zenon
by COPA-DATA

zenon driver manual

S7 - Optimized communication to OPC UA

v.8.20

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1 Welcome to COPA-DATA help

ZENON VIDEO TUTORIALS

You can find practical examples for project configuration with zenon in our YouTube channel (https://www.copadata.com/tutorial_menu). The tutorials are grouped according to topics and give an initial insight into working with different zenon modules. All tutorials are available in English.

GENERAL HELP

If you cannot find any information you require in this help chapter or can think of anything that you would like added, please send an email to documentation@copadata.com.

PROJECT SUPPORT

You can receive support for any real project you may have from our customer service team, which you can contact via email at support@copadata.com.

LICENSES AND MODULES

If you find that you need other modules or licenses, our staff will be happy to help you. Email sales@copadata.com.

2 S7 - Optimized Communication

The instructions describe the necessary project configuration steps in order for zenon to achieve **optimized communication** with an existing S7-1500 station.

The following steps are necessary:

- Configure PC station in the TIA project (on page 5)
- Configure connection (on page 7)
- Configure Simatic PC station by import (on page 8)

- Set up the connection in zenon (on page 11)
- Optional: Set up password protection (on page 18)
- Optional: Redundant structure (on page 20)

REQUIREMENTS

The following is required for these instructions:

Siemens software:

- **TIA Portal (Step 7)** Version 13 SP1 or higher
- **SIMATIC NET Softnet-IE** Version 12 SP2 or higher lean

Siemens hardware:

- S7-1200 series CPU from version 4
  or
  S7-1500 series CPU

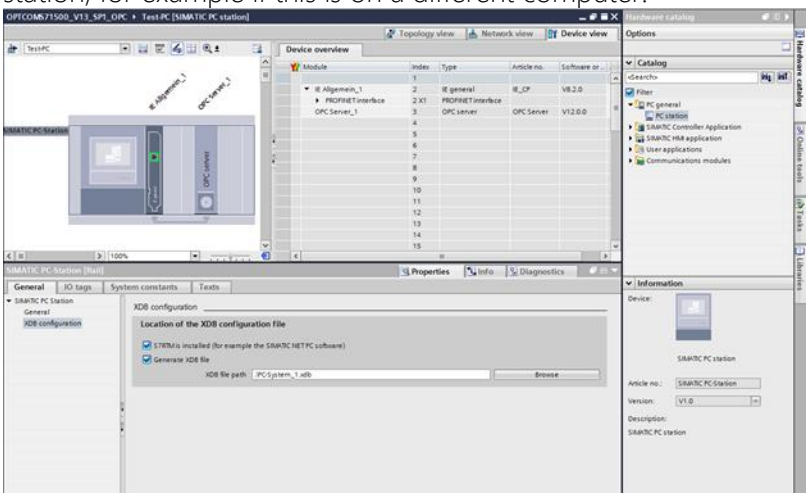
A complete PLC project should be present in the **TIA** portal. In this example, we are referring to an S7-1511.

3 Configure PC station in the TIA project

To add a PC station in the TIA project:

1. Add a PC station from the *Hardware catalog*.
2. Add an Ethernet card **IE_Allgemein** to **Index 2**.

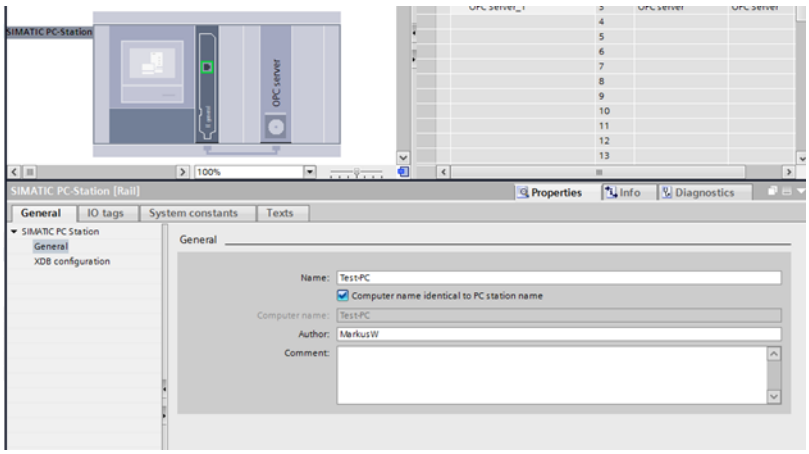
3. Add the OPC server to Index 3. Ensure that the version of the firmware matches the SIMATIC NET Sofnet-IE version.
   Caution: In order for optimized communication to be supported, the firmware version of the OPC server must be **V12.0.0** or higher.
4. You can, as an option, generate an XDB file. This makes it easier to set up the **Simatic** PC station, for example if this is on a different computer.



