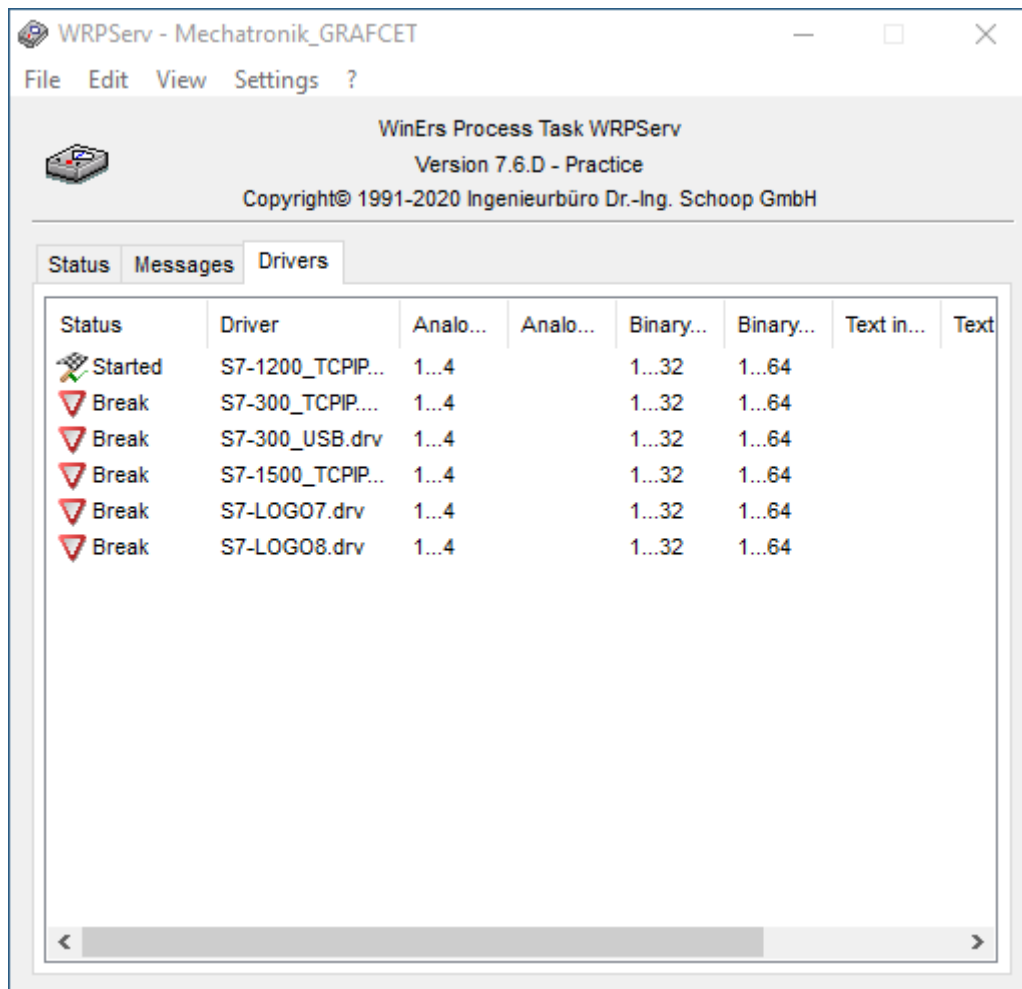


# CONFIGURATION OF SIEMENS-PLCS AND OPC IN WINERS-DIDACTIC-PROGRAMS



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### **N.B.:**

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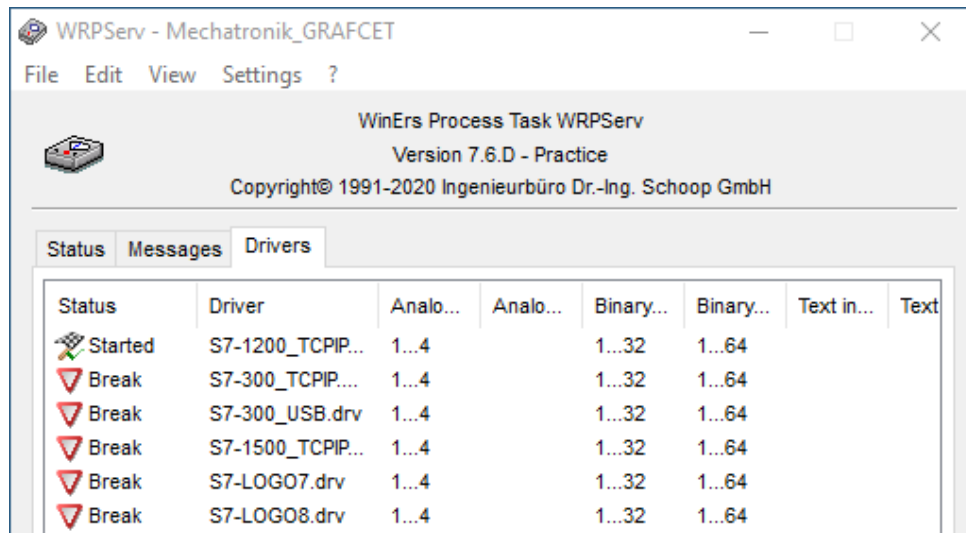
## 1 PLC-CONFIGURATION

### 1.1 CONFIGURATION OF S7-1200

#### 1.1.1 CONFIGURATION OF S7-1200 DRIVER IN WRPSERV

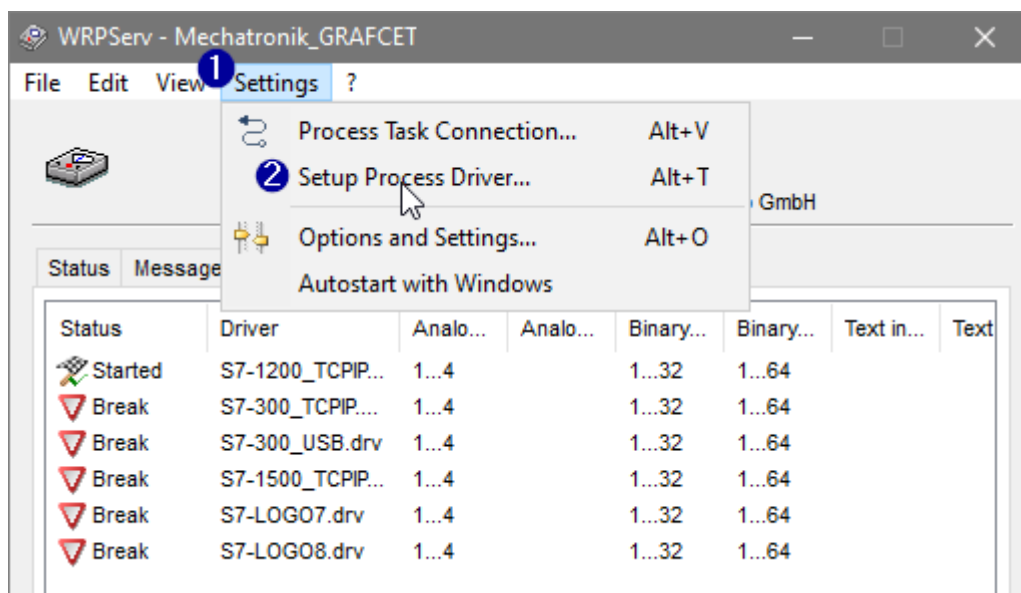
When the software is delivered, the IP address of the PLC is set to 192.168.0.1. You can change the IP address and the assignment of the input and output signals.

To do this, you have to bring the program WRPServ (WinErs-Server) into the foreground.

