

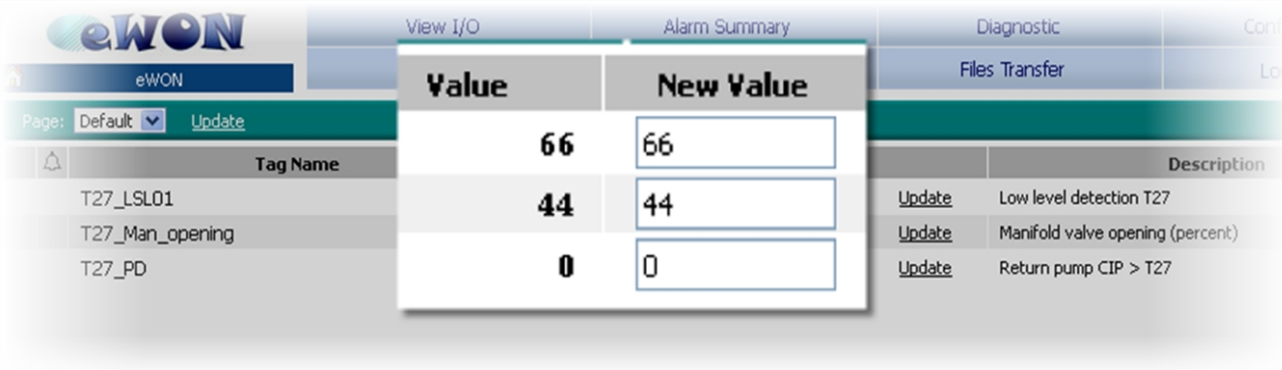
Polling Data Registers from Siemens PLC Series S7-300, S7-400 & S7-1200



S7-300



S7-400



The screenshot shows the eWON software interface. A central table displays data for three tags: T27_LSL01, T27_Man_opening, and T27_PD. The table has columns for 'Value' and 'New Value'. The 'New Value' column contains input fields with the same values as the 'Value' column. To the right, an 'Alarm Summary' section lists three alarms with 'Update' links and descriptions.

Tag Name	Value	New Value
T27_LSL01	66	66
T27_Man_opening	44	44
T27_PD	0	0

Description
Low level detection T27
Manifold valve opening (percent)
Return pump CIP > T27

S7-1200



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1. Objective

The objective of this document is to explain how the eWON can poll data registers out of one or more PLCs.

Polling PLC data registers implies the following steps :

1. Linking the eWON with the PLC
2. Configuring the eWON IO Server
3. Creating tags in the eWON
4. Monitoring tags

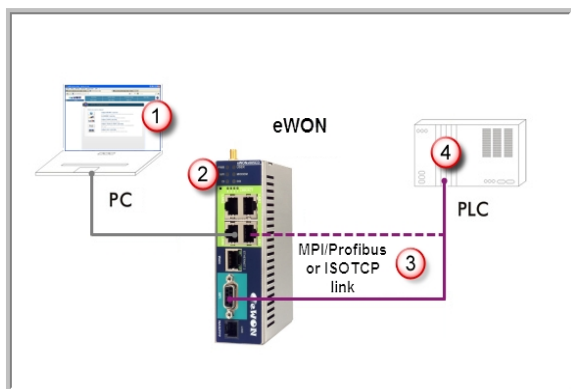


Advanced explanations are indicated by this icon.

2. Hardware requirements

In order to follow this guide you'll need:

- ◆ PC suitable to connect to the eWON
- ◆ A Siemens PLC (S7-300, -400 or -1200)
- ◆ A suitable eWON (ISOTCP is available on all models, MPI/Profibus available only on devices with MPI port)



- ① From a computer running a web-browser, you will configure the IO Server in the eWON to poll different types of PLC data registers.
- ② Access to the eWON web server is done either by using (one of) its local LAN port(s) or by another type of access like VPN IP address, etc.
- ③ Connection to the PLC can be either MPI/Profibus or ISOTCP Ethernet depending on the available interfaces on the PLC
- ④ The MPI/Profibus or ISOTCP Ethernet connected PLC will have its registers read by the tags configured in the IO Server of the eWON.

3. Software requirements

eWON configuration software:

The eWON is configured through its web server. All you need is a standard Web Browser software like Internet Explorer or Firefox.

Additionally we suggest downloading the **eBuddy** utility from our website <http://support.ewon.biz/>

This utility allows you to list all the eWONs on your network and to change the default IP address of an eWON to match your LAN IP address range. With eBuddy you can also easily upgrade the firmware or make a backup of your eWON.

eWON Firmware Version

The screen-shots of this guide reflect firmware version 6.4 S2 (2012), but you can expect the basic principles to remain the same in earlier/later versions.

4. PLC protocol compatibility

The table below shows the Siemens protocols that are supported and, for each of those, which IO Server you need to use inside the eWON to connect your Siemens PLC.

4.1 eWON with MPI port

PLC-Family	MPI/Profibus protocols	PPI protocol (over MPI port)	Ethernet ISOTCP (Ethernet link)	EWON IO Server name
S7-300	YES	NO	YES	S73&400
S7-400	YES	NO	YES	S73&400
S7-1200	NO	NO	YES	S73&400
S7-200 (*)	NO but PPI	YES	YES	S7200 (*)

Table – MPI port device protocol compatibility

4.2 eWON with serial port

PLC-Family	MPI/Profibus protocols	PPI protocol (over serial link)	Ethernet ISOTCP (Ethernet link)	EWON IO Server name
S7-300	NO	NO	YES	S73&400
S7-400	NO	NO	YES	S73&400
S7-1200	NO	NO	YES	S73&400
S7-200 (*)	NO but PPI	YES	YES	S7200 (*)

Table – Serial port device protocol compatibility

(*) Note that the S7-200 family is addressed in a separate guide (different IO Server and syntax).