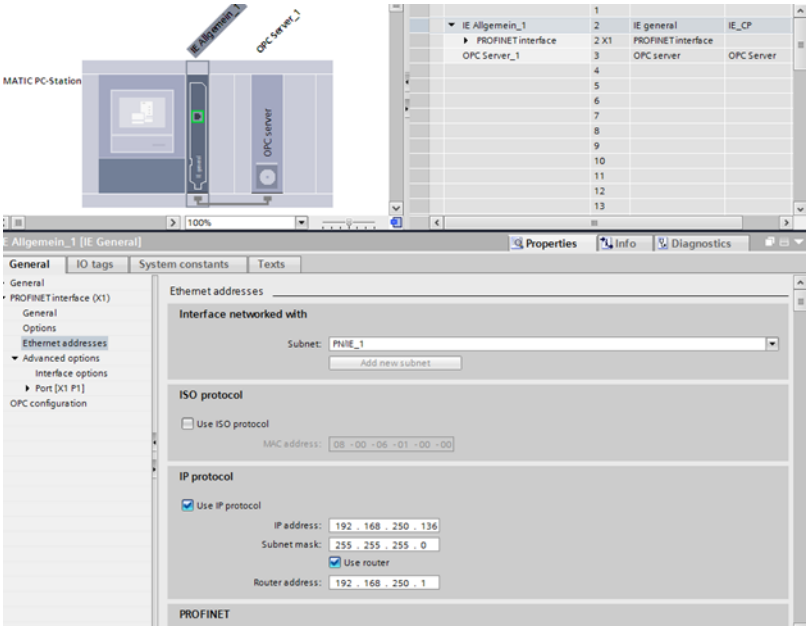
SETTING THE HARDWARE PARAMETERS

To set the hardware parameters:

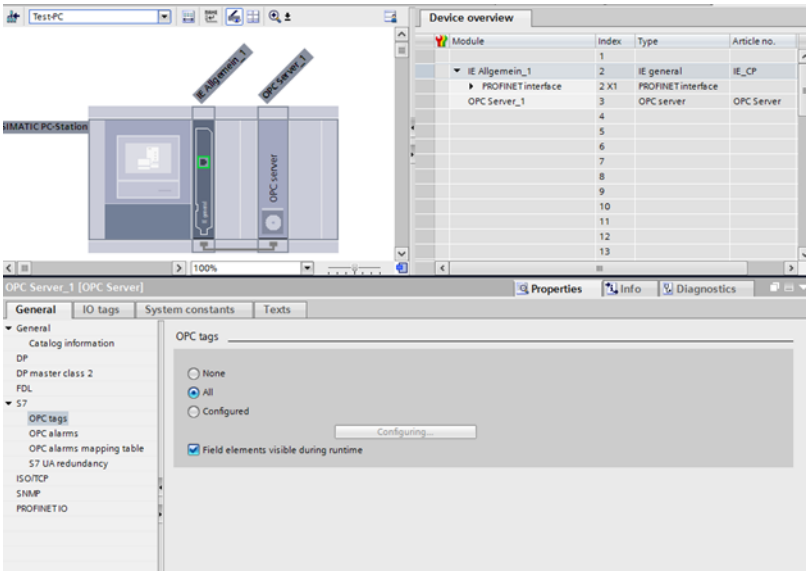
1. Enter the name of the PC station.
   Note: If the name is identical to the PC name, activate the **Computer Name Identical to PC station name** option.



2. Set the IP address of the network card.
   You can also configure information for a router.



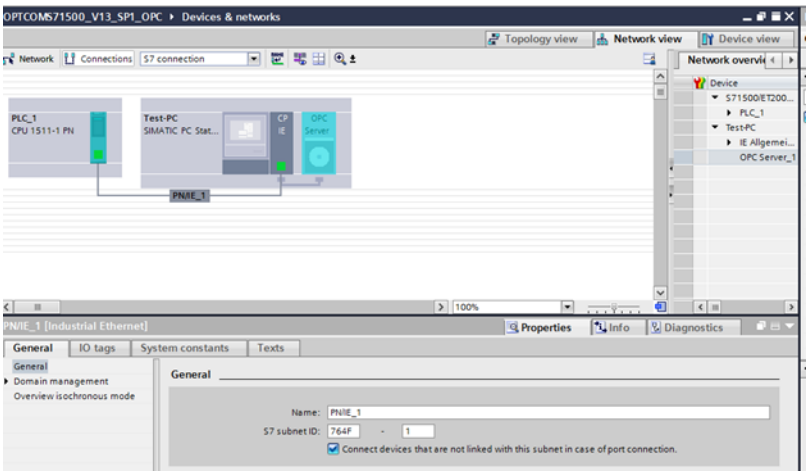
3. Configure the **OPC Tags**.
   The Tags can be selected individually and given write and read rights, or access to all tags can be activated.