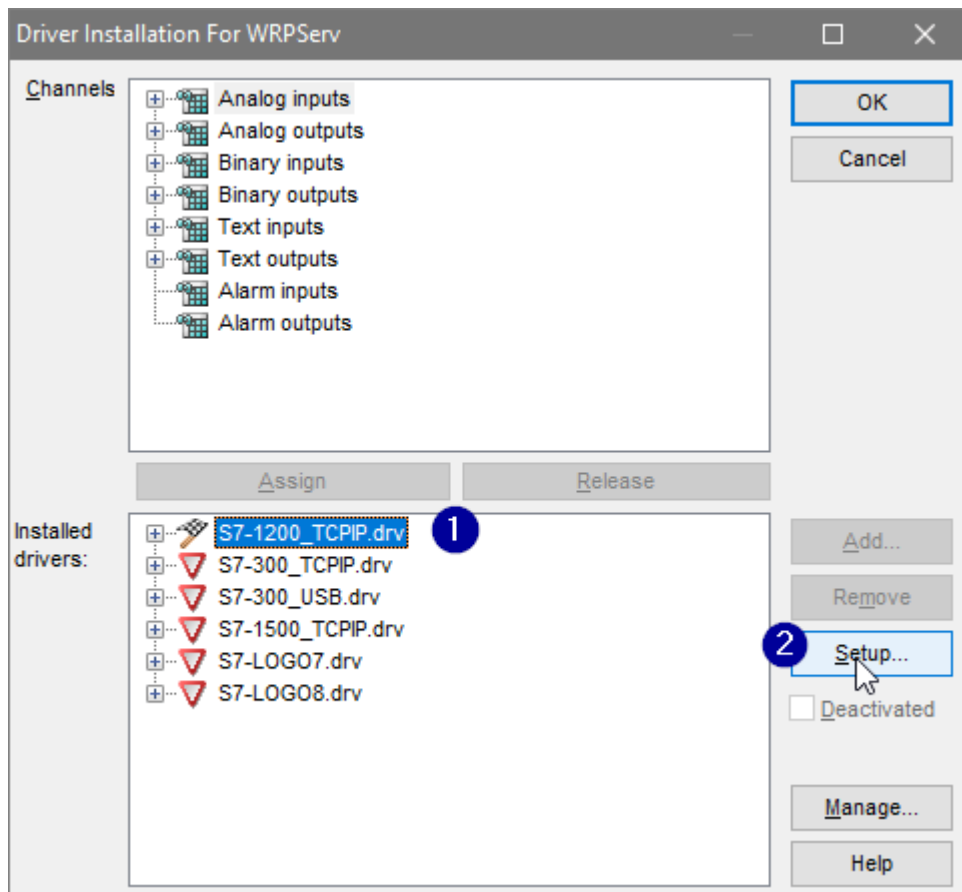


To modify the driver configuration, proceed as follows:

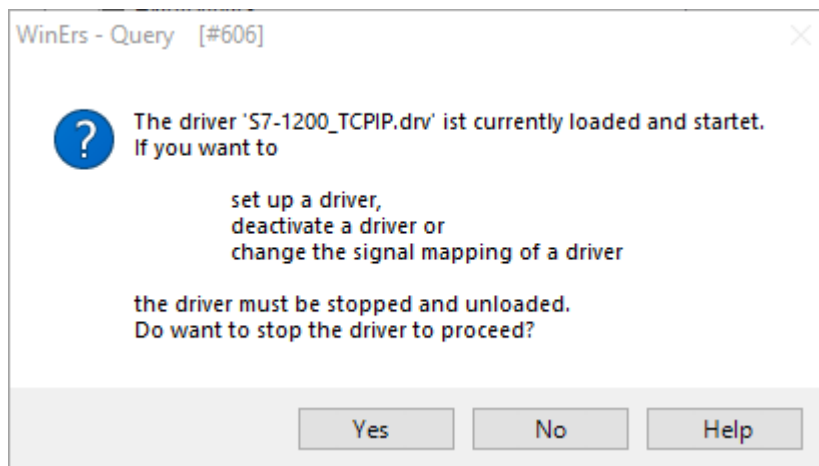
1. Click menu item *Settings* (1) and select *Setup Process Driver...* (2).



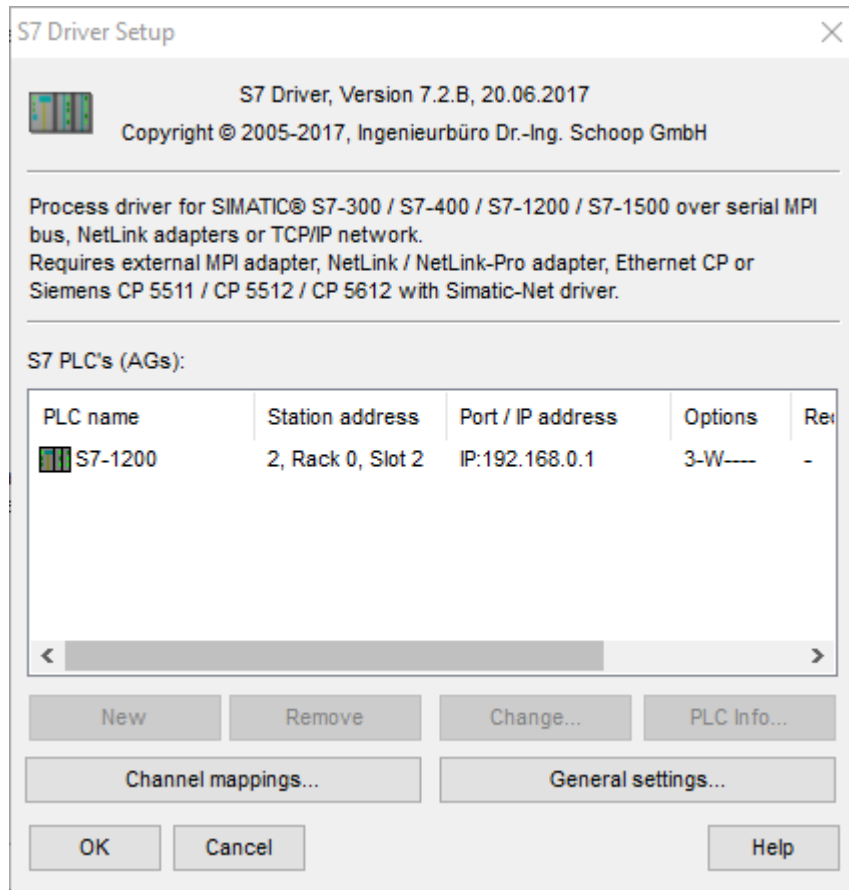
2. Select S7-1200\_TCPIP.drv from *Installed drivers* (1) and click *Setup...* (2).



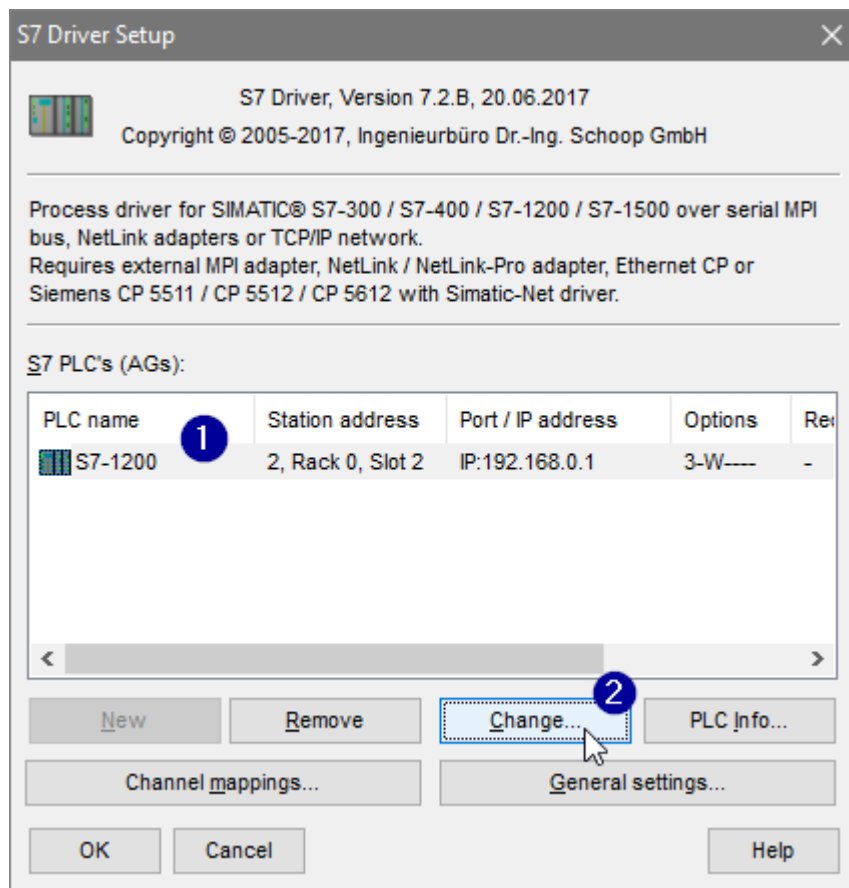
3. Acknowledge the following WinErs-Query with Yes