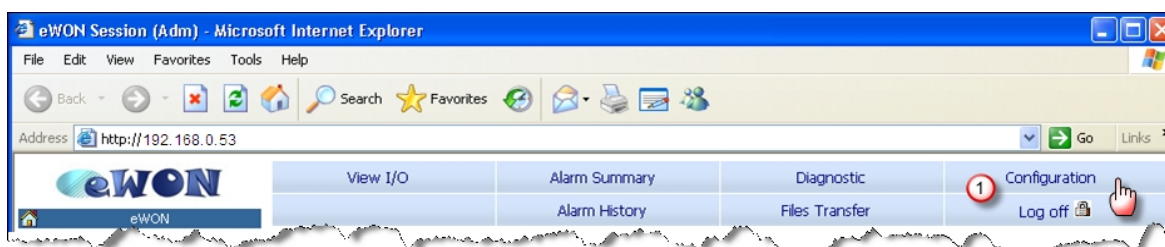
The reference of this guide is: AUG-049 and it is available here:

http://wiki.ewon.biz/Support/07_Documentations/AUG

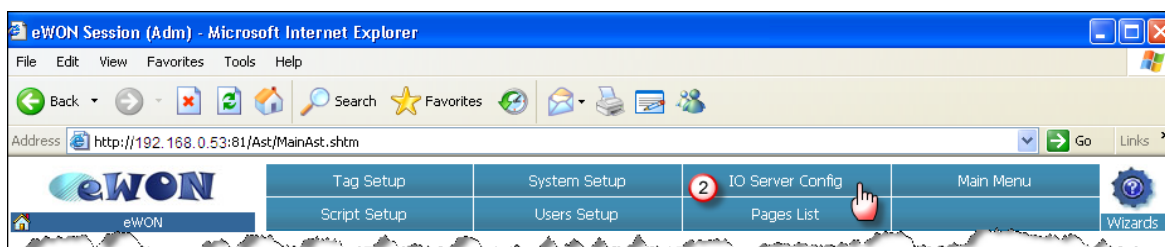
5. Implementation steps

5.1 Step 1 - Configuring the IO Server

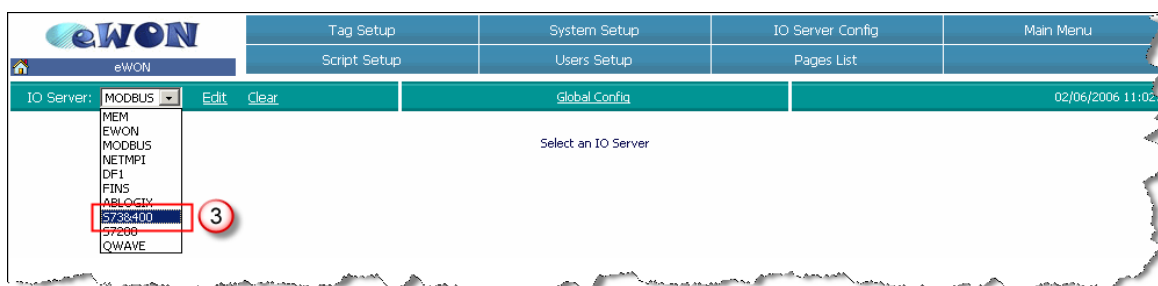
1. Go to the eWON Web page either using a point-to-point connection to the eWON LAN port or a VPN tunnel. Click on **Configuration** in the button bar.



2. Open the eWON IO Server page by clicking the **IO Server Config** button.



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



4. Set the **Protocol Type**, **Baud Rate**, **Reply Timeout**, and **MPI/Profibus Highest Station Address** corresponding to those actually configured in the PLC you want to communicate with.

Destination MPI/Profibus Node: Identifies the PLC MPI/Profibus Destination address when ISOTCP is used

Protocol Type: Select protocol MPI or PROFIBUS.

Note: As the MPI port configuration is shared by the **S73&400** and the **S7200** IO Servers, this combo box shows also the PPI MULTIMASTER protocol. For the S7-200 family, refer to AUG-029 which is available here: http://wiki.ewon.biz/Support/07_Documentations/AUG. PPI MultiMaster and MPI/Profibus are mutually exclusive. It is not possible to use the **S73&400** and **S7200** IO Servers on the MPI port at the same time.

Baud Rate: 19,2 kbps, 187,5 kbps and 1,5 Mbps, etc...

Note: If you communicate only with Ethernet-connected PLC(s) and do not use the serial link, then set the **Baud Rate** to **Disabled** and leave all other parameters in the **COM Setup** part as they are.

Reply Timeout: The maximum time the eWON will wait for a valid MPI message response

MPI Address: The address of the eWON on the MPI profiles network (0..126, default is 0)

MPI Highest Station Address: The highest station address polled by eWON. Select between 15, 31, 63 or 127.



Advanced Routing Setup: The S73&400 IO server features advanced routing functions. They are shown only if the relevant **Enabled** box is checked. For more details see § 9 Appendix 3 – Advanced Routing Setup.

5. To be able to poll data registers out of your PLC, you need to define and enable at least one **Topic** in the lower part of the IO Server configuration page. Topics are meant to allocate common properties to a group of tags (properties include **Enable/Disable**, **Global Device Address**, and **Poll Rate**).