4 Configure connection

The connections are configured in the TIA in the **Device & Network** overview:

1. Select an *S7 connection* as the connection type.
2. Use **Drag&Drop** to create a connection from the IE/PN interface to the OPC Server of the PC station.



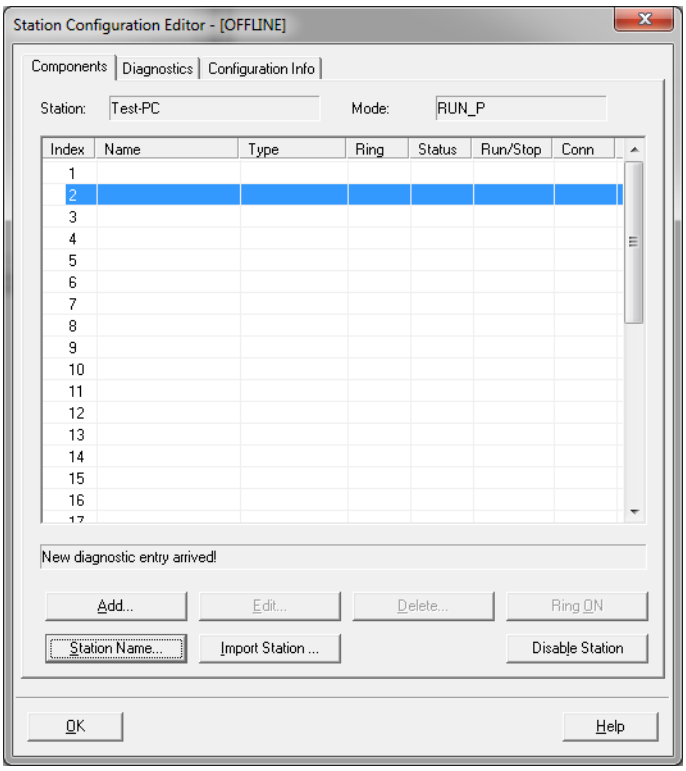
3. Compile the project.

   An **XDB** file is created in the definable subfolder of the project folder of the TIA project. The Simatic PC station can be configured by import with this file.

5 Configure Simatic PC station

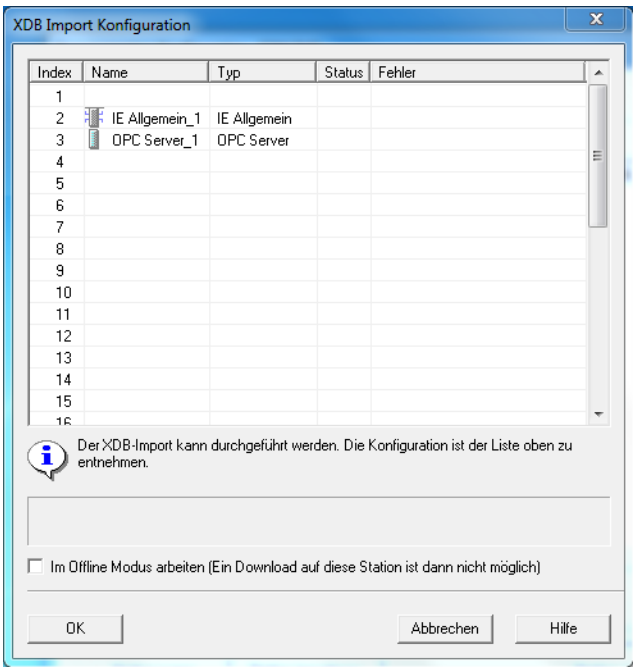
To configure the station by means of import:

