



REMOTE DATA



ACADEMY

Tags & IO Servers



TP-RD-010-2-EN

Version 2018-2.0

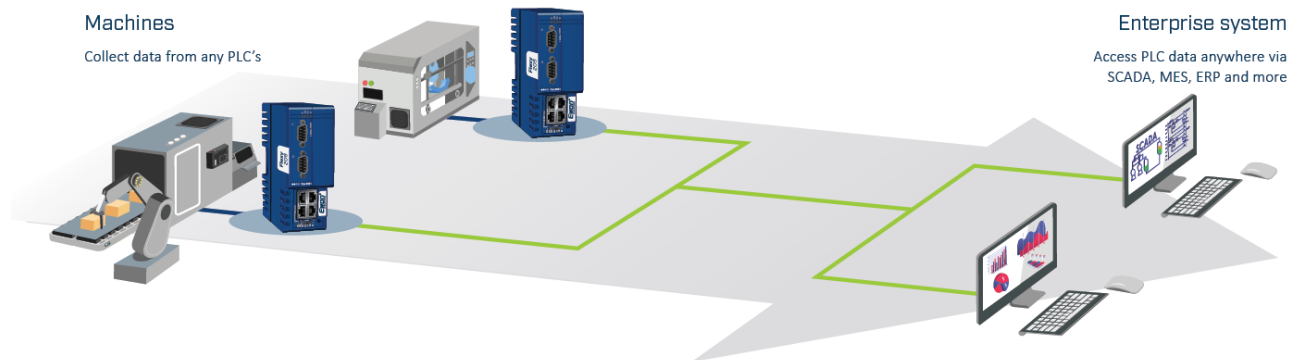
OPCUA

Flexy OPC UA - Client

Gateway For Interoperability

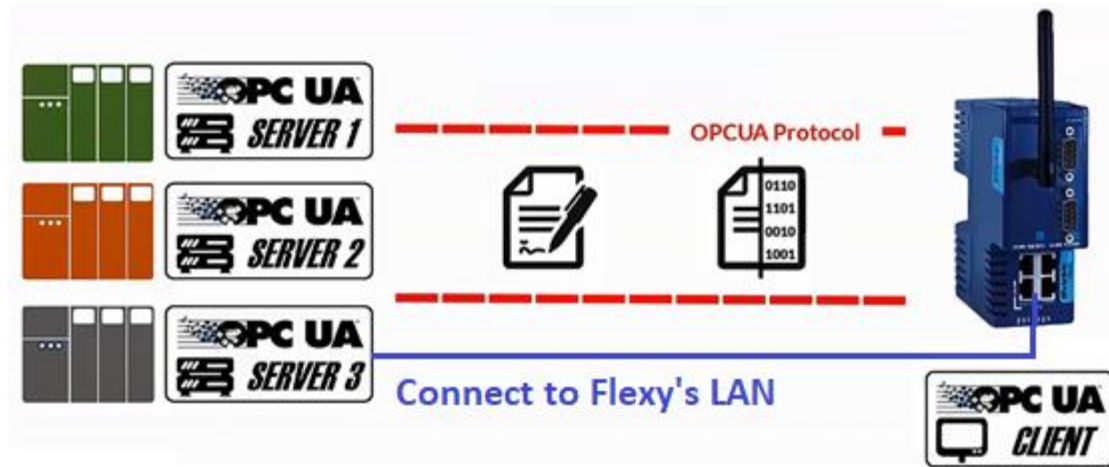
Flexy OPC UA - Server

Secure Bridge between OT & IT



1. IO Servers- Flexy OPC UA Client Setup

OPCUA Client

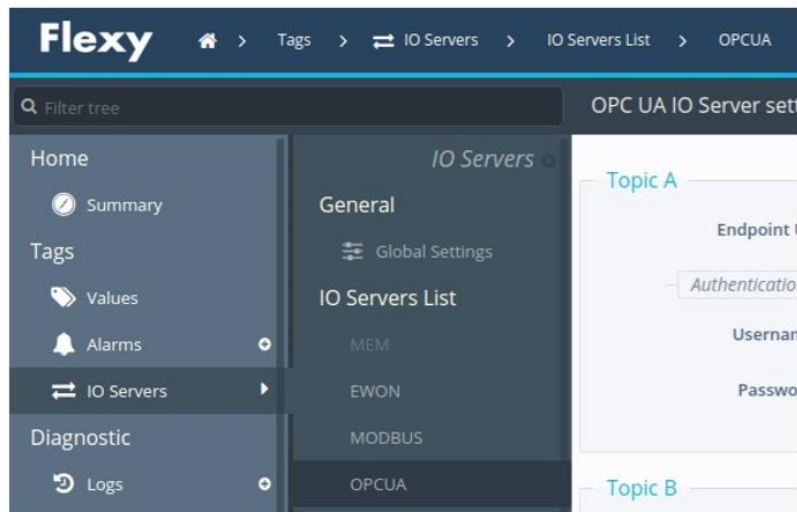


- Secure the communication between Server & Client by signing & encrypt messages between them.
- Signing the message to confirm the source
- Encryption ensure the messages confidentiality



OPCUA IO Server

- eWON act as an OPCUA client in order to retrieve tag values form other OPCUA servers, like PLCs, HMIs, etc



eWON menu tree : Tags > IO Servers > OPCUA



OPCUA IO Server

General

- eWON act as an OPCUA client to retrieve tag values from other OPCUA servers, like PLCs, HMIs.
- Maximum 3 OPCUA Servers can be connected
- Encryption and secure authentication supported

OPC UA IO Server settings Init Clear

Certificate management

Status	Name	Details	Start date	End date
Own	/usr/pki_cli/own/uacertificate.der	/C=BE/ST=BW/L=Nivelles/O=HM...	Jun 4 08:30:57 2...	Jun 2 08:30:57 2...

+

Topic A Enabled

Endpoint URL:

opc.tcp://server[:port] (port 4840 used when not specified)

Communication security **Authentication settings** Anonymous

Security policy: None

Security mode: None

No authentication needed to access this server

Update



OPCUA IO Server

Declare the OPCUA Server

Topic A Enabled

Endpoint URL:

opc.tcp://server[:port] (port 4840 used when not specified)

Communication security Authentication settings Anonymous

Security policy:

Security mode:

No authentication needed to access this server

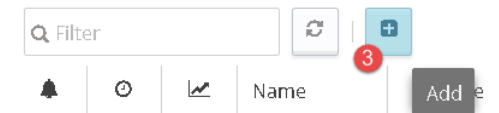