The snapshot below shows all 3 topics enabled/configured. It shows different examples of topic syntax (see explanations in the tables following).

Topic A :		<input checked="" type="checkbox"/> Enabled
Topic Name:	A	
Global Device Address:	MPI,7	MPI/PROFIBUS, <u>destination Node</u> or ISOTCP, ISOTCP address
Poll Rate	MS	Default: 2000
Topic B :		<input checked="" type="checkbox"/> Enabled
Topic Name:	B	
Global Device Address:	PROFIBUS,9	MPI/PROFIBUS, <u>destination Node</u> or ISOTCP, ISOTCP address
Poll Rate	MS	Default: 2000
Topic C :		<input checked="" type="checkbox"/> Enabled
Topic Name:	C	
Global Device Address:	ISOTCP,10.0.120.204,03.02	MPI/PROFIBUS, <u>destination Node</u> or ISOTCP, ISOTCP address
Poll Rate	MS	Default: 2000



Note: You might conclude the eWON cannot connect to more than 3 PLCs from the fact there are 3 topics (A, B and C). If you need to poll tags on more than 3 PLCs, refer to the Knowledge Base page of our Wiki here:

http://wiki.ewon.biz/Support/06_Knowledge_Base/

type **How to reach more than 3 PLC** in the search field.

For advanced routing features refer to § 9 Appendix 3 – Advanced Routing Setup.

6. In **Poll Rate**, you can define the refresh rate in ms (milliseconds) applicable to all data registers that will be included in this this topic. If you leave this field blank, the default value applied will be 2000 ms (2 seconds). The polling rate specified here applies to all tags associated with this topic. If you have tags that need to be refreshed at a different rates, enable and configure multiple topics.

7. Enter a valid address in **Global Device Address** as per the tables below:

MPI/Profibus

Syntax to use	Definitions/example				
MPI, MPI address	<p>MPI address: MPI node address of the PLC</p> <p>Example:</p> <table border="1"> <tr> <td>Topic Name:</td><td>A</td></tr> <tr> <td>Global Device Address:</td><td>MPI,2</td></tr> </table> <p>Reach by MPI the PLC with the node address 2</p>	Topic Name:	A	Global Device Address:	MPI,2
Topic Name:	A				
Global Device Address:	MPI,2				
PROFIBUS, Profibus address	<p>Profibus address: PROFIBUS node address of the PLC</p> <p>Example</p> <table border="1"> <tr> <td>Topic Name:</td><td>A</td></tr> <tr> <td>Global Device Address:</td><td>PROFIBUS,9</td></tr> </table> <p>Reach by Profibus the PLC with the node address 9</p>	Topic Name:	A	Global Device Address:	PROFIBUS,9
Topic Name:	A				
Global Device Address:	PROFIBUS,9				
MPI, Subnet ID, MPI address	<p>When the Advanced Routing Setup is Enabled (see Appendix 3), 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).</p> <p>Subnet ID: ID of the destination S7-Subnet ID (see § 9 Appendix 3 – Advanced Routing Setup)</p> <p>MPI address: MPI/Profibus node address of the PLC to reach</p> <p>Example:</p> <table border="1"> <tr> <td>Topic Name:</td><td>A</td></tr> <tr> <td>Global Device Address:</td><td>MPI,4859-4565,4</td></tr> </table> <p>Reach by MPI/Profibus the PLC with the node address 4 on the subnet with subnet ID 4859-4565</p>	Topic Name:	A	Global Device Address:	MPI,4859-4565,4
Topic Name:	A				
Global Device Address:	MPI,4859-4565,4				

Table – MPI/Profibus device address syntax

Reminder: The S7-200 family (PPI protocol & syntax) is addressed in a separate guide. The reference of this guide is: AUG-049 and it is available here:

http://wiki.ewon.biz/Support/07_Documentations/AUG

ISOTCP

Syntax to use	Definitions/example				
ISOTCP, IP address, CalledTSAP	<p>IP address : IP address of the PLC (ex: 10.0.120.204)</p> <p>Called TSAP (*) : Transport Service Access Point</p> <ul style="list-style-type: none"> For the S7-300 family, the Called TSAP value is usually 03.02 (CPU generally plugged in second slot). For the S7-400 family, it depends in which rack & slot number the CPU has been plugged. For example if the CPU is plugged in slot 4 of rack 0, the Called TSAP value would be 03.04, TSAP syntax see (*). For the 37-1200 family, the Called TSAP value is usually 03.01 <p>Example:</p> <table border="1"> <tr> <td>Topic Name:</td><td>B</td></tr> <tr> <td>Global Device Address:</td><td>ISOTCP,10.0.120.204,03.02</td></tr> </table> <p>Reach by ISOTCP the PLC at IP 10.0.120.204 with the TSAP 03.02 (S7-300)</p>	Topic Name:	B	Global Device Address:	ISOTCP,10.0.120.204,03.02
Topic Name:	B				
Global Device Address:	ISOTCP,10.0.120.204,03.02				

Table - ISOTCP device address syntax

(*) Note on **called TSAP** syntax

Example :

Remote TSAP: 03.02 (channel number, rack and slot number of the CPU).

Channel number :

The first byte references the channel to be used. The number of available channels is given in your CPU manual under "Number of Static S7 Connections".

You must use channel numbers 1, 2 or 3 for non-configured S7 connections on the S7.

The following channels are reserved by the system as follows:

1 = PG channel

2 = TD/OP channel

3 = Available for "other" devices should you prefer to use your own SAPI S7 application.

