

## APPLICATION NOTE

# AC500 USER MANAGEMENT WITH V3 CONFIGURATION AND HANDLING



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# 1 Introduction

## 1.1 Scope of the document

AC500 V3 PLCs support User Management for the Automation Builder Project and for the PLC. The PLC user management can be used for different protocols like online login, OPC UA or visualization.

## 1.2 Compatibility

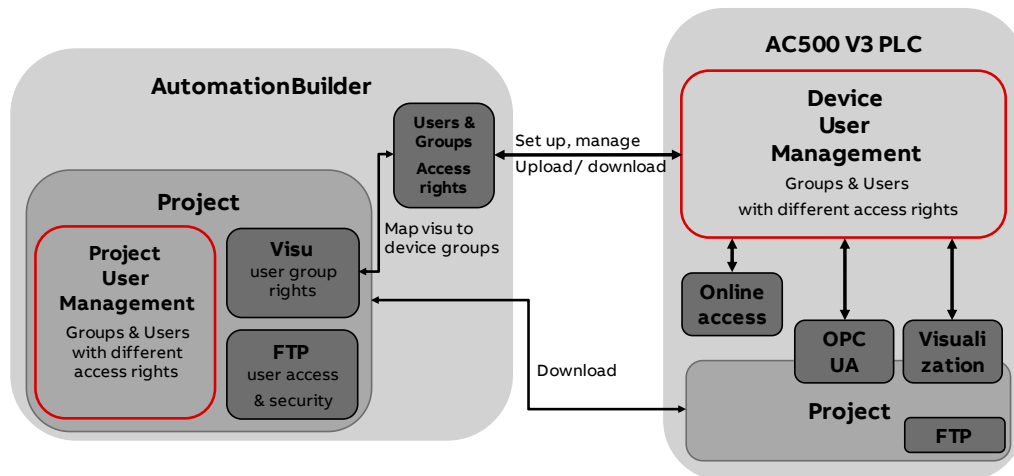
The application note explained in this document has been used with the below engineering system versions. They should also work with other versions, nevertheless some small adaptations may be necessary, for future versions.

- AC500 V3 PLC
- Automation Builder 2.6.0 or newer

## 2 User Management

The User Management gives the opportunity to have different rights for different user groups, e.g. a user group operator is able to see all values in a HMI system and give some commands to the process behind. Another user group maintenance has the same rights but in addition the group has the right to change parameter which have influence to the function of the process or machine.

It is recommended to use encrypted communication especially when the system is connected to the internet.



Working with AC500 V3 and Automation Builder enables the possibility to work with users and groups.

### Automation Builder

- Working with User Groups and Users within one project
- Different access rights for different user groups

### AC500 PLC

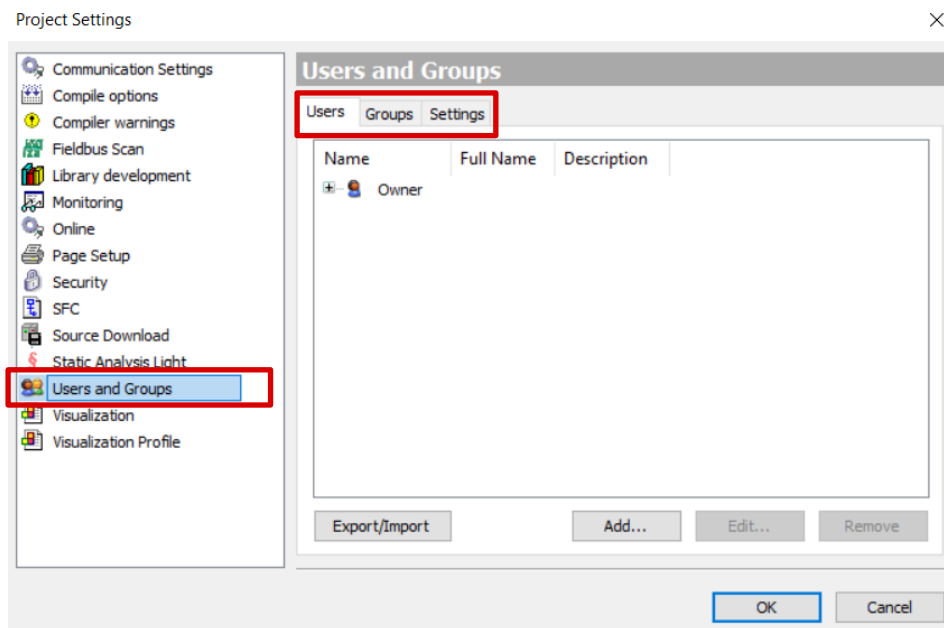
- General User management inside the PLC used for
  - Online Access
  - OPCUA Server
  - Web Visualization
- Different access rights for different user groups
- FTP Server (Access to different directories of the file system in the PLC)

## 3 User Management with Automation Builder

User Management in Automation Builder is valid for the actual project.

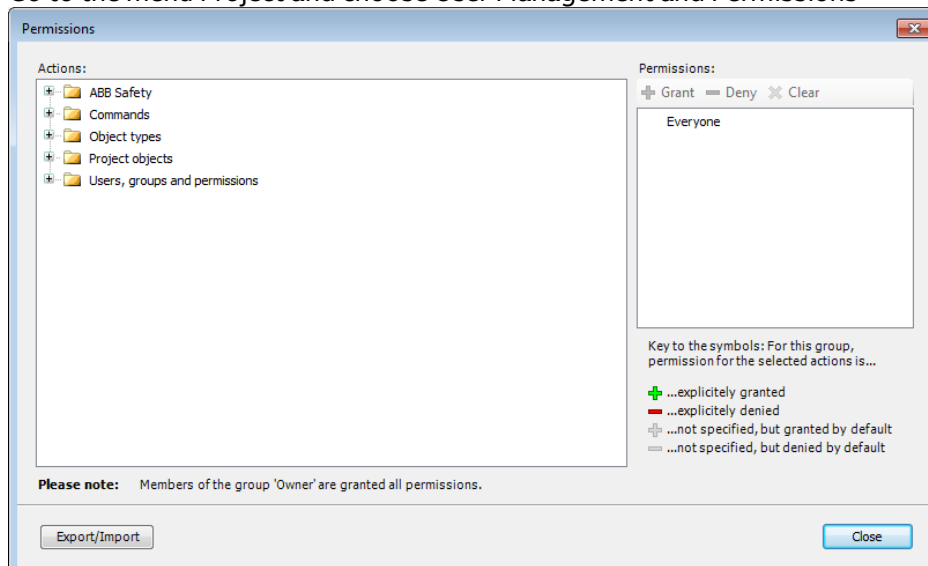
### 3.1 Adding User Groups and Users

1. Go to menu Project and choose Project Settings
2. Go to the tab User and Groups, a new user can be inserted



### 3.2 Editing Permissions

Go to the menu Project and choose User Management and Permissions



Note: Permissions can be granted to the User Groups. Be careful with changing permissions!