The following setup dialog will open:



4. Select the PLC, you would like to modify, in this case S7-1200 (1) and click Change... (2).



5. The PLC (AG) properties dialog will open

PLC (AG) Properties

PLC name (AG name): S7-1200

Transport: S7-1200 / TCP/IP

Station address (PLC address): 2 Rack: 0 Slot: 2

IP address: 192.168.0.1

Serial port:

Serial baudrate: 115200

Options:

☒ Permit writing to PLC ☐ Synchronize PLC clock.

☐ Disable PLC ☐ Allow single bit writes.

☐ PLC requires password:

Idle time after queries: 0 ms

OK Cancel Redundancy... Help

Make the desired adjustments (IP address, password, time synchronisation, etc.)

N.B.: The time synchronisation of S7-1200 and S7-1500 PLCs is not supported.

6. Store the modifications by clicking *OK*.

### 1.1.2 CONFIGURATION OF S7-1200 AND S7-1500 IN TIA-PORTAL

To enable the S7 driver to access a CPU of the S7-1500 or S7-1200 series (from firmware V4), the option *Allow access via PUT/GET communication by remote partner (PLC, HMI, OPC..)* must be selected in the hardware configuration of the CPU.

This option can be found in the CPU properties of the *Siemens TIA Portal* within the *General* tab and the *Protection* section.

The highest protection level that can be set is HMI access. PG accesses can be protected by a password.

**Schutz**

Zugriffsstufe für die PLC auswählen.

Zugriffsstufe	Zugriff			Zugriffserlaubnis	
	HMI	Lesen	Schreiben	Passwort	Bestätigung
<input type="radio"/> Vollzugriff (kein Schutz)	✓	✓	✓	*****	*****
<input type="radio"/> Lesezugriff	✓	✓			
<input checked="" type="radio"/> HM-Zugriff	✓				
<input type="radio"/> Kein Zugriff (kompletter Schutz)					

**HMI Zugriff:**  
Anwender des TIA-Portals werden keinen Zugriff auf Funktionen erhalten.  
HMI-Applikationen können auf alle Funktionen zugreifen.

**Erforderliches Passwort:**  
Für zusätzlichen Lese-/Schreibzugriff muss der Anwender des TIA-Portals das Passwort für "Vollzugriff" eingeben.

**Optionales Passwort:**  
Für zusätzlichen Zugriff auf alle Funktionen kann ein Passwort für "Lesezugriff" definiert werden.

**Verbindungsmechanismen**

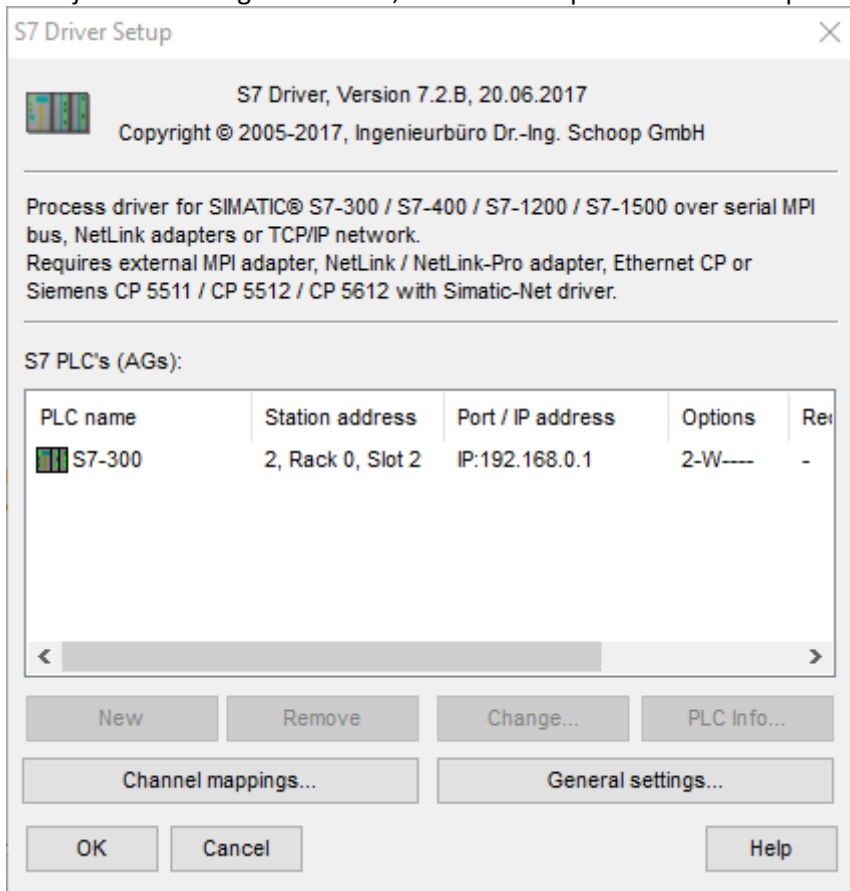
☒ Zugriff über PUT/GET Kommunikation durch entfernten Partner (PLC, HMI, OPC, ...) erlauben

For access to data blocks, the data block in S7-1200 or S7-1500 must not be configured as *Symbolically addressable*, but must allow free addressing. Otherwise, an access error will be caused by the S7 driver.

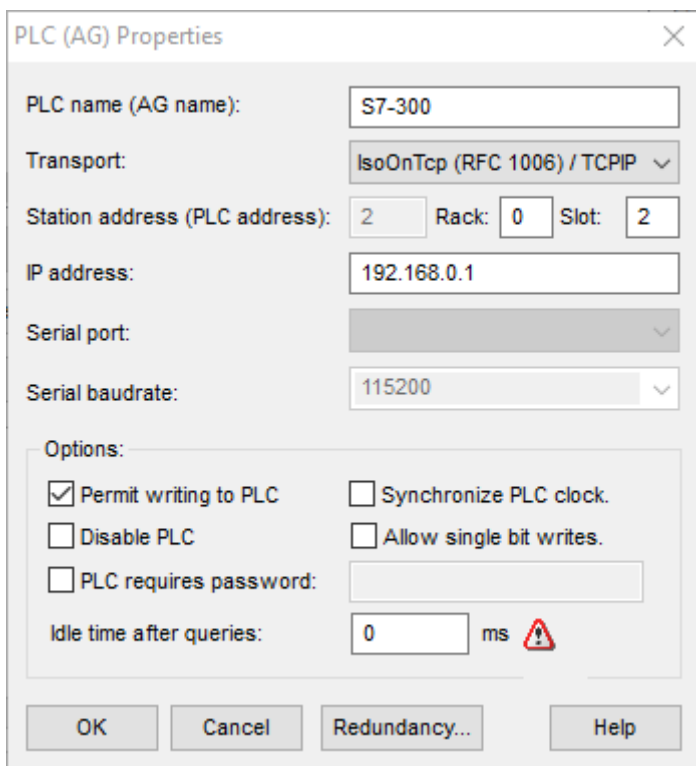
For further information, please refer to the online help of the S7 driver.