If you can ensure that no other device uses or should use channels 1 or 2, then you can also use these channels for a connection.

If you use a configured connection (long data BSEND/BRCV), you must use a channel number ≥ 10 (corresponding to the setting in NETPRO). At the moment you can configure S7 connection only in the S7-400. The S7-300 can only be server (as per 10/1999).

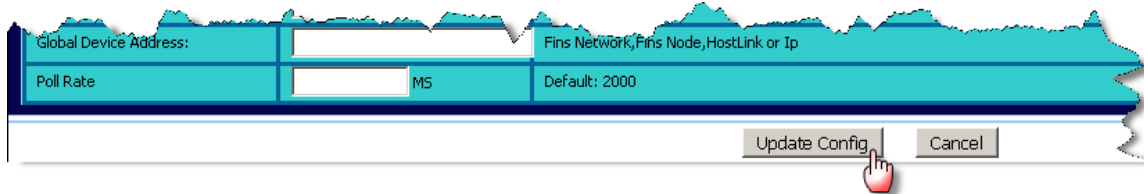
Rack and Slot Number of the CPU:

Here you address the CPU. By default the CPU is slotted in the central control module rack (rack number = 0). The slot of your CPU is to be found in your STEP7 project in the Hardware Configuration.

Creating a database:

If all the connections are configured, you must create a local database

8. Save your settings by clicking on **Update Config**.



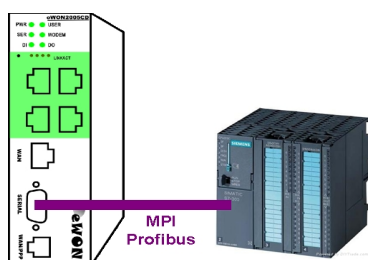
The screenshot shows a configuration dialog box with a light blue header and a white body. The header contains two fields: "Global Device Address:" and "Fins Network, Fins Node, HostLink or Ip". The body contains two fields: "Poll Rate" and "MS". The "Poll Rate" field has a value of "2000" and the "MS" field has a value of "2000". At the bottom right, there are two buttons: "Update Config" and "Cancel". A mouse cursor is pointing at the "Update Config" button.

5.2 Step 2 - Linking the PLC with the eWON

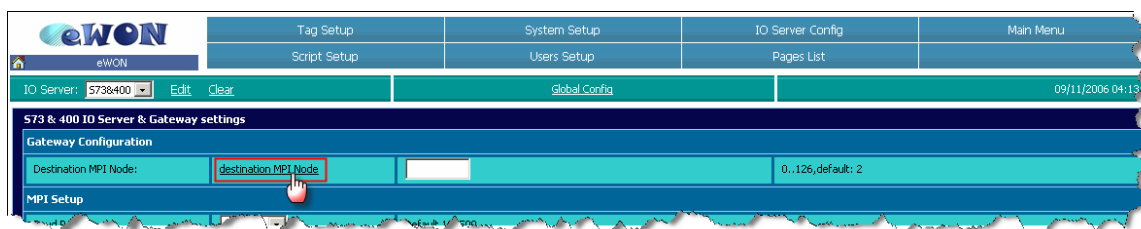
5.2.1 Introduction

The eWON can be connected to the PLC either using the MPI connection or the Ethernet connection supporting ISOTCP. The eWON can be connected to PLCs both in MPI and ISOTCP simultaneously.

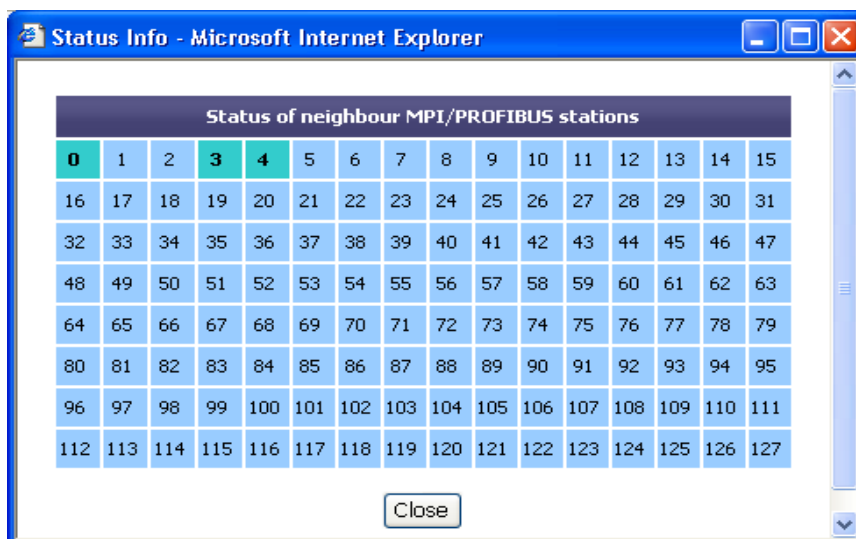
5.2.2 MPI/Profibus link



1. Link the PLC with the eWON using the Siemens MPI cable 6ES7901-0BF00-0AA0 or equivalent (see Appendix 2).
2. Go back to IO Server settings page (**Edit** menu) and click on the **Destination MPI Node link** to check if the eWON MPI interface is correctly configured and connected to your MPI network.