## 4 Device user management in AC500 V3 PLC

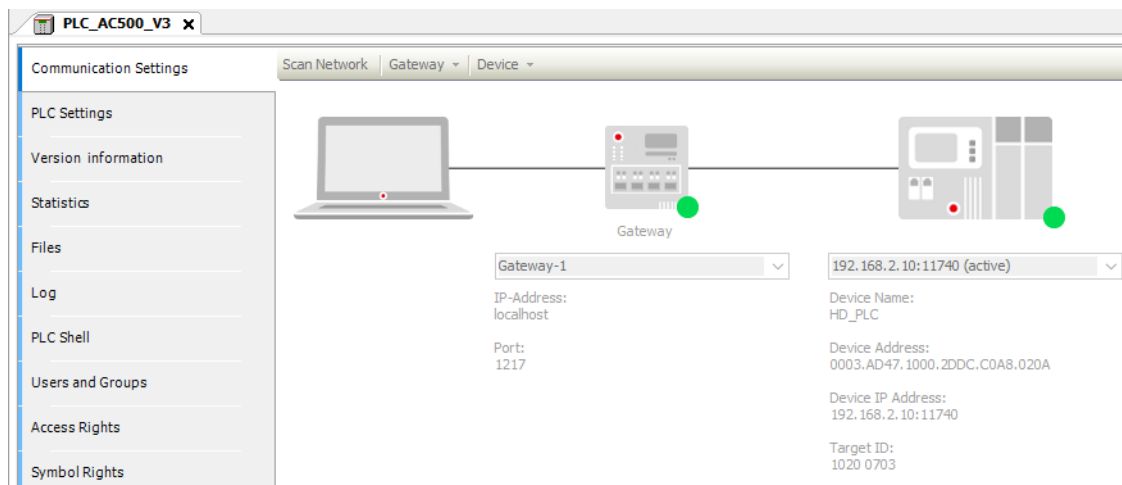
User management inside the PLC is used for

- PLC login
- OPC UA
- Visualization/Web Visualization

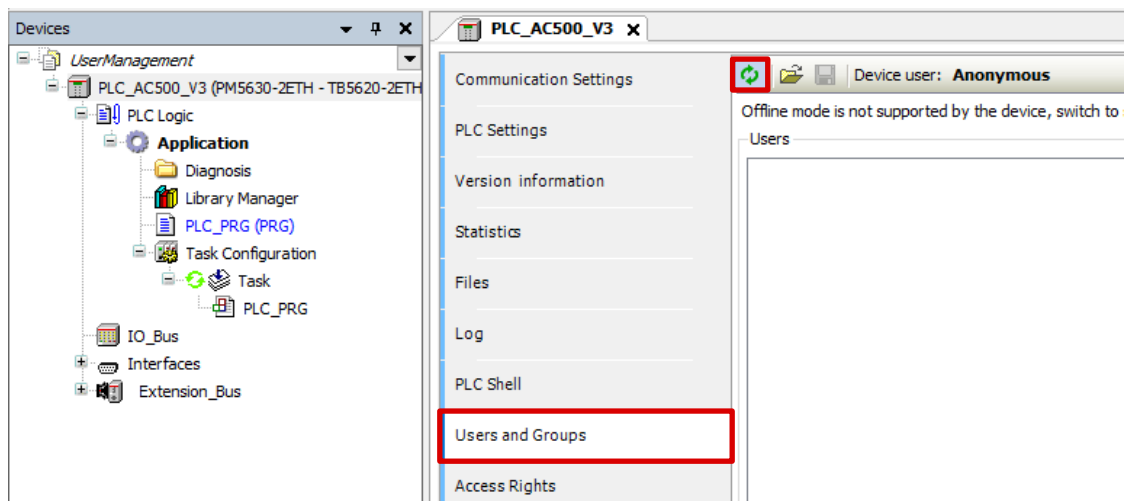
### 4.1 Configure PLC user management

#### 4.1.1 Activate user management

1. Configure your gateway



2. Double click to PLC name in Devices tree and choose User and Groups
3. Push the refresh Button



1. You will be asked for a username and password
2. Insert a username and a password for the administrator account

**CAUTION!**

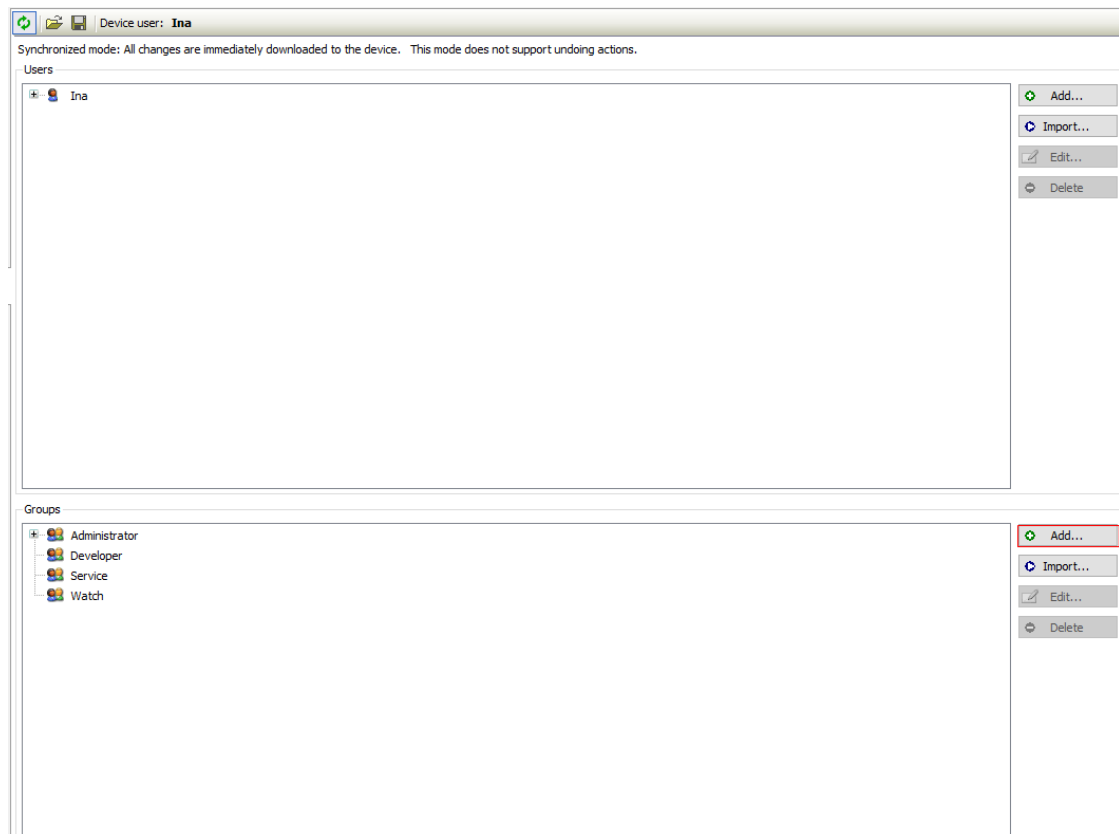
If you forget the password, you have no possibility to remove the user management or download a project.