## 1.2 CONFIGURATION OF S7-300 (TCPIP) DRIVER IN WRPSERV

To adjust the settings for S7-300, follow the steps 1 to 7 from chapter 1.1.1.



In addition to the IP address, the correct rack and slot addresses must also be specified. Please also refer to the online help of the S7 driver.

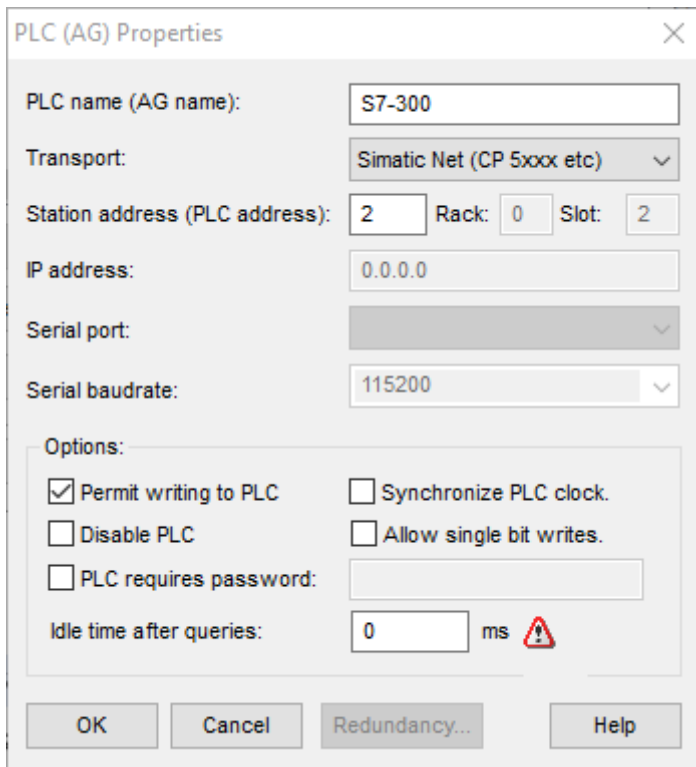
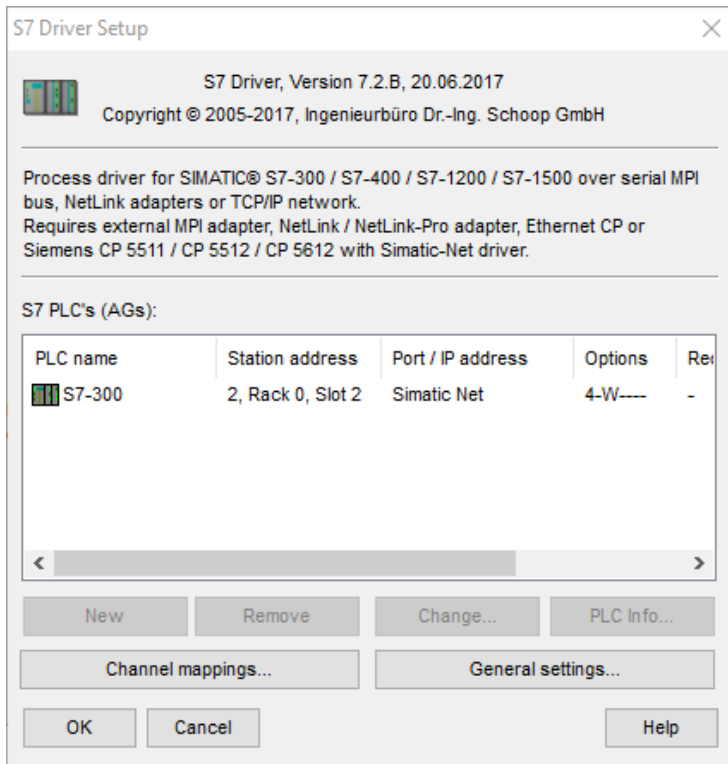




### 1.3 CONFIGURATION OF S7-300 (USB) DRIVER IN WRPSERV

To adjust the settings for S7-300 (USB), follow the steps 1 to 7 from chapter 1.1.1.

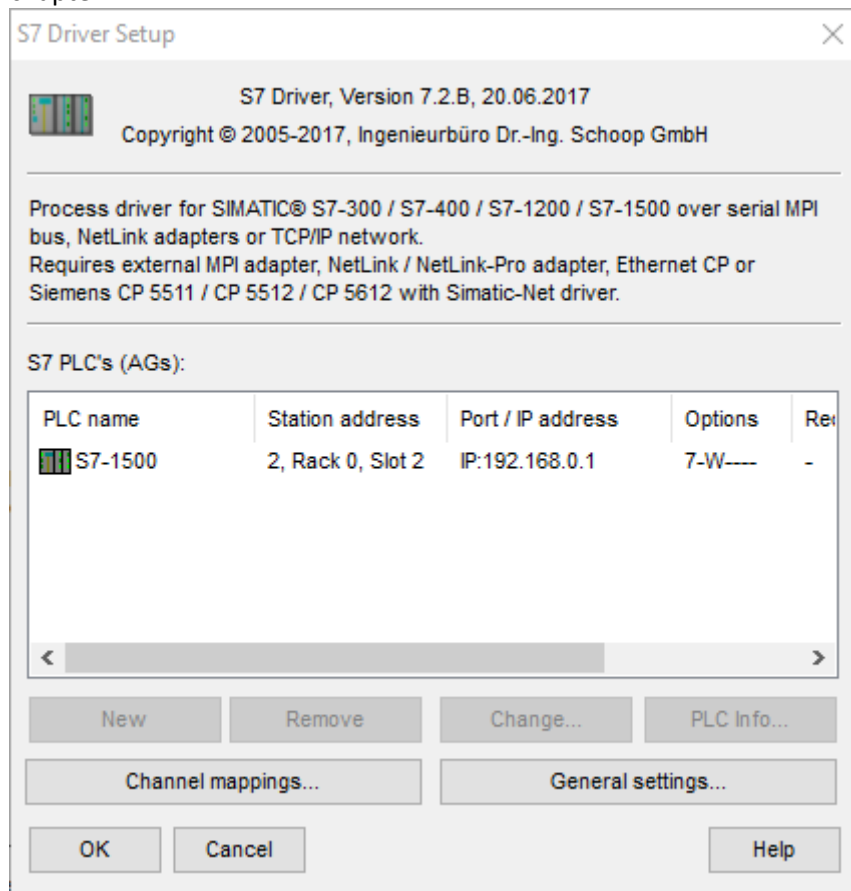
The *SimaticNet* driver has to be installed, this is the case if you have installed Simatic STEP7. The communication path is defined via the Simatic program *Set PG/PC Interface* (S7EPATSX.EXE in the Windows/System32 directory).



For USB connection, a valid station address has to be set. The standard setting is "2".

## 1.4 CONFIGURATION OF S7-1500 DRIVER IN WRPSERV

To adjust the settings for S7-1500, follow the steps 1 to 7 from chapter 1.1.1. Please also observe the notes in chapter 1.1.2.




**S7 Driver Setup**

S7 Driver, Version 7.2.B, 20.06.2017  
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Process driver for SIMATIC® S7-300 / S7-400 / S7-1200 / S7-1500 over serial MPI bus, NetLink adapters or TCP/IP network.  
Requires external MPI adapter, NetLink / NetLink-Pro adapter, Ethernet CP or Siemens CP 5511 / CP 5512 / CP 5612 with Simatic-Net driver.

