:

short red light + pause + long red light + pause

Resolution:

1) Isolate your eWON from the conflicting device
   The best way is to use a direct crossed IP cable to directly link your PC with the eWON (without a hub)
2) Reboot the eWON
3) Change the eWON IP address (with eBuddy, you can download from http://support.ewon.biz

When eWON is blocked, the duplicate IP test is made again every 10 minutes. If the conflicting device is not present anymore, then eWON will start normally.

13.7 Rockwell compatibility matrix

This document lists the compatibility matrix between eWON and the Rockwell- Allen Bradley PLC family.

PLC Name/Type	EIP	DF1	eWON Version	Comments	IO Server Name
PLC5	**x**	**x**	Rev 5.1		DF1
SLC500	**x**	**x**			DF1
MicroLogix	**x**	**x**			DF1
CompactLogix	**x**	**x**	Rev 5.3	DF1 only since Rev 5.3	ABLOGIX
ControlLogix	**x**	**x**	Rev 5.3	DF1 only since Rev 5.3	ABLOGIX
FlexLogix	**x**	**x**	Rev 5.3	DF1 only since Rev 5.3	ABLOGIX

Table 230: Rockwell compatibility matrix

13.8 GSM modem Led behavior

.

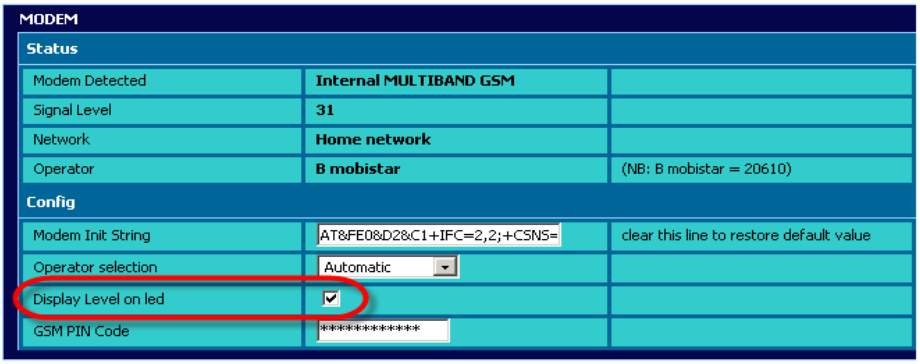


Figure 168: GSM level display on led

On the Primary and Compact ranges, the modem LED default behavior is to go ON solid green when a PPP-link is established and OFF otherwise. If the option ***Display Level on LED*** is selected, the modem LED will display the signal level as described here:
The LED displays 2 types of information:

- whether the modem is connected or not.
- the signal level.

The display pattern has a duration of 8 seconds. The first 4 seconds display the signal level and the last 4 seconds the connection status.

Signal level: the signal level is displayed 4 times. The led goes on between 100msec to 900msec according to the signal level. Then the blink is repeated 3 more times.

Connection state: for the last 4 seconds, the led is ON if connection is established (PPP connection established). The led is OFF if there is no ongoing connection.

Note: the signal level displayed here is a rough indication, the exact level can be read from the modem configuration page in the eWON.**Note:**

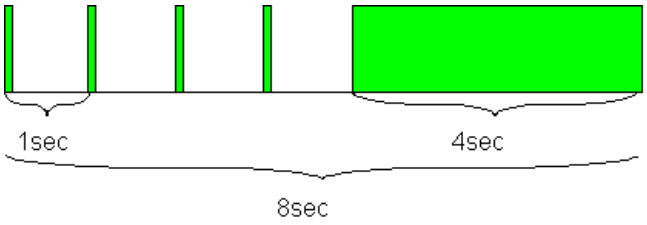
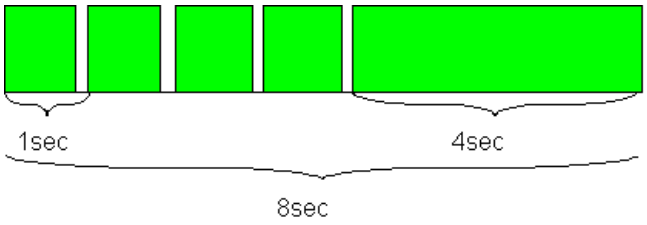
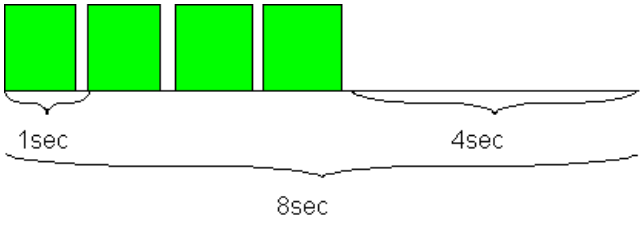
Connected **Low signal level**	
Connected **High signal level**	
Disconnected **High signal level**	

Table 231: GSM Level display patterns

The present § does not apply to the eWON Flexy wireless modem Extension Card. The Flexy wireless modem has 4 status LEDs out of which 1 reflects the online status and 3 reflect the signal level (low, medium, high). The low level LED is ON (green) when the signal level is >1. The medium level LED is ON (green) when the signal level is >10. The high level LED is ON (green) when the signal level is >16. See Installation Guide IG-019-0-EN.

13.9 SMS Character set GSM 03.38

Before firmware version 6.4 S1, sending out an SMS using special characters could fail depending on the type of GSM modem which was used inside the eWON.

Since firmware 6.4 S1, eWON now applies the character set GSM 03.38 for all modem types.

Basic Character Set

	0x00	0x10	0x20	0x30	0x40	0x50	0x60	0x70
0x00	@	Δ	SP	0	¡	P	¿	p
0x01	£	_	!	1	A	Q	a	q
0x02	$	Φ	"	2	B	R	b	r
0x03	¥	Γ	#	3	C	S	c	s
0x04	è	Λ	¤	4	D	T	d	t
0x05	é	Ω	%	5	E	U	e	u
0x06	ù	Π	&	6	F	V	f	v
0x07	ì	Ψ	'	7	G	W	g	w
0x08	ò	Σ	(	8	H	X	h	x
0x09	Ç	Θ	)	9	I	Y	i	y
0x0A	LF	Ξ	*	:	J	Z	j	z
0x0B	Ø	ESC	+	;	K	Ä	k	ä
0x0C	ø	Æ	,	<	L	Ö	l	ö
0x0D	CR	æ	-	=	M	Ñ	m	ñ
0x0E	Å	ß	.	>	N	Ü	n	ü
0x0F	å	É	/	?	O	§	o	à

Figure 169: GSM 03.38 Basic Character Set