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



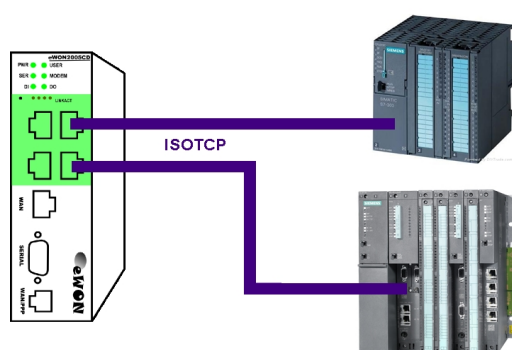
This window will show you the different MPI devices detected by the MPI chip of the eWON. The ID numbers of the detected MPI/Profibus master devices are highlighted.

If the status table does not display any MPI address, then the MPI IOMaster setup parameters for your eWON are either incorrect or they have not been saved using the **Update Config** button. Please check the baud rate settings, verify that the eWON is not using an already used MPI address and make sure you click on **Update Config** to save your changes.

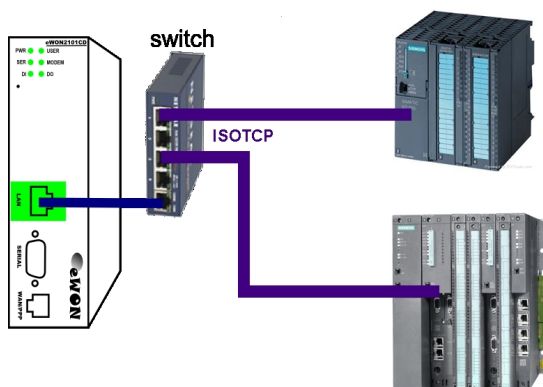
If the status table displays only one MPI address (actually the one of your eWON), it is likely that the **Baud Rate** settings are not correct or that the eWON is not properly connected to the MPI network.

5.2.3 ISOTCP Ethernet link

1. Link the LAN interface of the eWON with the Ethernet card of the PLC and make sure that the eWON LAN IP address is in the same range as the PLC IP address. Use eBuddy to change the eWON LAN IP address if it is not within the same range as the PLC.

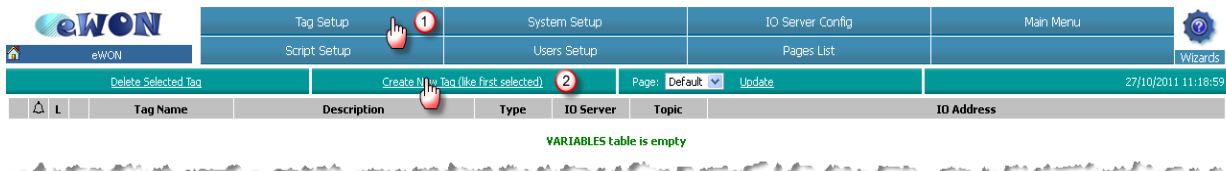


Note: The eWON types with 4 LAN ports (2005CD or 4005CD) can be connected to the Ethernet port of the PLC directly. The eWON types with a single LAN port (2101CD or 4101CD) need to be connected with a **crossed cable** (single PLC) or an **external switch** (multiple PLCs) as the eWON LAN port does not have auto-sense. However, if the PLC features an auto-sense Ethernet port, either a straight or crossed cable can be used.

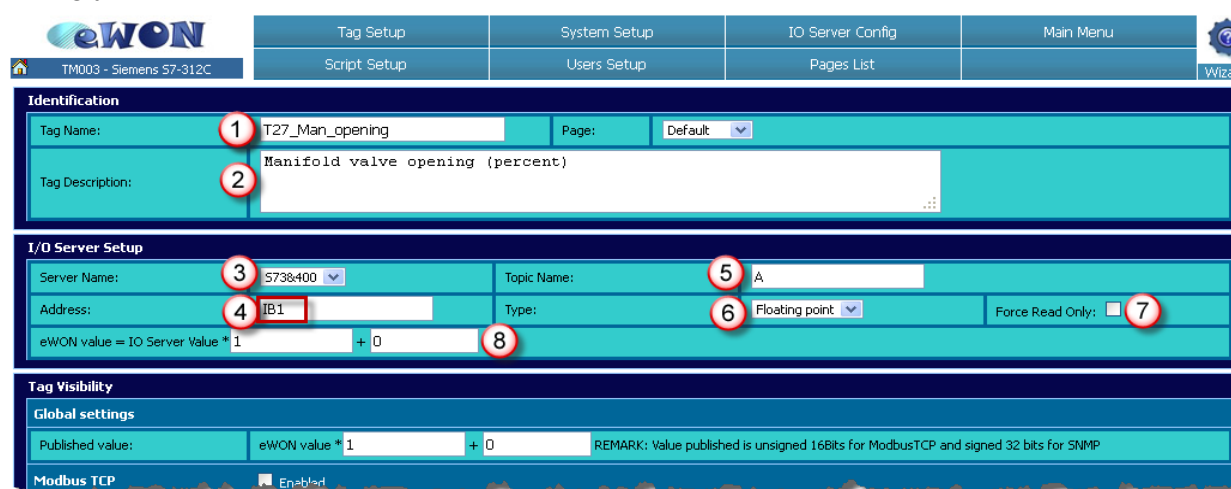


5.3 Step 3 - Creating tags in the eWON

1. Go back to the configuration menu and select **Tag Setup**. If you are starting from scratch, the list of tags should be empty.



2. Select **Create New Tag** to open the tag configuration window and enter the parameters of the tag you want to create.



- ① Enter a **Tag Name** – free text, no spaces, no symbols (-, =, %, \$, @, # etc.)
- ② Enter a **Description** – free text (optional)
- ③ Select **S73&400** as IO server
- ④ In the **Address** field, enter the PLC register to be polled in the PLC.
Examples, see § 7.4 Examples



Note: The register configured in the eWON must exist in the PLC. If you enter a wrong address (syntax problem) the tag will be rejected and an error message will be displayed. For error messages see point 4 hereafter.