S7 PLC's (AGs):

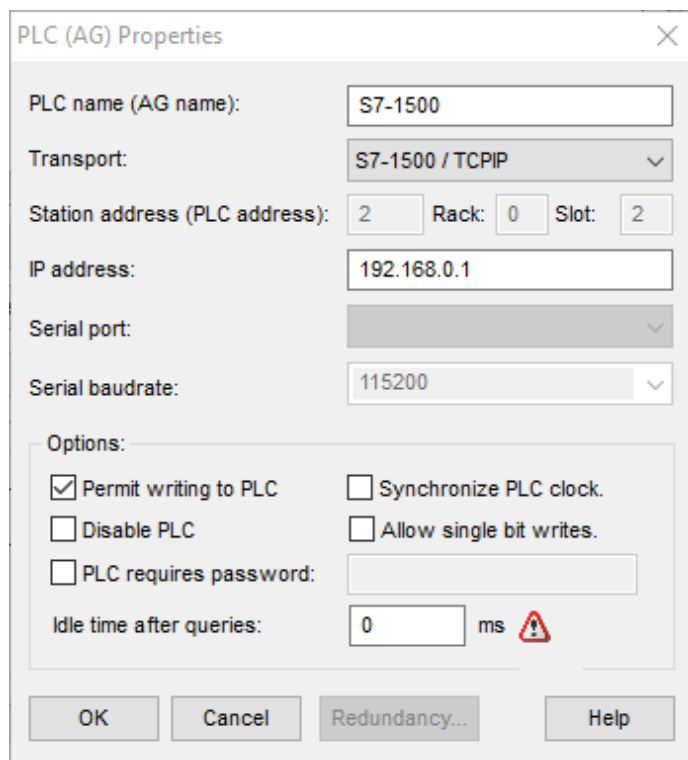
PLC name	Station address	Port / IP address	Options	Rev
 S7-1500	2, Rack 0, Slot 2	IP:192.168.0.1	7-W----	-

< [Progress Bar] >

New Remove Change... PLC Info...

Channel mappings... General settings...

OK Cancel Help



**PLC (AG) Properties**

PLC name (AG name): S7-1500

Transport: S7-1500 / TCP/IP

Station address (PLC address): 2 Rack: 0 Slot: 2

IP address: 192.168.0.1

Serial port:


Serial baudrate: 115200

Options:

☒ Permit writing to PLC ☐ Synchronize PLC clock.

☐ Disable PLC ☐ Allow single bit writes.

☐ PLC requires password:

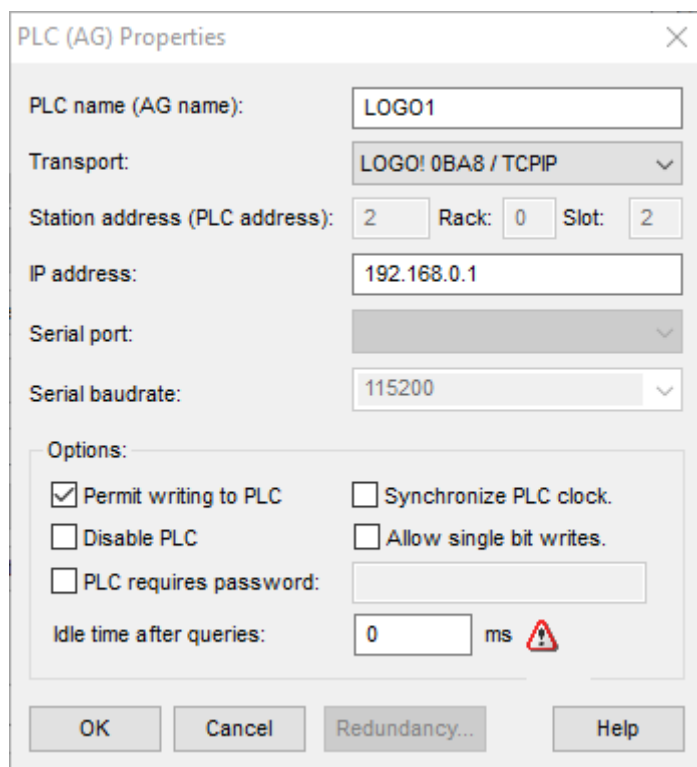
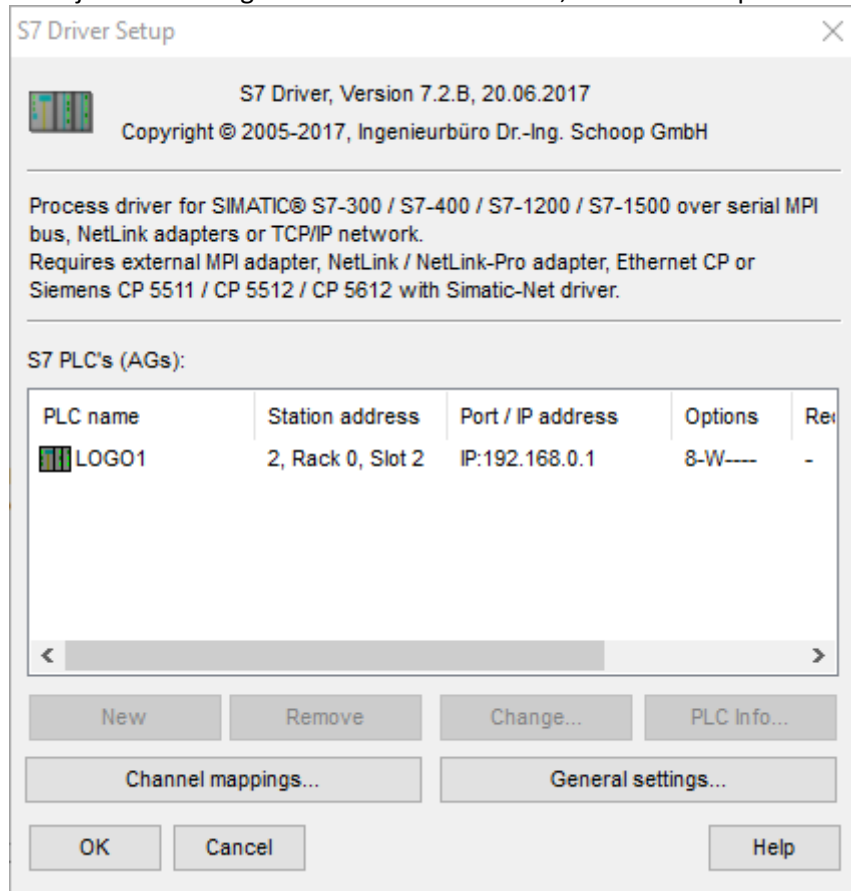
Idle time after queries: 0 ms 

OK Cancel Redundancy... Help

## 1.5 CONFIGURATION OF LOGO!7 AND LOGO!8

### 1.5.1 CONFIGURATION OF LOGO! DRIVER IN WRPSERV

To adjust the settings for LOGO!7 and LOGO!8, follow the steps 1 to 7 from chapter 1.1.1.

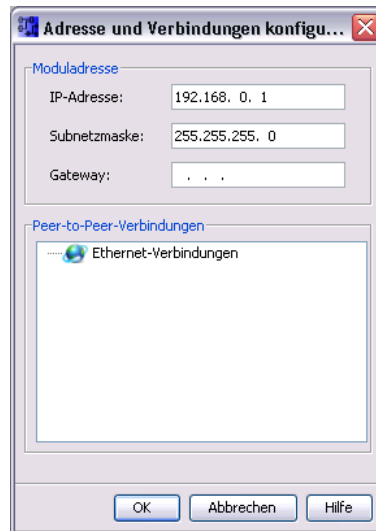


Set the correct IP address and select either LOGO! 0BA7 or LOGO! 0BA8 under *Transport*.