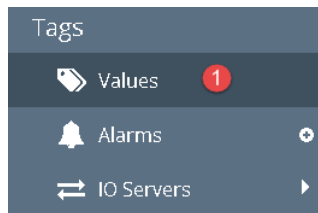
Update

- Enable a topic and type the server URL (opc.tcp://<IpOfServer>).
- Choose the Communication and Authentication security options to apply if any.


2. Tags- Flexy OPC UA Client Setup



Tag Setup



To access the Tags List,

- Go to “Tags” section from the left menu
- Click “values” (1).
- Switch to the “Setup” Mode (2)
- Click the  icon to add the Tag.



OPCUA IO Server

Declare your Tags

Tag configuration

Identification

Tag Name: Etop Page: Default

Tag Description: E-Stop activated

I/O Server Setup

Server Name: OPCUA Topic Name: A

Address: [Status] Continue to: Status

[OPCUA Node] ? Node

I/O Server Setup

Server Name: OPCUA Topic Name: A

Address: ns=1;i=16777472

Enter ValueName. The ValueName is a Status tag or a node identified by its namespace and Id

Type: Boolean ☐ Force Read Only

eWON value = IO Server Value * 1 + 0

Update Tag

- Identification: Create a Flexy Tag name
- I/O Server Setup: Set « OPCUA » as Server Name.
- Address: clicking « [OPCUA Node] ».
- Select node & Type.
- Press Update Tague

Select node

Objects

- + Server
- DeviceSet
 - Anybus X-gateway IIoT
 - + SerialNumber
 - ParameterSet
 - Input_1
 - + Input_2
- + Types
- + Views

OK Cancel



Maximum number of Tags in a Flexy 205

- You can associate up to 1500 tags per IO Server.
- The overall maximum quantity of tags you can create is **2500** Tags
- Example of Tags List:
 - 200 Modbus Tags, 100 MEM Tags and 50 DF1 Tags is **OK**
 - 1000 MEM Tags, 300 DF1 Tags and 1400 S7 Tags is **NOK** (> 2500 Tags total)
 - 100 MEM Tags, 300 DF1 Tags and 1600 S7 Tags is **NOK** (> 1500 Tags for S7 IO Server)



The Flexy 205 performances depend on the number of tags.
Typical applications rarely exceed **500** tags.