1. Select, in the **Station Configuration Editor**, the **Import Station** interface.

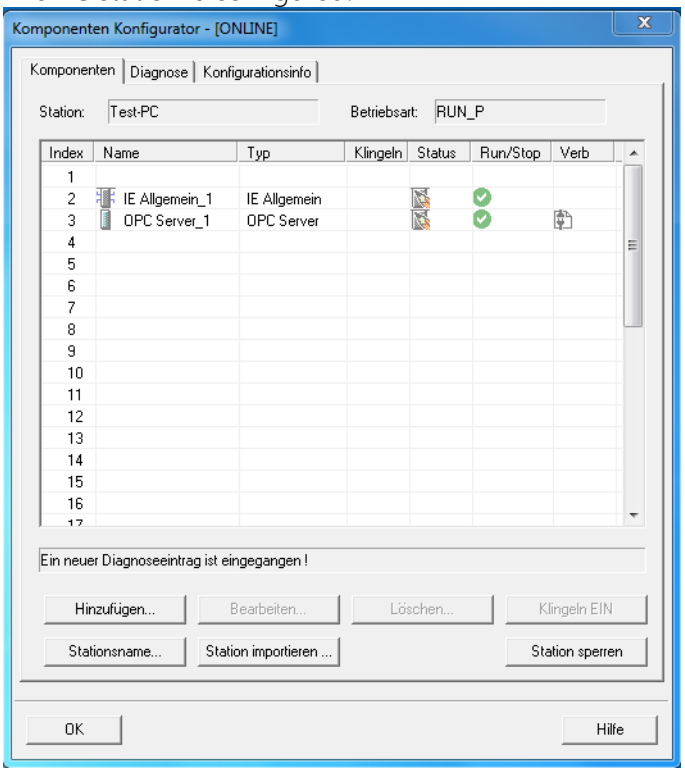


The IP address must match that of the station.

2. Accept the configuration by clicking on **OK**.



The PC station is configured.



Note: Alternatively, the PC station can also be configured online using the TIA portal.
Requirement: The station must be contactable.
The IE module (Index 2), for example, can thus be set up so that the station is available via Ethernet.
The station can then be downloaded using the download function in the TIA portal.

LOAD PROJECT CONFIGURATION INTO THE PLC

The connection configuration must now be loaded into the Simatic PLC:

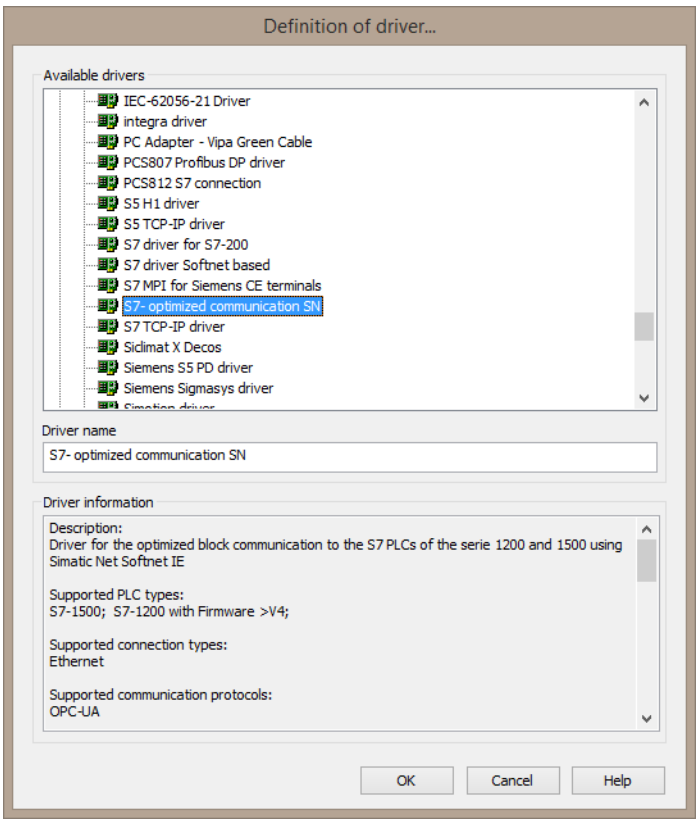
1. Load the compiled program onto the CPU of the Simatic PLC.
2. Follow the instructions of the TIA portal.
3. Restart the PLC if required.

> **Information**
>
> Changes to the database must also be transferred to the respective PC stations.