⑤ In **Topic Name** enter A, B or C. The topic must have been configured in the IO server page (see § 5.1 Step 1 - Configuring the IO Server).

⑥ **Type:** DataType of the tag allows you to select under which format the eWON will store and display the variable of the tag (Floating Point, Boolean, Integer, Dword or Automatic). All tags are stored on 4 bytes. The default **Automatic** option lets the eWON decide the format depending on the IO Server register/modifier type.



The remaining fields are usually left with their default value:

⑦ **Force Read Only:** Unchecked is the default. When it is checked, users will not be able to write a value by using the **Update** command in the **View IO page**. However, the tag remains read/write for commands written in the embedded BASIC program.

⑧ **eWON value:** Defaults are *1+0. Applies a **scale factor** and an **offset** to the raw value coming from the IO server. The scale factor and offset are float values. Negative values are accepted.

$$\text{TAGval} = \text{IOSERVERval} * \text{scale factor} + \text{offset}$$

3. Click on the **Add/Update Only** button when your tag configuration is complete

4. If everything is OK, your new tag appears in the tag list:

eWON		Tag Setup	System Setup	IO Server Config	Main Menu	Wizards	
TM003 - Siemens S7-312C		Script Setup	Users Setup	Pages List			
Delete Selected Tag		Create New Tag (like first selected)		Page: Default	Update	10/05/2012 12:10:35	
	Tag Name	Description	Type	IO Server	Topic	IO Address	
<input type="checkbox"/>	000_TAG_ON_S71200		Floating point	S738-400	B	MW0	
<input type="checkbox"/>	000_TAG_ON_S7300_Ethernet		Floating point	S738-400	C	DB1W1	
<input type="checkbox"/>	T27_Man_opening	Manifold valve opening (percent)	Floating point	S738-400	A	IB1	

If not, here are a couple of examples of error messages that can appear:

ERROR: **Tag name empty.**
Click on the [Back](#) button of your browser to try again

Tag name empty: check tag name field and type a name in it.

ERROR: **Invalid characters in tag name.**
Click on the [Back](#) button of your browser to try again

Invalid character in tag name: check name for spaces and invalid characters.

ERROR: **Invalid IO name for Tag.**
Click on the [Back](#) button of your browser to try again

Invalid IO name for tag: check tag address syntax.

ERROR: **Invalid topic name for Tag.**

Click on the ['Back'](#) button of your browser to try again

Invalid topic name for tag: Topic must be A, B or C. Any other value will be rejected.

5. Repeat the same sequence from point 1 for the other tags you need to create.

6. If you need to create new tags that have almost the same properties as an existing tag in the list, then check the box next to the source tag before clicking on the **Create New Tag (like first selected)** link.

The screenshot shows the eWON web interface. At the top, there are navigation tabs: Tag Setup, System Setup, IO Server Config, and Main Menu. Below these are sub-tabs: Script Setup, Users Setup, and Pages List. A 'Wizards' icon is on the right. The main area has a header with 'Delete Selected Tag' and 'Create New Tag (like first selected)'. Below this is a table of tags. The first tag, 'T27_PD', is highlighted in yellow and has its selection checkbox checked. A red arrow points from the 'Create New Tag (like first selected)' button to this tag.


	Tag Name	Description	Type	IO Server	Topic	IO Address
<input type="checkbox"/>	000_TAG_ON_S71200		Floating point	S738400	B	MW0
<input type="checkbox"/>	000_TAG_ON_S7300_Ethernet		Floating point	S738400	C	DB1W1
<input type="checkbox"/>	T27_Man_opening	Manifold valve opening (percent)	Floating point	S738400	A	IB1
<input checked="" type="checkbox"/>	T27_PD	Return pump CIP > T27	Floating point	S738400	A	IF4

All (*) properties of the existing tag will be copied in the new tag creation wizard. It is the first selected tag that will be copied if more than one tag is selected in the list.

(*) Copied properties include the **Tag Name**. Since the Tag Name must be unique, make sure you change the name of the new tag.

5.4 Step 4 - Monitoring tags

1. To display tags, go to the **View I/O** page from the **Main Menu** to check tag values and status. Click Update to refresh the page.




View I/O

Alarm Summary

Diagnostic


Configuration



eWON

Alarm History

Files Transfer


Log off 

Page:

Default

Update

10/11/2011 17:39:55

	Tag Name	Value	New Value		Description
	T27_LSL01	66	<div>66</div>	Update	Low level detection T27
	T27_Man_opening	44	<div>44</div>	Update	Manifold valve opening (percent)
	T27_PD	<div>✖</div> 0	<div>0</div>	Update	Return pump CIP > T27

2. To set the value of a tag, edit the **New Value** field and click on the **Update** ^① link as shown below.

View I/O

Alarm Summary

Diagnostic

Configuration

Alarm History

Files Transfer

Log off

Page:

Default


Update

04/11/2011 15:12:09

	Value	New Value		Description
T27_Man_opening	44	75	<div>Update <div>1</div></div> <div>This Update sends new value to PLC</div>	(percent)

Note: Clicking this **Update** ^① link sets the new value in the register of the PLC. The value will actually be returned with the next poll. In addition, you need to instruct your browser to refresh the value shown on the screen by clicking the page **Update** ^② link.