3. Then you will be asked again for Username and Password to log in with the new account
4. After doing this you get a default user management system

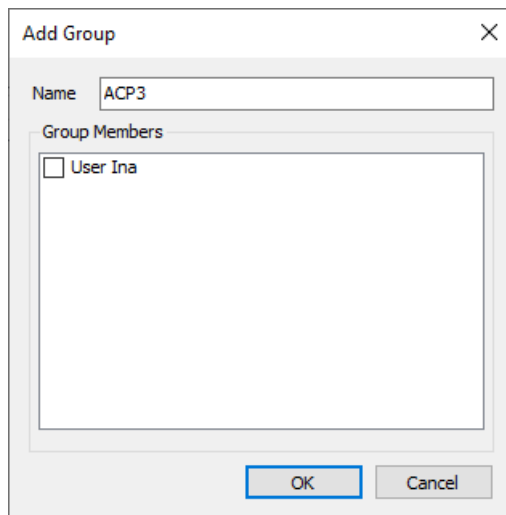


Note: Be aware, that with a activated user management always user name and password is needed to connect to PLC.

## 4.1.2 Create User Groups and User

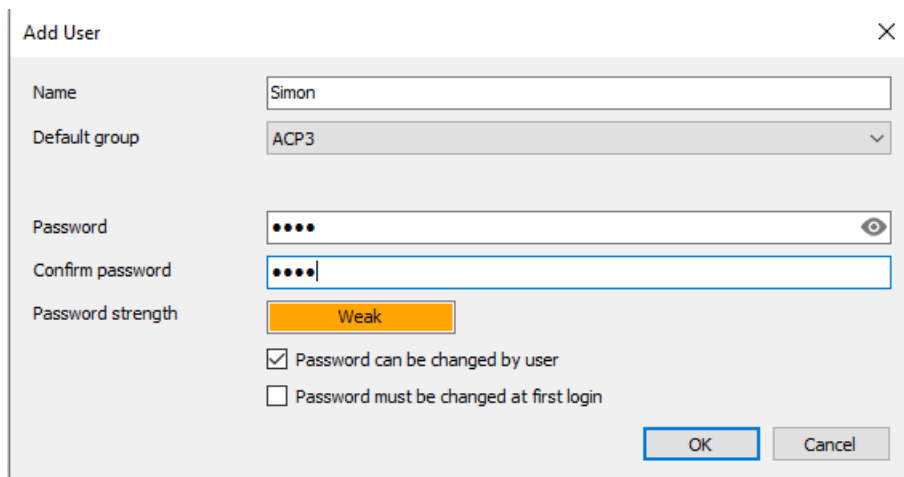


1. Push “Add” in Groups area. e.g. ACP3



2. Push “Add..” in Users Area, you have to fill in Username and password together with desired group.

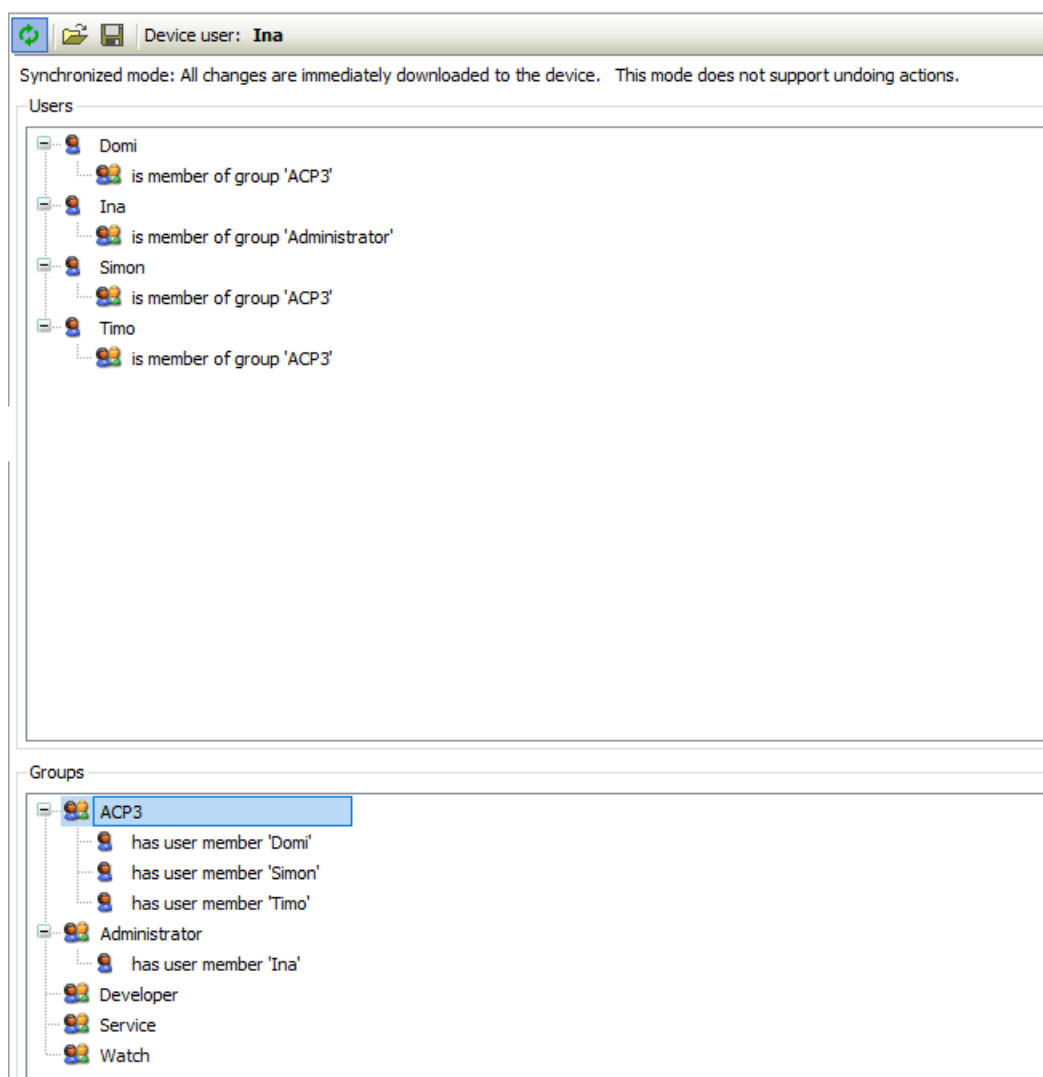




The 'Add User' dialog box contains the following fields and options:

- Name:** Text input field containing 'Simon'.
- Default group:** Dropdown menu showing 'ACP3'.
- Password:** Password input field with four dots and a visibility icon.
- Confirm password:** Password input field with four dots.
- Password strength:** A yellow button labeled 'Weak'.
- ☒ Password can be changed by user
- ☐ Password must be changed at first login
- Buttons:** 'OK' and 'Cancel' buttons at the bottom right.

3. Repeat to add others users in the same group based on the requirement of project.



The interface shows the 'Device user: Ina' and 'Synchronized mode: All changes are immediately downloaded to the device. This mode does not support undoing actions.'