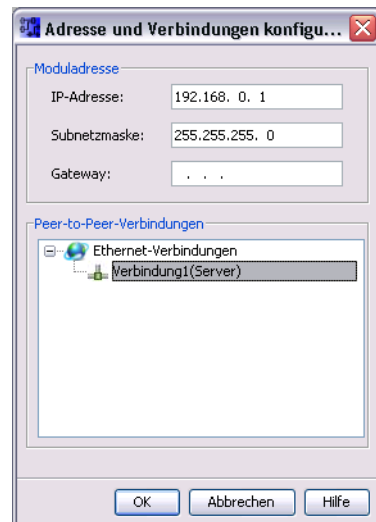
### 1.5.2 CONFIGURATION OF LOGO!7 AND LOGO!8 IN LOGO! SOFT

To enable the S7 driver to communicate with a LOGO! PLC, a network connection must be set up in the LOGO! The LOGO! software is used for this purpose. Proceed as follows:

1. Start *LOGO! Soft* program and select the menu *Ethernet connections* under *Tools*.



2. Enter the IP address and subnet mask in the *Configure Address and Connections* dialog.
3. Right-click *Ethernet connections* and select *Add server connection* from the shortcut menu.



4. Double-click the new connection item to configure the server connection *Verbindung1*.

Activate the following options:

- Server connection: responds to connection requests from decentralized clients
- Connect with an Operator Panel (OP)
- Accept all connection requests

Make sure TSAP of client is set to *02.00*.

**Verbindung1**

☐ Client-Verbindung: fordert Datenübertragung zwischen lokalem PC und dezentraler SPS an

☒ Server-Verbindung: antwortet auf Verbindungsanforderungen dezentraler Clients

**Eigenschaften lokaler Verbindungen (Server)**

TSAP

☒ Mit Operator Panel (OP) verbinden

☒ Alle Verbindungsanforderungen akzeptieren.

Nur diese Verbindung:

**Dezentrale Eigenschaften (Client)**

TSAP

**Keep Alive (Verbindungskontrolle)**

☐ Keep-Alive-Funktion für diese Verbindung aktivieren

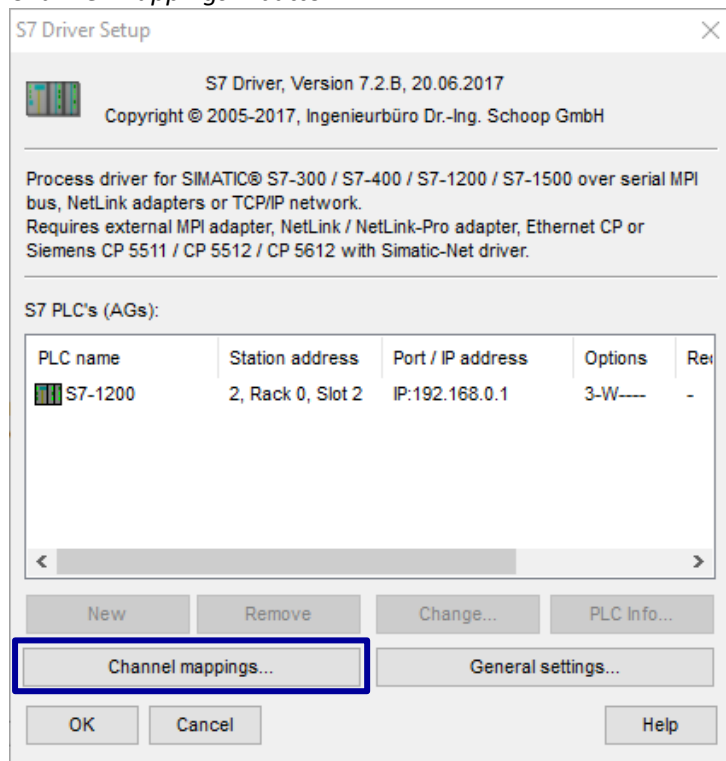
Keep-Alive-Intervall:  Sekunden

OK Abbrechen Hilfe

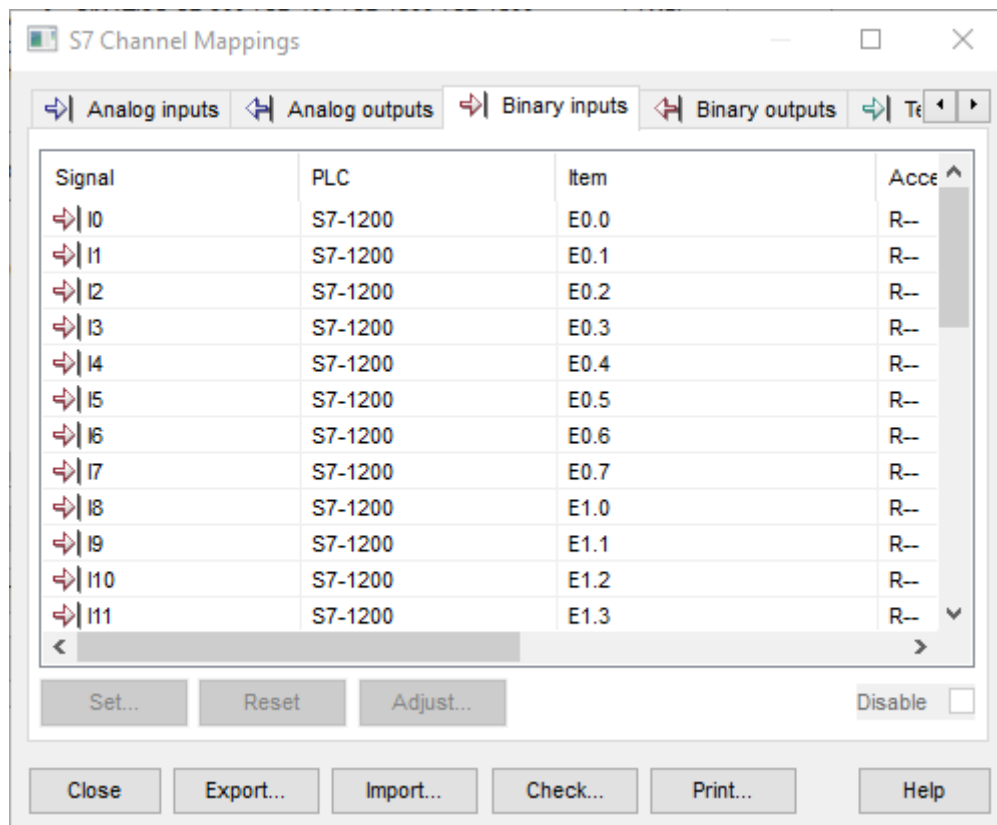
5. Confirm all dialogs with *OK*.

## 1.1 ADJUST CHANNEL MAPPING FOR PLC

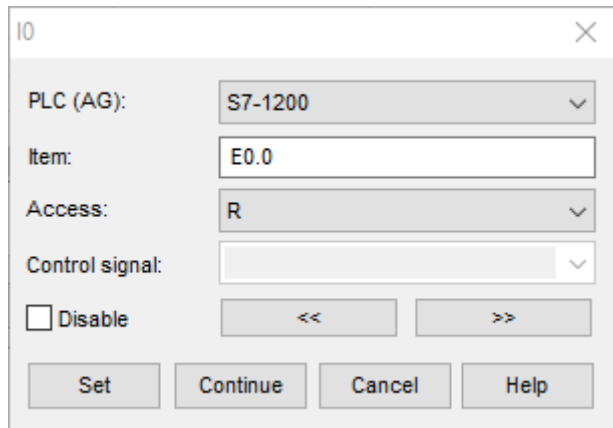
If necessary, you can also modify channel mapping. Follow the steps 1 to 3 from chapter 1.1.1, then click *Channel mappings...* button.



Modify the channel mapping by double-clicking a signal:



The following dialog appears in where you can adjust the item (signal address):

A screenshot of a software dialog box titled "IO" with a close button (X) in the top right corner. The dialog contains several input fields and buttons. The "PLC (AG):" field is a dropdown menu showing "S7-1200". The "Item:" field is a text box containing "E0.0". The "Access:" field is a dropdown menu showing "R". The "Control signal:" field is a dropdown menu that is currently empty. Below these fields is a checkbox labeled "Disable" which is unchecked. To the right of the checkbox are two buttons: "<<" and ">>". At the bottom of the dialog are four buttons: "Set", "Continue", "Cancel", and "Help".