3. Tags in error appear with a red icon as shown below:




View I/O

Alarm Summary


Diagnostic

Configuration

 eWON

Alarm History

Files Transfer


Log off 

Page:

Default

Update

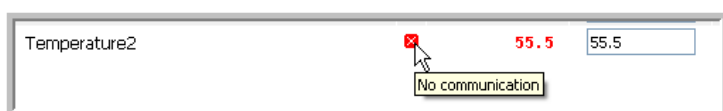
04/11/2011 15:32:49

	Tag Name	Value	New Value		Description
	T27_LSL01	0	<input type="text" value="0"/>	Update	Low level detection T27
	T27_Man_opening	75	<input type="text" value="75"/>	Update	Manifold valve opening (percent)
	T27_PD	0	<input type="text" value="0"/>	Update	Return pump CIP > T27

Please refer to § 6 [Troubleshooting tags in error](#) if this appears.

6. Troubleshooting tags in error

A tag value displayed in red in the **View IO** page indicates that the **quality** for this value is considered as **bad**. When the quality of the tag is **bad**, a red icon is displayed in the column between the tag's name and the tag's value. As long as the **quality** of the displayed value is **good**, no icon appears in this column. More information about the nature of the problem can be obtained by placing the mouse cursor on the icon as shown below:



or:



Note: A single tag in error (*truly bad*) can cause a number of other (*good*) tags to appear in error as well because, for communication optimization purposes, tag requests and responses are grouped in one single *envelope*. The whole group is then affected with the same error status.

Page: Default Update	Tag Name	Value	New Value		Description
	024_bad_tag_test	55.5	0	Update	This is a test for bas tag
	T27_LSL01	0	0	Update	Low level detection T27
	T27_Man_opening	0	0	Update	Manifold valve opening (percent)
	T27_PD	0	0	Update	Return pump CIP > T27

During commissioning or maintenance, you may want to isolate the *truly bad* tag from the others. Therefore, you have to disable the polling of tags in error. This can be done in the **IO Server > Global Config** parameters as shown below:

The relevant tag will no longer be polled and it will no longer be included in a group (and hence it will not affect other tags). Remind yourself to **uncheck this box** and initialize the IO Server, by clicking the **Init** link as shown above, as soon as you have completed your commissioning or maintenance task.

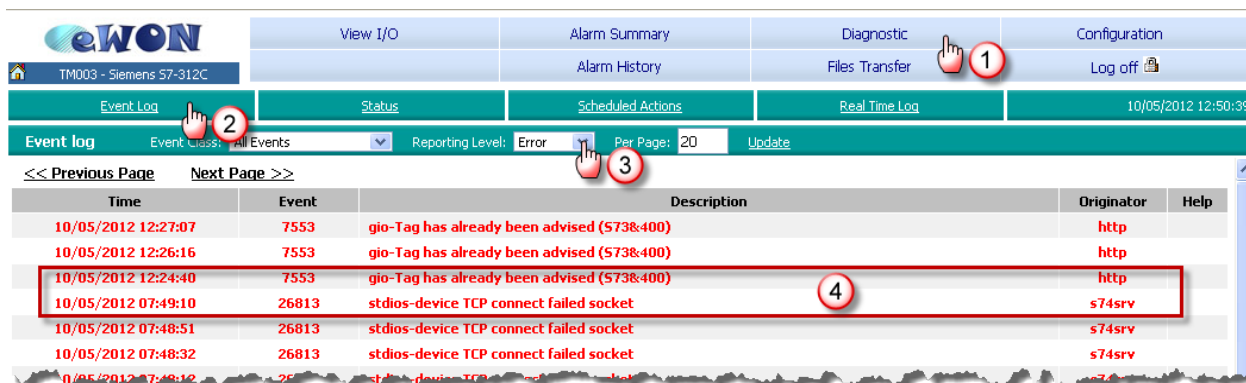
Click this **Init** link to restart polling all tags after the **Disable Tags in Error** has been unchecked

eWON servers & gateway IP ports			
Modbus TCP Port	502	These changes will only be effective after reboot	
EtherNet/IP Port	44818	These changes will only be effective after reboot	
ISOTCP Port	102	These changes will only be effective after reboot	
FIN5 Port	9600	These changes will only be effective after reboot	

Advanced Parameters			
Disable Tags in Error	<input checked="" type="checkbox"/>		
Default TCP RX/TX Timeout	1000	MSec	Minimum 500. Applies to all IO servers (except Modbus) after next reboot.