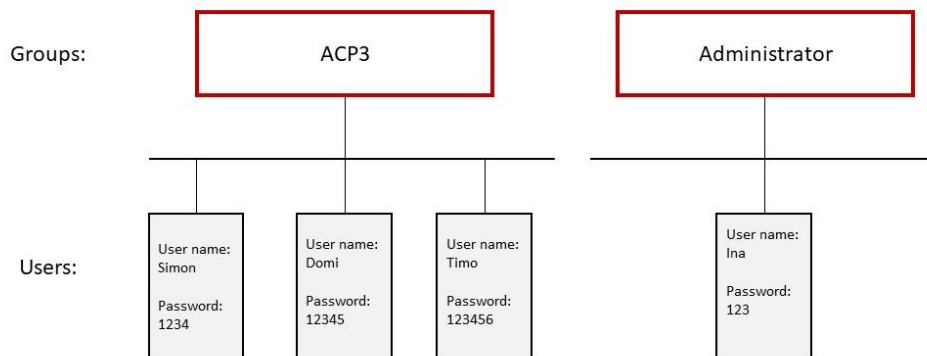
**Users**

- Domini
  - is member of group 'ACP3'
- Ina
  - is member of group 'Administrator'
- Simon
  - is member of group 'ACP3'
- Timo
  - is member of group 'ACP3'

**Groups**

- ACP3
  - has user member 'Domini'
  - has user member 'Simon'
  - has user member 'Timo'
- Administrator
  - has user member 'Ina'
- Developer
- Service
- Watch

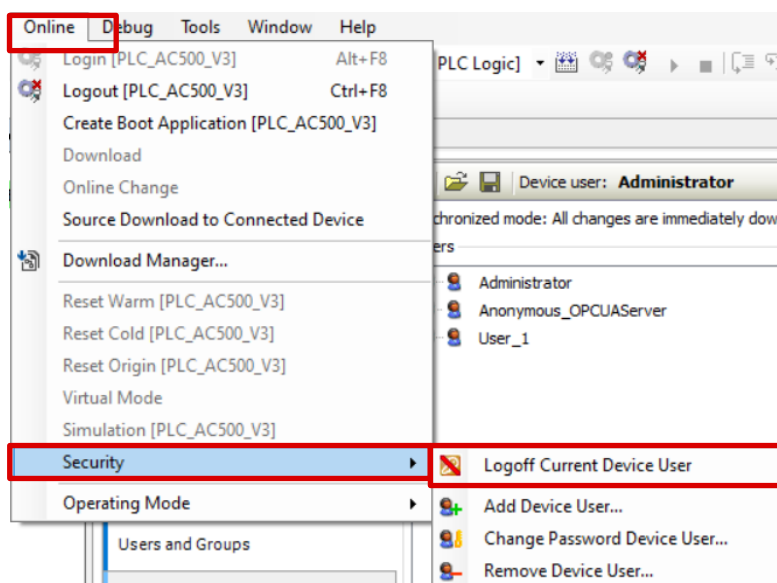
We are using below Users name and Password as example.



Note: Be sure that the refresh button is activated, because all the user, user groups and access rights will be transferred directly to PLC and will be saved only directly in PLC.

Actual PLC user can be seen in the headline of the dialog.

- To change user please use menu Online, go to Security and choose Logoff current device user



- Next time you want login, you will be asked for username and password
- To change the rights of a user group change to the tab Access rights and give or reject access to specified elements. This is shown for the OPC UA Server access in the chapter 4.2.2

### 4.1.3 Firmware update with activated user management

The PLC user management will remain also after a firmware update or downgrade.

Due to a structural change in the PLC user management in FW 3.5 there are some limitations when updating the PLC firmware from a version 3.4 or lower to 3.5 or higher with activated user management.

**CAUTION!**

If you update the PLC firmware from version 3.4 or lower to version 3.5 this must be done via Automation Builder. An update via memory card with activated user management will result in losing all access rights to the PLC!

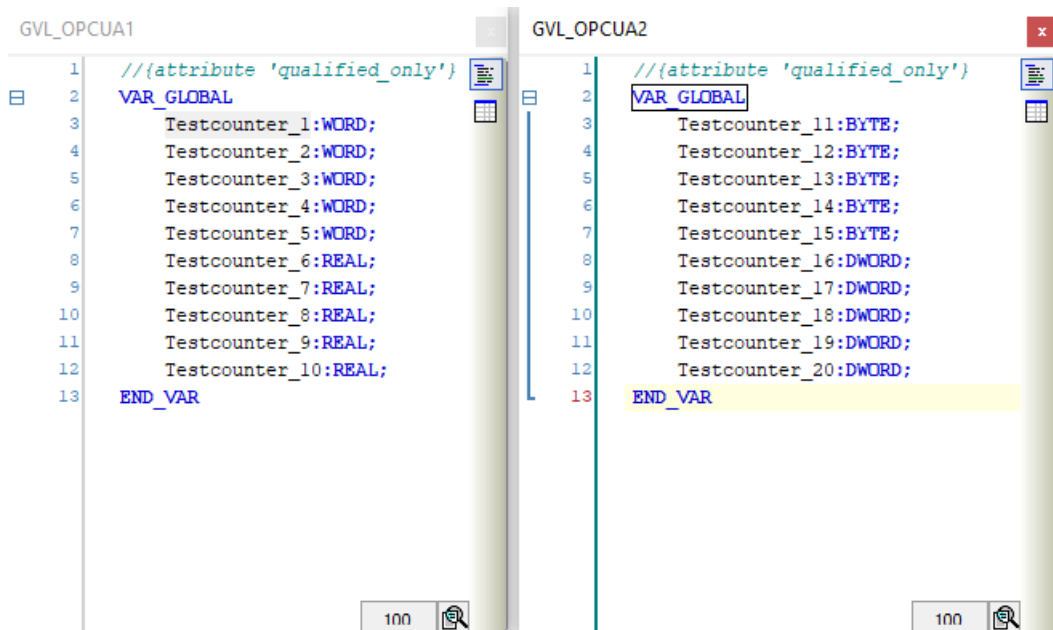
**CAUTION!**

If you update the PLC firmware from version 3.4 or lower to version 3.6 or higher this must be done in two steps. First an update to 3.5 must be done via Automation Builder (see above). Afterwards the FW can be updated to any later firmware version – either via Automation Builder or via memory card.

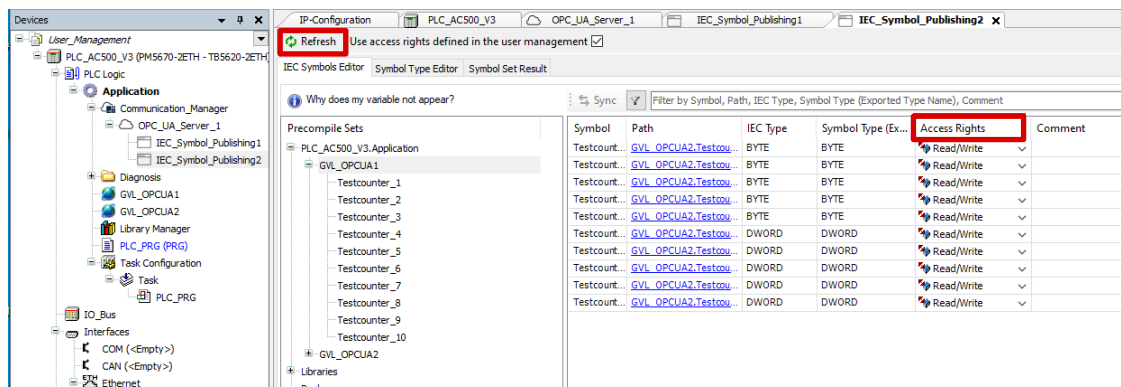
## 4.2 Working with OPC UA

The OPC UA server supports the user management. You set the permissions on the server from the Access Rights tab in the PLC.