IO

PLC (AG): S7-1200

Item: E0.0

Access: R

Control signal:

☐ Disable << >>

Set Continue Cancel Help

Exit this dialog by clicking *Set*.

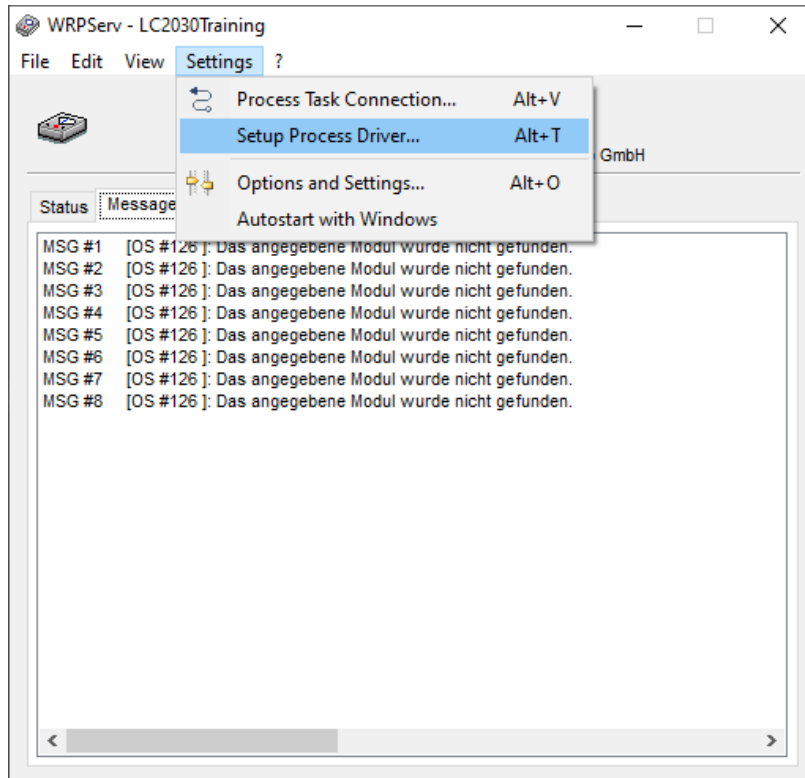
**Note:**

Please check the correct assignment of formats. For further information click „Help“.

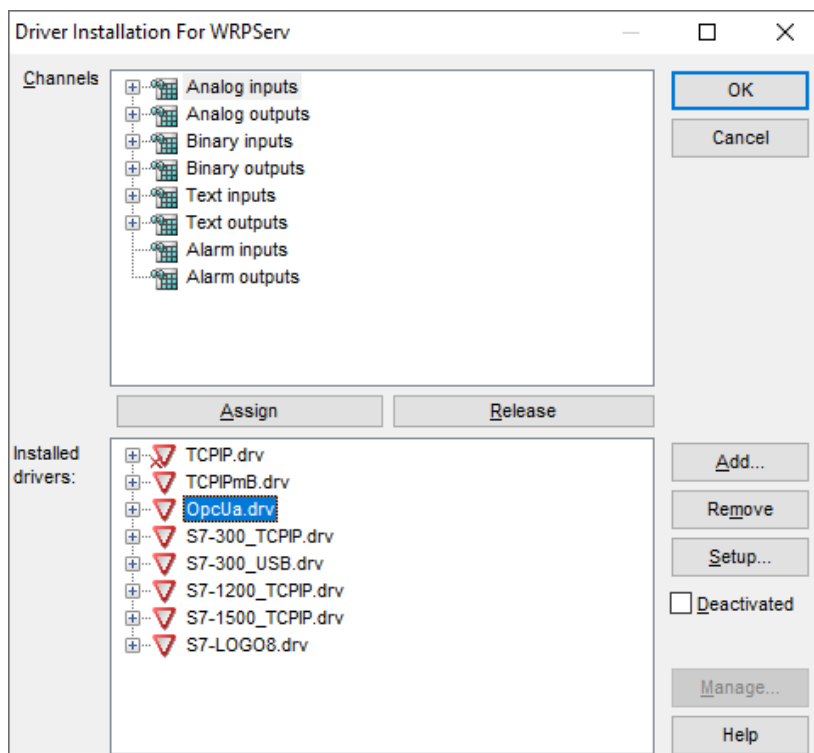
## 1 OPC CONFIGURATION

### 1.1 SETIP FOR OPC-SERVER

1. Bring the program WRPServ (WinErs-Server) into the foreground. Click menu item *Settings* and select *Setup Process Driver*.

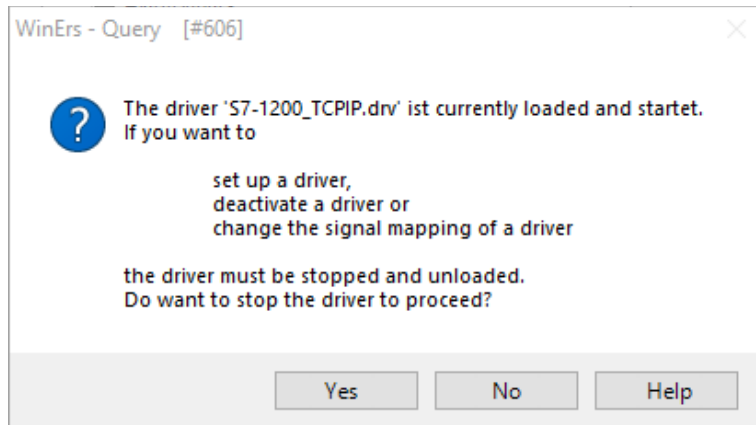


Select the driver „OpcUa.drv“ and click setup.

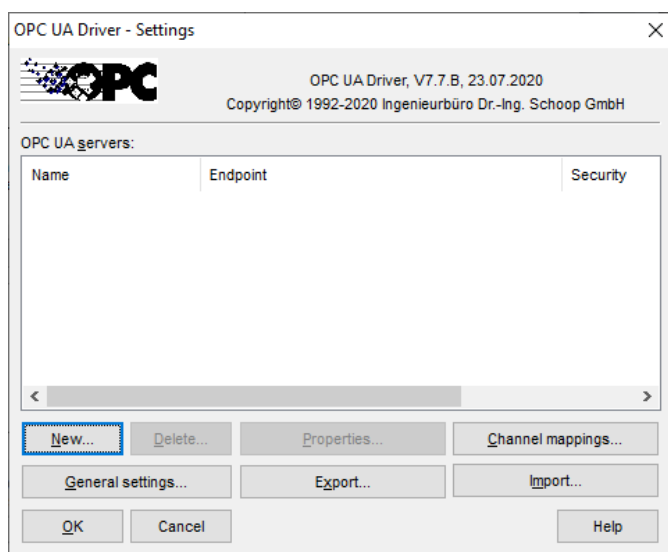




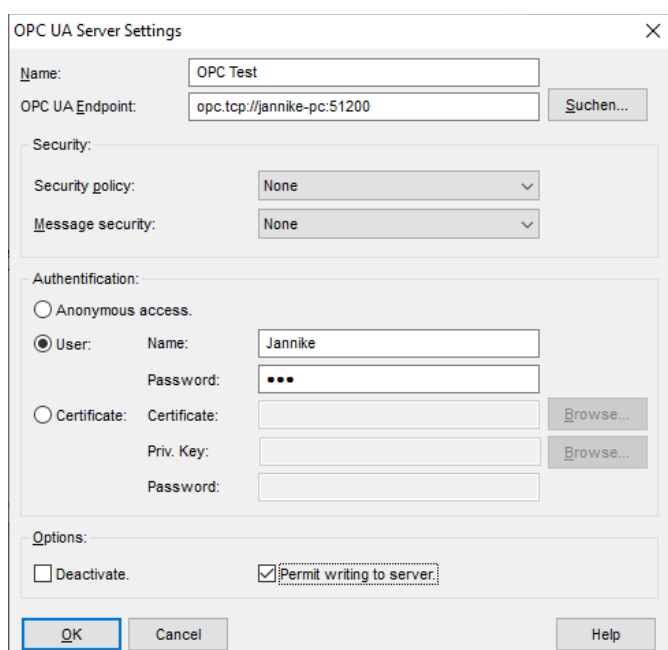
Acknowledge the following WinErs-Query with Yes



Click „New to add a new OPC UA Server.