Update

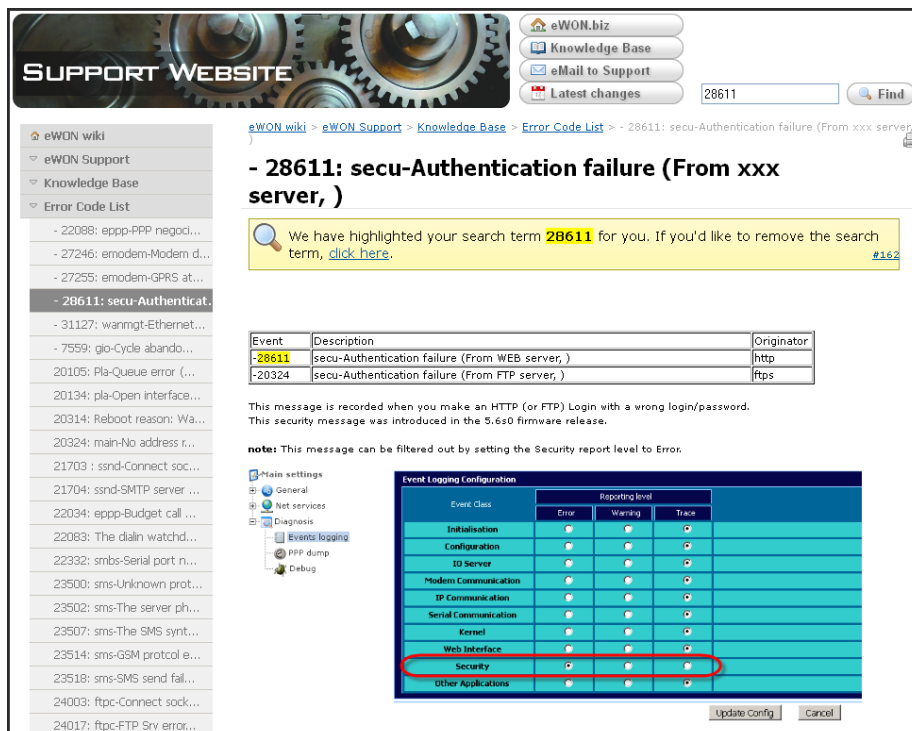
To get more information about the nature of the error and the sequence of events before and after the error occurred you can check the events appearing in the **Event Log**. The **Event Log** ② is accessed through the **Main Menu, Diagnostic** ①.



In the case of a communication error, check the cabling and IO server settings.

To find the explanation of a particular error message, refer to the Knowledge Base document in our WIKI (or type the error code in the Find field) :

http://wiki.ewon.biz/Support/06_Knowledge_Base/Z_Error_Code



Example: Results on search error code 28611.

7. Appendix 1 – Syntax of S7-300, 400 & 1200 tag addresses

7.1 General tag address format

①	②	③
<Memory Type><Modifier><address>		

7.2 Memory types

Memory Type	Description	Acceptable Modifiers	Address
DBx	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

Note: If no modifier is included, the modifier-type in bold will be used.

(*) Timer and counters cannot be polled on S7-1200 series because they are addressed as an instance datablock in the PLC.

7.3 Modifiers

Modifier	Modifier type	Value range	Automatic tag type
B	Byte	0...255	DWord
C	signed Byte	-128...127	Integer
W	Word	0...65535	DWord
S	signed Word	-32768...32767	Integer
D	DWord	0...4294967296 (**)	DWord
L	signed DWord	-2147483648... 2147483647 (**)	Integer
F	Float	+/- 3.4e38	Float

(**) Important: to avoid loss of precision due to integer to float conversion, choose the right storage DataType for your Tag(s).

7.4 Examples

Address	Pointing to
MW4	the Word at address 4 (in bytes) in the Internal Memory
CS1	the Counter number 1, read it as Signed Word
BD2L5	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 – Examples of register addresses for S7-300, 400 and 1200

7.5 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 refers to a starting byte, the Bit index goes only from 0 to 7. No other Modifier than B is allowed.

The syntax can be used for reading Bits and for writing them as well.

Examples:

Valid syntax: DB1B13#3 is OK because it represents bit 3 of Byte 13 in DB 1

Invalid syntax: IW5#2 is wrong because there is a Modifier

I5#10 is wrong because the Bit number is greater than 7

7.6 Status register

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

```
Status[Global Device Address]
```

Status Value	Corresponds to
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 – Tag status value meaning

- You can define a status Tag for each PLC used.
- If you use the status address, the Tag must be configured as an analog data type such as Floating Point or Integer.

8. Appendix 2 – MPI cable

To make an MPI/Profibus link between the eWON and the PLC, you need a standard Siemens MPI/Profibus cable or equivalent.

A standard Siemens reference is 6ES7901-0BF00-0AA0.

There are compatible cables available on the market but they do not necessarily have all of the same features such as switchable termination resistors.

eWON offers a compatible, unshielded cable:

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

Max baudrate is 1.5 MBit/s.

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

9. Appendix 3 – Advanced Routing Setup

Advanced Routing Setup is a feature introduced in firmware 6.3. It allows you to access devices that are part of another MPI/Profibus network connected indirectly to the eWON through another, or several other, PLCs.

Advanced Routing Setup items are visible when the **Enable** checkbox is ticked.

Note: Parameters 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.

Example of configuration:

Advanced Routing Setup:		<input checked="" type="checkbox"/> Enabled	
Gateway Destination S7 Subnet ID:	<input type="text"/>	(xxxx-xxxx, default: 0000-0000)	
ISOTCP S7-Subnet ID:	<input type="text" value="0076-0007"/>	(xxxx-xxxx, default: 0000-0000)	
MPI/PROFIBUS S7-Subnet ID:	<input type="text" value="0080-0001"/>	(xxxx-xxxx, default: 0000-0000)	
Default Next MPI/PROFIBUS Node:	<input type="text"/>	(0..126, default: 2)	
Gateway Entry 1	Destination S7-Subnet ID <input type="text" value="0056-0004"/> default:0000-0000	Next MPI/PROFIBUS Node <input type="text" value="10"/> default:2	
Gateway Entry 2	Destination S7-Subnet ID <input type="text"/> default:0000-0000	Next MPI/PROFIBUS Node <input type="text"/> default:2	
Gateway Entry 3	Destination S7-Subnet ID <input type="text"/> default:0000-0000	Next MPI/PROFIBUS Node <input type="text"/> default:2	

For more details refer to the General Reference Guide: RG-001 available here

http://wiki.ewon.biz/Support/07_Documentations/01_RG

Revision history

Revision Level	Date	Description
1.0	12/12/11	First issue

Document build number: 4

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