### 4.2.1 Create Project with VARs



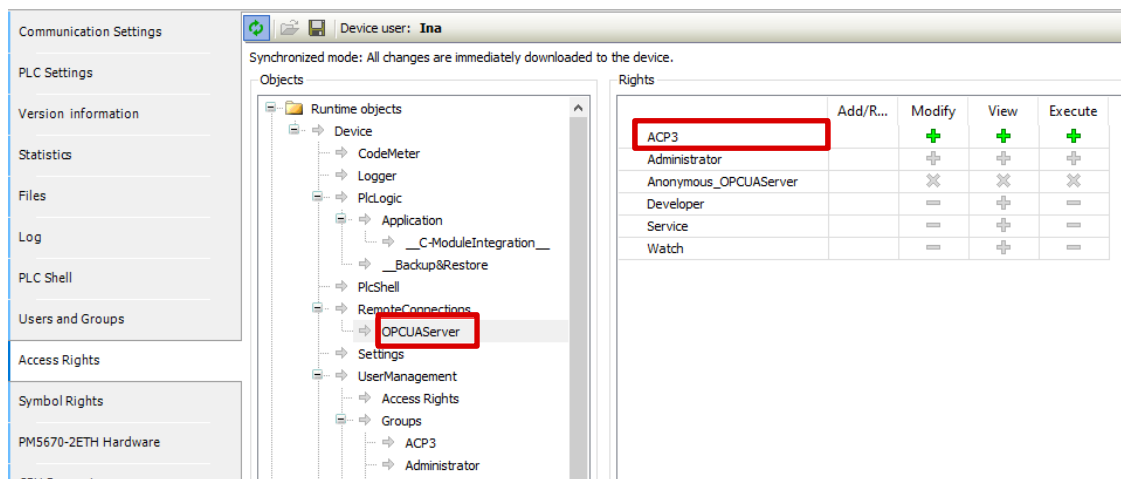
1. Add Communication Manager with protocol 'OPC UA Server' to Application.
2. Add IEC Symbol Publishing objects under the OPC UA Server tree.
3. Go to each IEC symbol edit, Push „Refresh“ Button.
4. Drag the Symbol variables to the right windows and enable the option 'Use access rights defined in the user management' if needed. Specify the access rights.



### 4.2.2 Change Rights of User Groups

1. Login as Administrator

2. Select Access Rights from the Access Rights tab on the CPU. To do this, select the object Access Rights > RemoteConnections > OPCUAServer

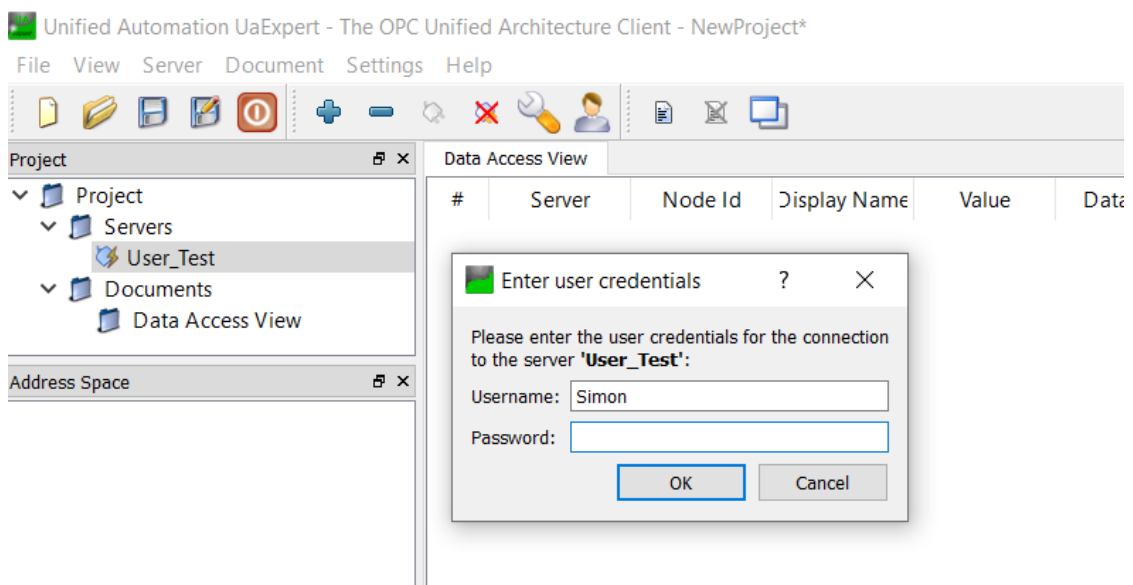


Note: If anonymous access to the OPC UA Server is permitted despite an active user management, then the access rights can also be configured for this access by granting corresponding permissions for the implicitly available group “Anonymous\_OPCUAServer”.

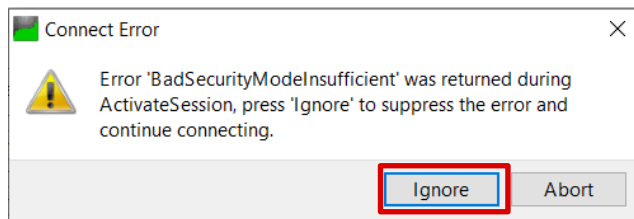
3. Select an object and select the rights for the different User Groups. Rights can only be given to Groups and not to User

### 4.2.3 Connect with OPC UaExpert Client

1. OPC UA Client can now connect with different Users from the group with granting corresponding permissions.



2. A window appear



### 3. Push Ignore

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

File View Server Document Settings Help

Project Data Access View

Project

- Project
  - Servers
    - User\_Test
  - Documents
    - Data Access View

Address Space

No Highlight

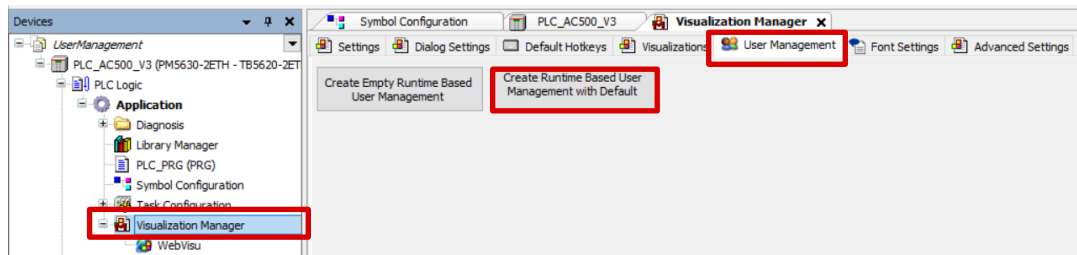
Root

- Objects
  - DeviceSet
  - DeviceTopology
  - IEC\_Symbol\_Publishing1
  - IEC\_Symbol\_Publishing2
    - Testcounter\_11
    - Testcounter\_12
    - Testcounter\_13
    - Testcounter\_14
    - Testcounter\_15
    - Testcounter\_16
    - Testcounter\_17
    - Testcounter\_18
    - Testcounter\_19
    - Testcounter\_20
  - NetworkSet