- To monitor the Tag values, click “Values” (1) and switch to the “VIEW” mode (2).



Name	Value
TankLevel	254
Temperature	21.3
TemperatureSetPoint	22

- To change the value of a Tag: Double-Click the **Tag Value**, enter a new value and press “**Enter**” and click the “**Apply**” button.




write = immediate

read = delay according to poll rate and refresh rate.

			Name		Value
			TankLevel		254
			Temperature		21.3
			TemperatureSetPoint		23
			Tank2Level		0

Tank2Level

0

No communication

- Allows to see if the tag value has been correctly read or not.
- The Tag which is displayed in red indicates that the quality of the value is bad
- More details are available if you position the mouse cursor on the icon.



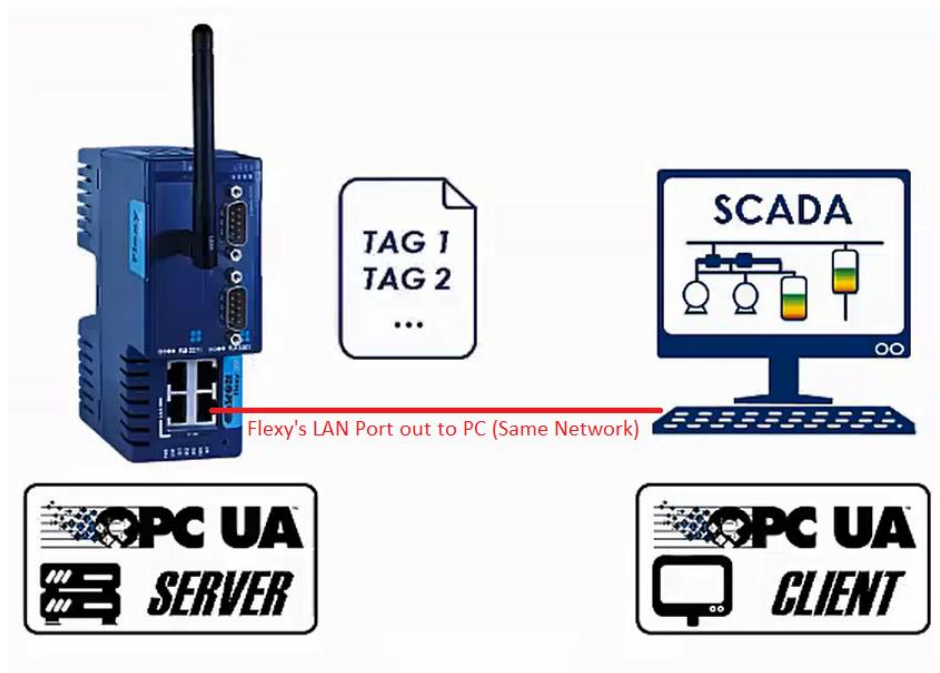
One Tag in error can impact other tags polled from the same PLC.
Use the option "disable tags in error" (IO Servers → Global Settings) to find the problematic Tag.