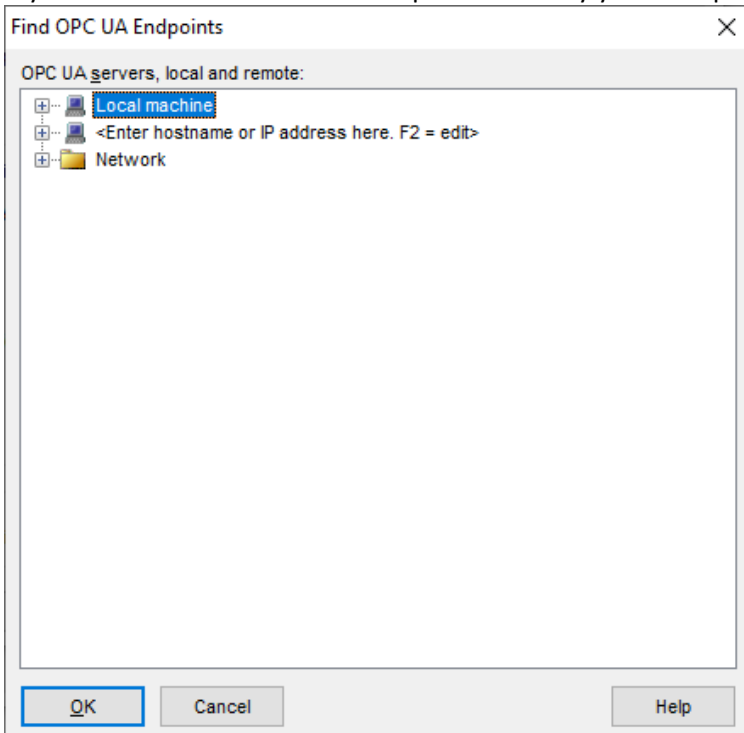


A new window opens, in which you have to enter the setup according to your server.



Enter a unique name and the OPC UA Endpoint of the OPC-Server with which you want to connect. Furthermore the authentication data is needed. To be able to write data on to the device check „permit writing to the server“.

If you don't want to enter the endpoint manually you can open the following window using "Search".



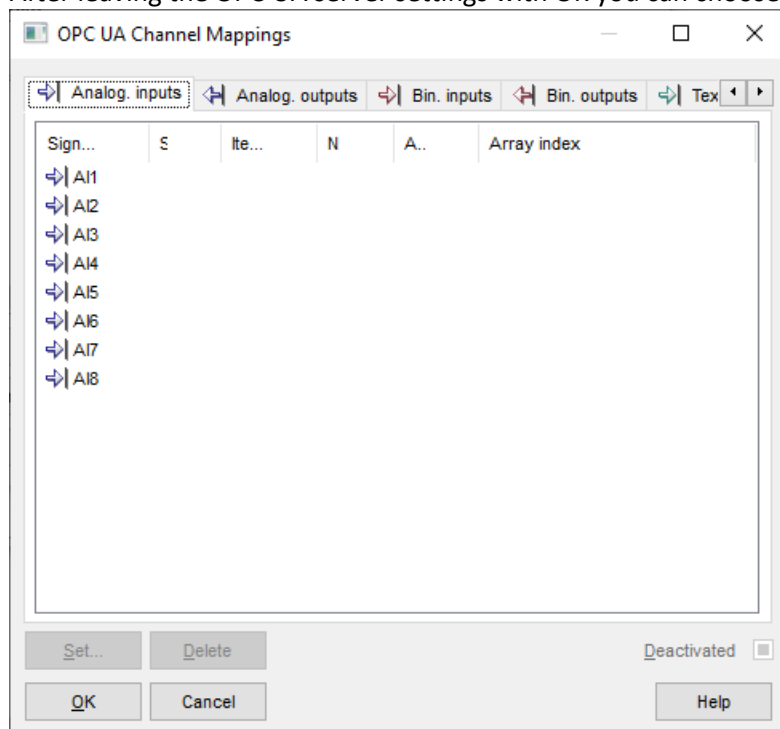
**Note:**

If a local OPC UA Server cannot be found enter the IP-address under <Enter hostname or IP address here. F2 = edit>. Then mark the found server and quit with OK.

If the PC-name is entered in the endpoint, please replace name by IP address.

## 1.2 ADJUST CHANNEL MAPPING FOR OPC-SERVER

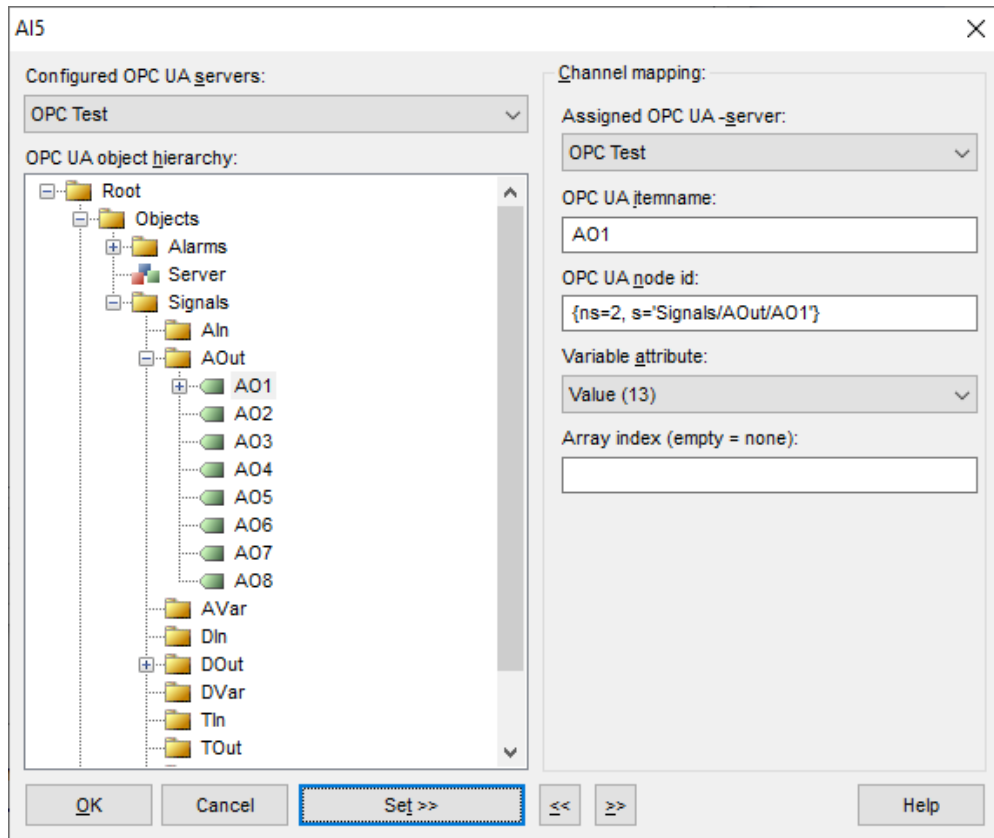
After leaving the OPC UA server settings with OK you can choose „Channel mappings“.



Here every signal has to be mapped to the device. Therefore double-click a signal to open following window. Select you previously configured OPC UA server and it will be opened in the object hierarchy. Select the according signal or object and click „Set“.

**Note:**

If the server cannot be found or you get an error, please replace name by IP address in the endpoint.



The OPC UA node ID will automatically be assigned.

**Note:**

All signals are read as float values. Please be aware of the correct signal assignment.