#	Server	Node Id	Display Name	Value	Datatype	urce Timestar	rver Timestan	Statuscode
1	User_Test	NS5 Opaqu...	Testcounter_1	254	UInt16	3:04:01.057 ...	3:04:01.057 ...	Good
2	User_Test	NS5 Opaqu...	Testcounter_...	0	Float	3:03:56.802 ...	3:03:56.802 ...	Good
3	User_Test	NS5 Opaqu...	Testcounter_2	0	UInt16	3:03:56.802 ...	3:03:56.802 ...	Good
4	User_Test	NS5 Opaqu...	Testcounter_3	0	UInt16	3:03:56.802 ...	3:03:56.802 ...	Good
5	User_Test	NS5 Opaqu...	Testcounter_4	0	UInt16	3:03:56.802 ...	3:03:56.802 ...	Good
6	User_Test	NS5 Opaqu...	Testcounter_5	0	UInt16	3:03:56.802 ...	3:03:56.802 ...	Good
7	User_Test	NS5 Opaqu...	Testcounter_6	0	Float	3:03:56.802 ...	3:03:56.802 ...	Good
8	User_Test	NS5 Opaqu...	Testcounter_7	0	Float	3:03:56.802 ...	3:03:56.802 ...	Good
9	User_Test	NS5 Opaqu...	Testcounter_8	0	Float	3:03:56.802 ...	3:03:56.802 ...	Good
10	User_Test	NS5 Opaqu...	Testcounter_9	0	Float	3:03:56.802 ...	3:03:56.802 ...	Good
11	User_Test	NS6 Opaqu...	Testcounter_...	0	Byte	3:04:08.990 ...	3:04:08.990 ...	Good
12	User_Test	NS6 Opaqu...	Testcounter_...	0	Byte	3:04:08.990 ...	3:04:08.990 ...	Good
13	User_Test	NS6 Opaqu...	Testcounter_...	0	Byte	3:04:08.990 ...	3:04:08.990 ...	Good
14	User_Test	NS6 Opaqu...	Testcounter_...	0	Byte	3:04:08.991 ...	3:04:08.991 ...	Good
15	User_Test	NS6 Opaqu...	Testcounter_...	0	Byte	3:04:08.991 ...	3:04:08.991 ...	Good
16	User_Test	NS6 Opaqu...	Testcounter_...	0	UInt32	3:04:08.991 ...	3:04:08.991 ...	Good
17	User_Test	NS6 Opaqu...	Testcounter_...	0	UInt32	3:04:08.991 ...	3:04:08.991 ...	Good
18	User_Test	NS6 Opaqu...	Testcounter_...	0	UInt32	3:04:08.991 ...	3:04:08.991 ...	Good
19	User_Test	NS6 Opaqu...	Testcounter_...	0	UInt32	3:04:08.991 ...	3:04:08.991 ...	Good
20	User_Test	NS6 Opaqu...	Testcounter_...	0	UInt32	3:04:08.991 ...	3:04:08.991 ...	Good

## 4.3 User Management Visualization/Web Visualization

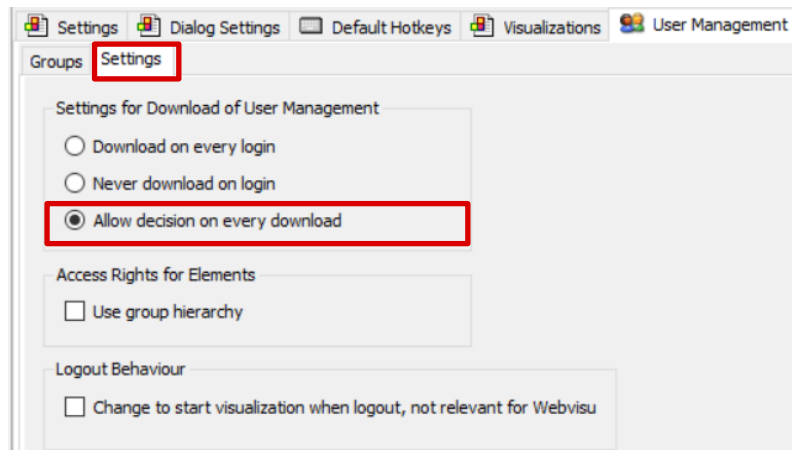
1. Double click Visualization Manager
2. Open the tab User Management



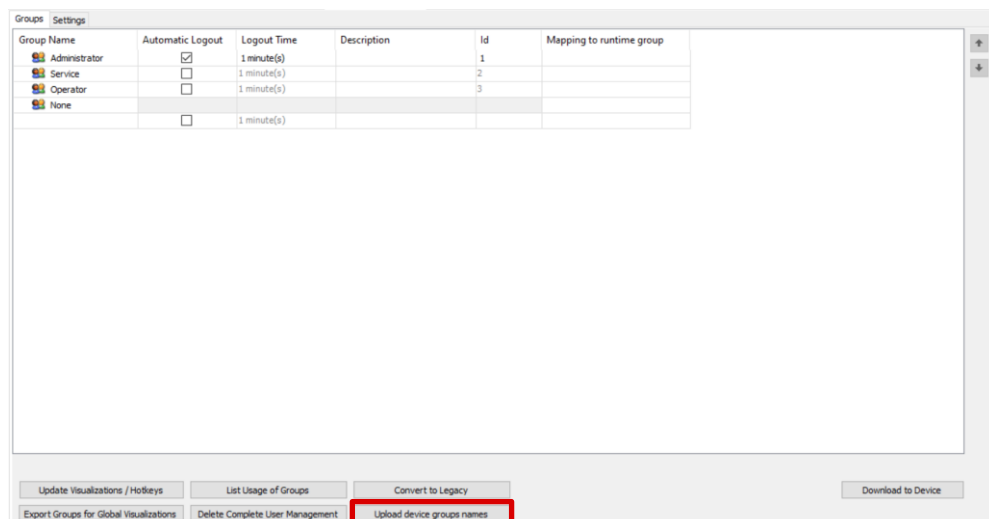
3. Click “Create Runtime Based User Management with Default”

Group Name	Automatic Logout	Logout Time	Description	Id	Mapping to runtime group
Administrator	<input checked="" type="checkbox"/>	1 minute(s)		1	
Service	<input type="checkbox"/>	1 minute(s)		2	
Operator	<input type="checkbox"/>	1 minute(s)		3	
None	<input type="checkbox"/>	1 minute(s)			








4. Go to Settings and choose “Allow decision on every download”.










5. Go to Groups and choose “Upload device groups names”. To do this you must be connected to the PLC



- Match the users under “Mapping to runtime group” to the Group Name

Groups Settings					
Group Name	Automatic Logout	Logout Time	Description	Id	Mapping to runtime group
 Administrator	<input checked="" type="checkbox"/>	1 minute(s)		1	 Administrator
 Service	<input type="checkbox"/>	1 minute(s)		2	 Service
 Operator	<input type="checkbox"/>	1 minute(s)		3	 OPCUA_1
 None	<input type="checkbox"/>	1 minute(s)			