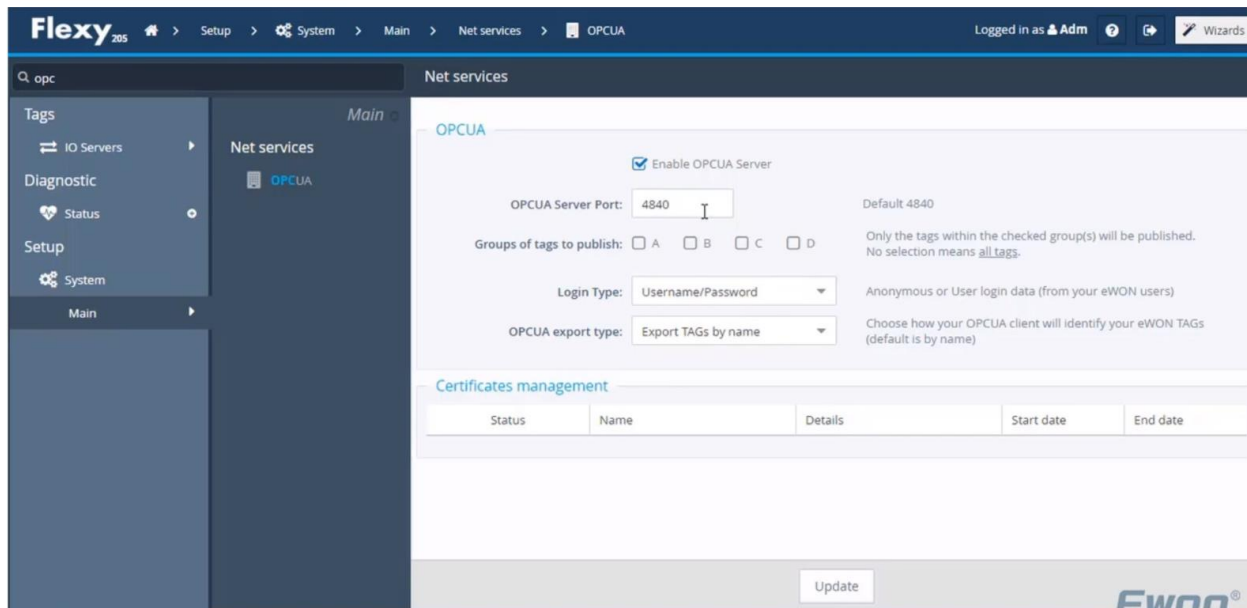
3. Enable OPCUA Server



- Flexy acts as an OPC UA Server
- Any Tags (associated to any IO Servers) defined in the Flexy can be read and written using your favorite OPC UA Client.
- Easy configuration
- Encryption supported
- Check the video on e-learning :
<https://vimeo.com/287246007>

OPCUA Server





The screenshot shows the Flexy 205 OPCUA configuration interface. The top navigation bar includes the Flexy 205 logo, a home icon, and a breadcrumb trail: Setup > System > Main > Net services > OPCUA. The user is logged in as 'Adm'. The left sidebar contains a menu tree with 'Tags' (IO Servers), 'Diagnostic' (Status), 'Setup' (System), and 'Main'. The main content area is titled 'Net services' and shows the 'OPCUA' configuration page. The 'Enable OPCUA Server' checkbox is checked. The 'OPCUA Server Port' is set to 4840, with a default of 4840. The 'Groups of tags to publish' section has four checkboxes (A, B, C, D) and a note: 'Only the tags within the checked group(s) will be published. No selection means all tags.' The 'Login Type' is set to 'Username/Password' with a dropdown arrow, and a note: 'Anonymous or User login data (from your eWON users)'. The 'OPCUA export type' is set to 'Export TAGs by name' with a dropdown arrow, and a note: 'Choose how your OPCUA client will identify your eWON TAGs (default is by name)'. Below this is a 'Certificates management' section with a table with columns: Status, Name, Details, Start date, and End date. An 'Update' button is at the bottom right of the configuration area. The eWON logo is in the bottom right corner of the interface.

Flexy 205

Setup > System > Main > Net services > OPCUA

Logged in as Adm

Wizards

Search: opc

Net services

OPCUA

☒ Enable OPCUA Server

OPCUA Server Port: 4840 (Default: 4840)

Groups of tags to publish: ☐ A ☐ B ☐ C ☐ D

Only the tags within the checked group(s) will be published. No selection means all tags.

Login Type: Username/Password (Anonymous or User login data (from your eWON users))

OPCUA export type: Export TAGs by name (Choose how your OPCUA client will identify your eWON TAGs (default is by name))

Certificates management

Status	Name	Details	Start date	End date
--------	------	---------	------------	----------

Update

eWON

eWON menu tree : Setup > Main > Net services > OPCUA



OPCUA Server

OPCUA

☒ Enable OPCUA Server

OPCUA Server Port: Default 4840

Groups of tags to publish: ☐ A ☐ B ☐ C ☐ D
Only the tags within the checked group(s) will be published.
No selection means all tags.

Login Type: Anonymous or User login data (from your eWON users)

OPCUA export type: Choose how your OPCUA client will identify your eWON TAGs (default is by name)