- Choose “Download to Device”

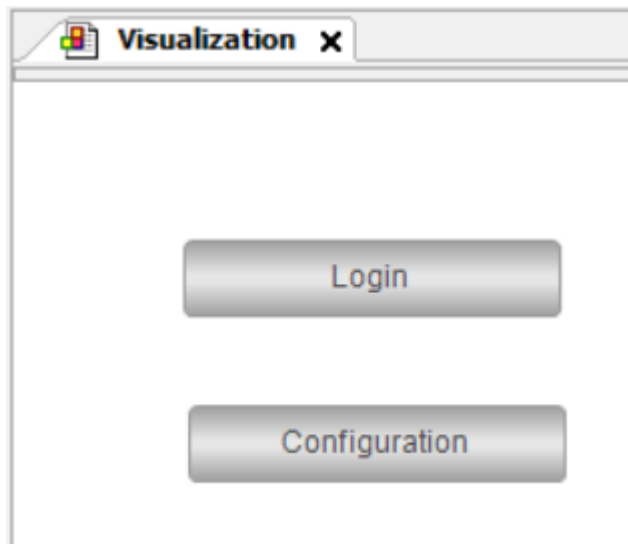
Groups Settings					
Group Name	Automatic Logout	Logout Time	Description	Id	Mapping to runtime group
 Administrator	<input checked="" type="checkbox"/>	1 minute(s)		1	 Administrator
 Service	<input type="checkbox"/>	1 minute(s)		2	 Service
 Operator	<input type="checkbox"/>	1 minute(s)		3	 OPCUA_1
 None	<input type="checkbox"/>	1 minute(s)			

Update Visualizations / Hotkeys
List Usage of Groups
Convert to Legacy

Export Groups for Global Visualizations
Delete Complete User Management
Upload device groups names

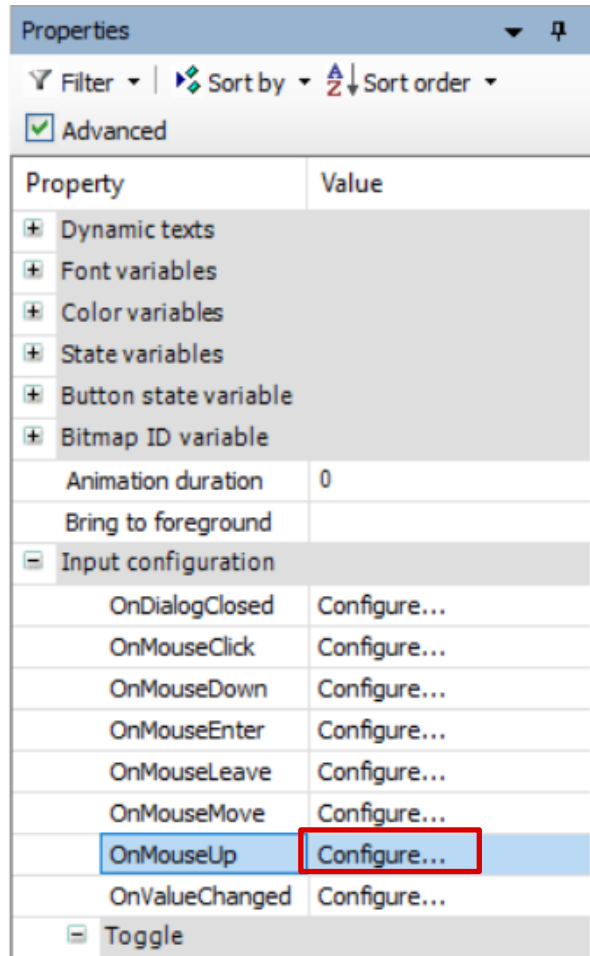
[Download to Device](#)

- Use the Visualization and for Login use a Button to Login at Start Page

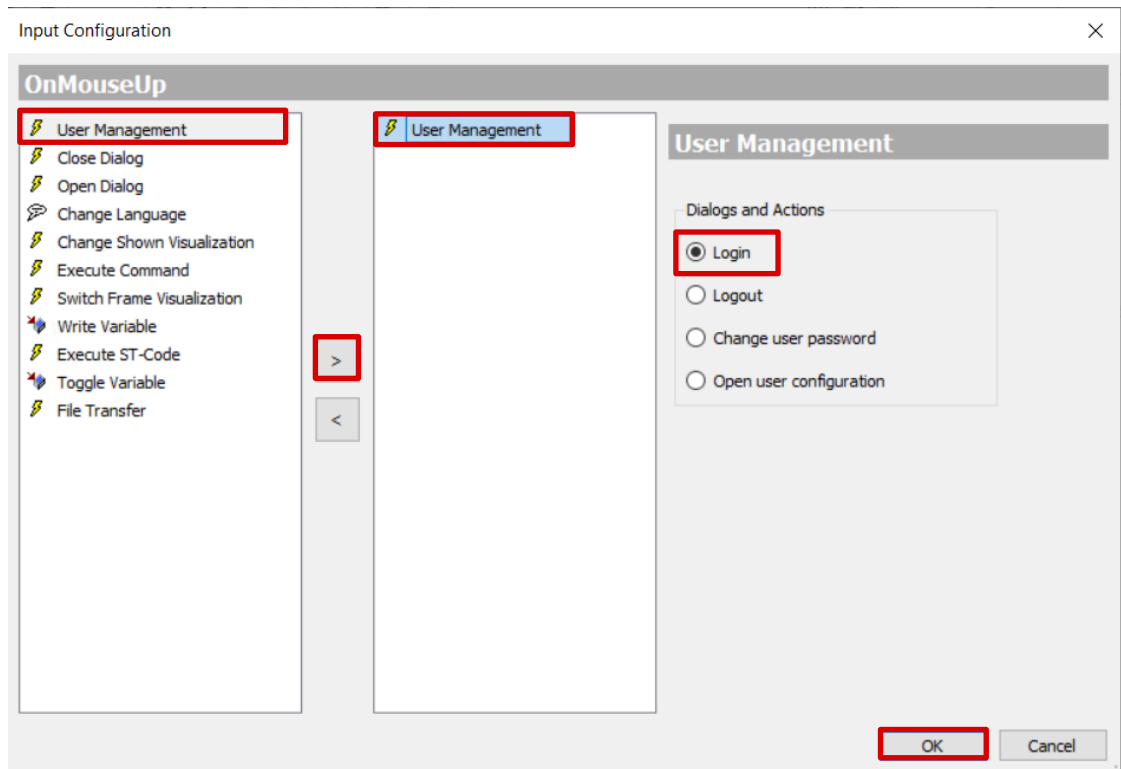




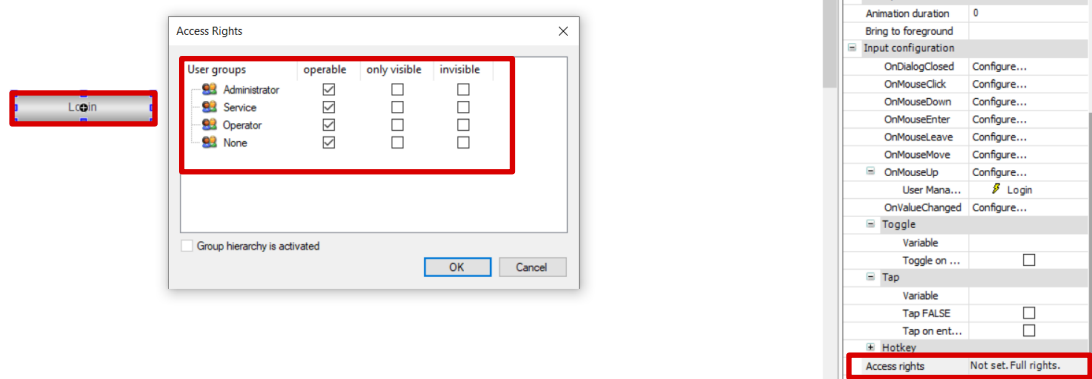
## 9. Configure “Inputconfiguration”



## 10. Select “User Management” and choose the Action for example Login and then click OK



11. Now each Element in the Visualization can be assigned to a dedicated User Group



12. Now only groups, which have checked “operable” can execute the action.  
Groups with “only visible” can just see the button but not click it.  
Groups with “invisible” can not see the element at all.

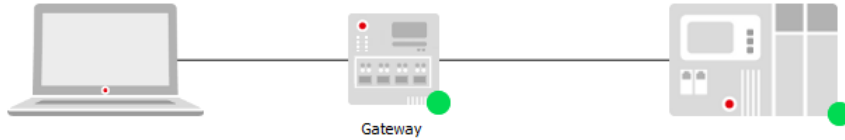


Note: To see the web-visualization it is mandatory to be logged in as authorized user. It's not possible to have an anonymous user who is able to see the visualization. In case an anonymous login is required the legacy visualization user management has to be used as of today.

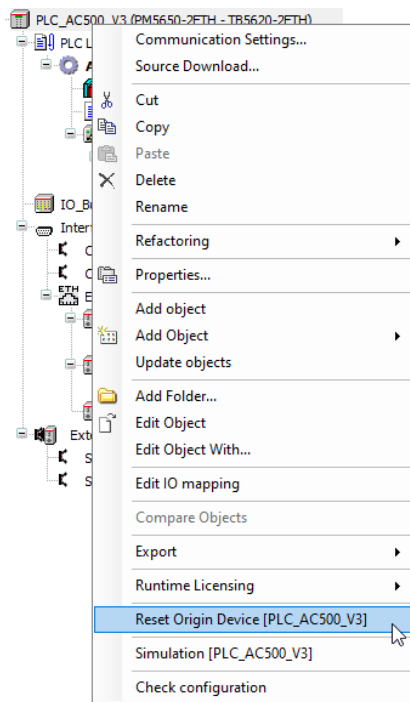
## 4.4 Delete Device user Management

In case the device user management should be deleted from the PLC a reset original device must be performed.

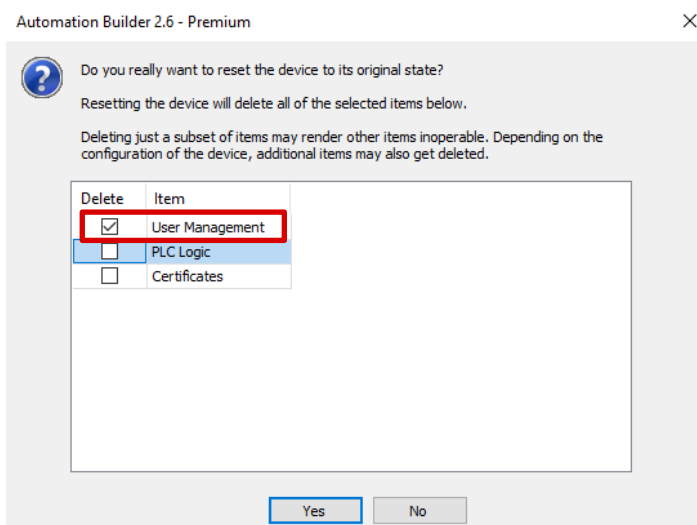
1. Connect to the device and login with administrator account



2. Right click the PLC node and select Reset Origin Device



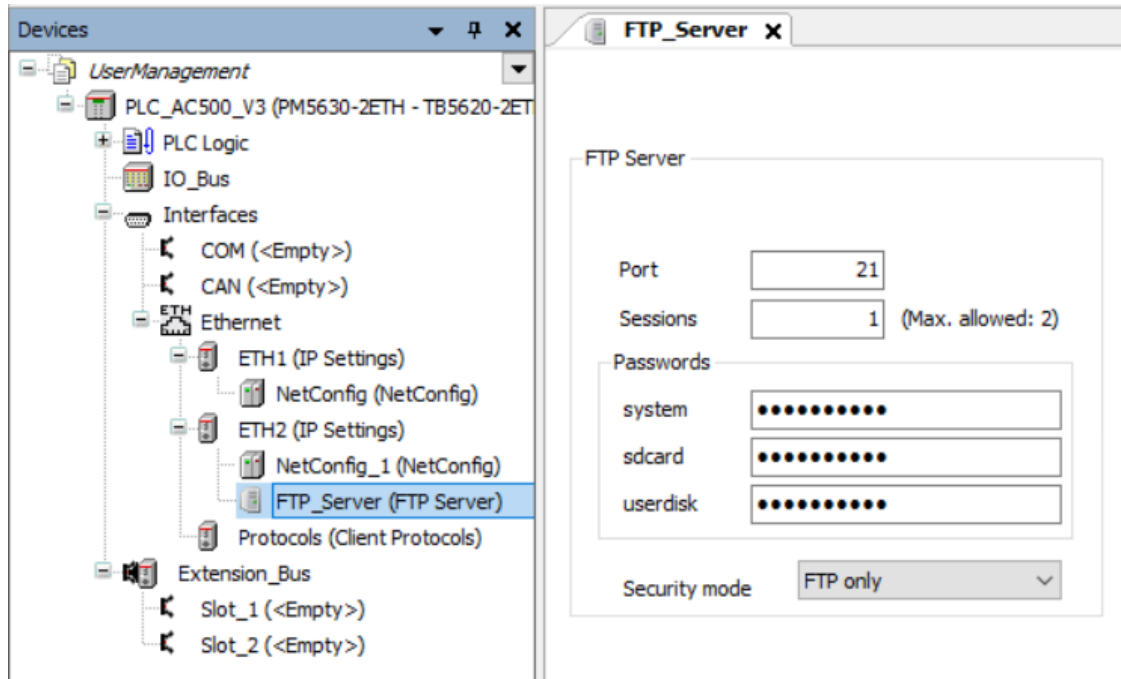
3. Make sure the User Management Checkbox is selected and confirm with Yes



4. The PLC will reboot automatically. Afterwards the device settings (e.g. IP address) are reset and the user management is removed. Also the boot application or certificates can be removed

## 5 User Management for FTP Server

Adding a FTP Server to one of the Ethernet Interfaces gives a FTP Client the opportunity to have access to different directories of the AC500 V3 with different passwords.



These passwords for the FTP Server access are part of the project itself and not of the PLC. When downloading a different project, the FTP access will be gone/ changed pending on the running program.

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