Certificates management

Status	Name	Details	Start date	End date
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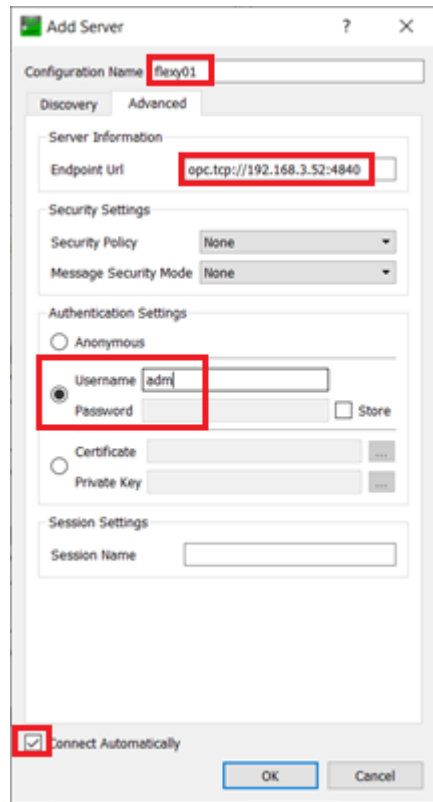
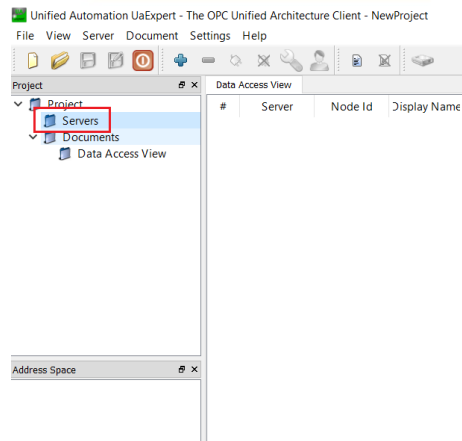
Fwonn®

- Check the "Enable OPCUA server" to enable the server
- Choose the port (default is 4840)
- Select the groups of tags to publish. Multiple choices are allowed.
- Login Type- Username/Password, Anonymous/Certificate
- Click on "Update" to validate the parameters



OPCUA Server-Configuring an OPC UA client

UaExpert from Unified Automation



To get the OPC UA up & running, follow the steps:

- Launch UaExpert
- Right click on Server > Add Server
- Fill in a name at the Configuration Name : flexy01
- Click on Advanced
- Fill in the fields according to your configuration:
- Endpoint URL: "opc.tcp://EWON_IP_ADDRESS:PORT"
- Authentication Setting, Check Username : adm
- Check Connect Automatically
- Click OK

Link to download UaExpert

<https://www.unified-automation.com/products/development-tools/uaexpert.html>

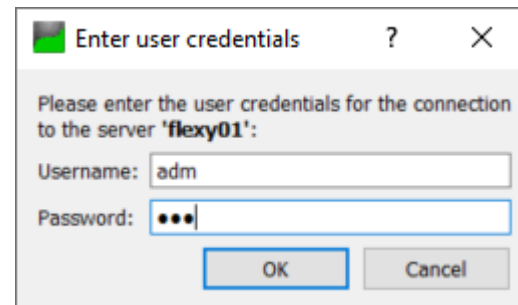
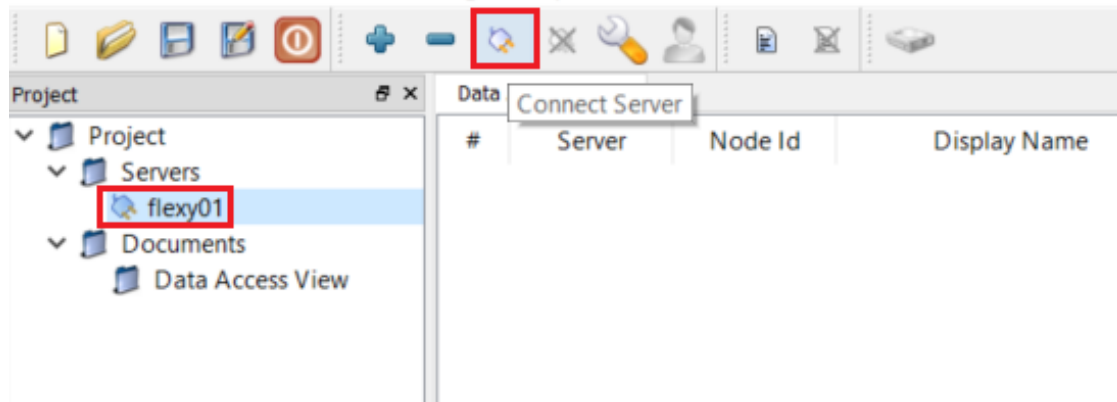


OPCUA Server-Configuring an OPC UA client

UaExpert from Unified Automation

Unified Automation UaExpert - The OPC Unified Architecture Client - NewProject*

File View Server Document Settings Help

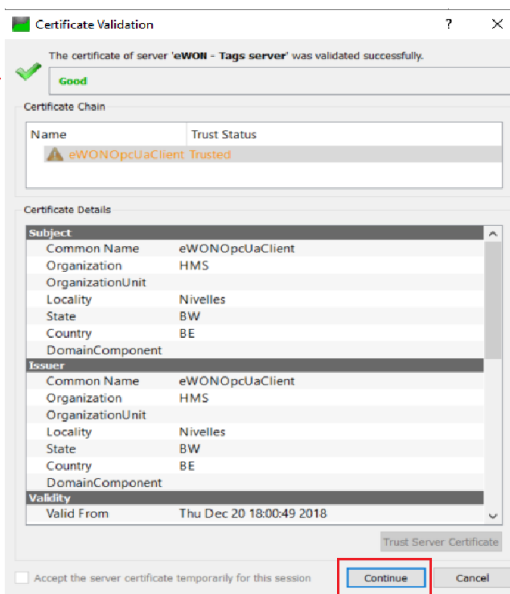
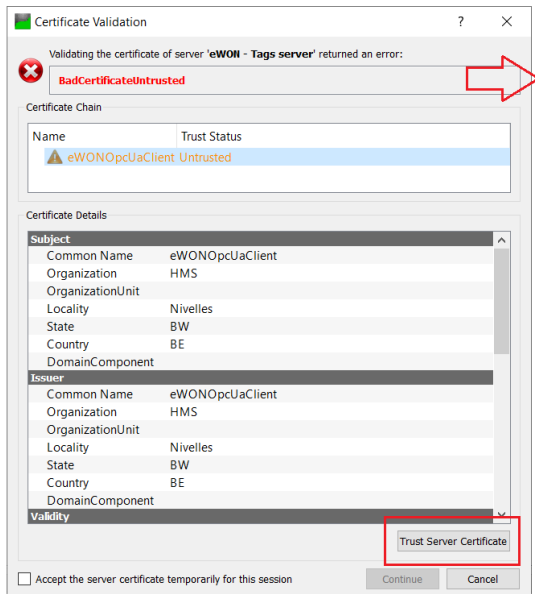


- Choose the server in the Project>Servers>flexy01
- Click the Connect Server icon
- Enter the Password, Click OK



OPCUA Server-Configuring an OPC UA client

UaExpert from Unified Automation



- First time login, bad Certificate Untrusted may appear.
- Click Trust Server Certificate, it will become Good.
- Click continue



OPCUA Server-Configuring an OPC UA client

UaExpert from Unified Automation

Unified Automation UaExpert - The OPC Unified Architecture Client - NewProject*

File View Server Document Settings Help

Address Space

No Highlight

Root

Objects

- ConfigCRC
- DeviceSet
- DeviceTopology
- EwonTags
 - Analog_Inout
 - Com_Status
 - DI10
 - DI3
 - DI4
 - DI5
 - DI6
 - DI7
 - DI8
 - DI9
 - E-Stop
 - LED1
 - LED2
 - Power
 - Start
 - VPN
 - Valve_Open
 - Vibration
- NetworkSet

#	Server	Node Id	Display Name	Value	Datatype	Source Timestamp	Server Timestamp	Statuscode
1	flexy01	NS4 String ...	Analog_Inout	56	UInt32	4:45:02.709 PM	4:45:02.709 PM	Good

- The published tags are under Root > Objects > Ewon Tags
- Drag and drop the Tags to monitor from the tag list to the Data Access View panel.
- The values are refreshed automatically

4. Support & Documentation



Websites

Flexy Support

- **WHAT IS OPC UA?**

<https://www.ewon.biz/products/ewon-flexy/opc-ua>

- **IO Server lesson: OPC UA Client - Communication & Authentication settings, Create an OPC UA Tag**

<https://ewon.biz/e-learning/library/flexy/local-data-acquisition>

<https://vimeo.com/195935291>

- **Tag Publishing lesson: OPC UA Server - Communication & Authentication settings.**

<https://ewon.biz/e-learning/library/flexy/tag-publishing>

- **Document.**

<https://websupport.ewon.biz/support/kb/flexy-205>

Technical forum:

<https://techforum.ewon.biz/>

<https://forum.hms-networks.com/>

- **Post/Ask a question thro email**

- support@ewon.biz