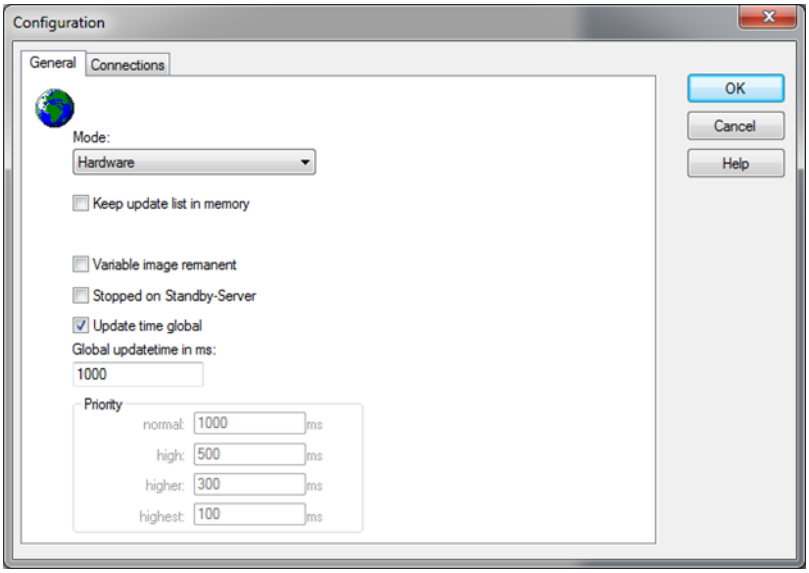
6 Set up the connection in zenon

To set up the connection in zenon:

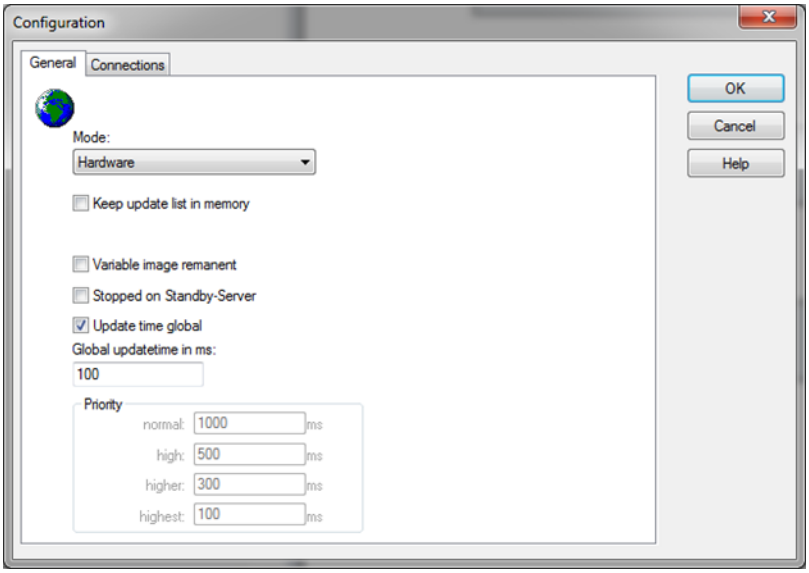
1. Create a new driver.
2. In the **Siemens** category, select the **S7-optimized communication SN**.



3. Click on the **OK** button. The dialog for the configuration of the driver is opened.

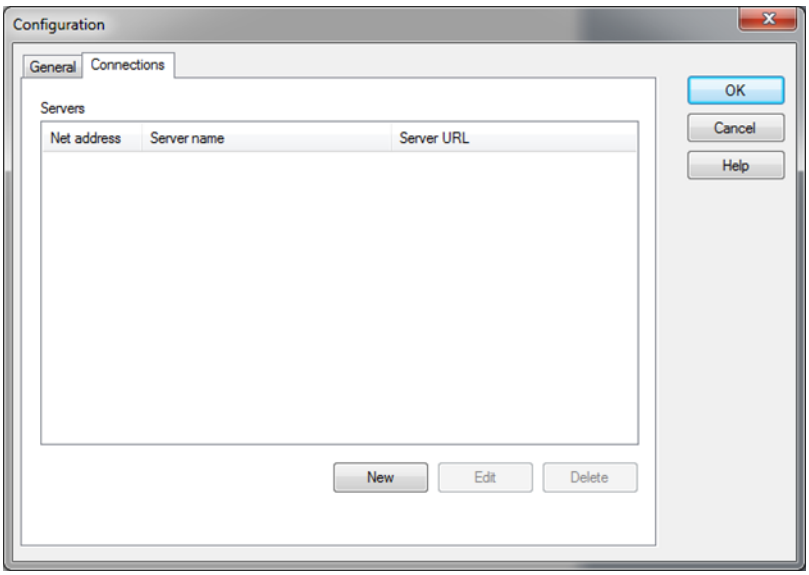


4. Set the **Global updatetime** option to *100 ms*.

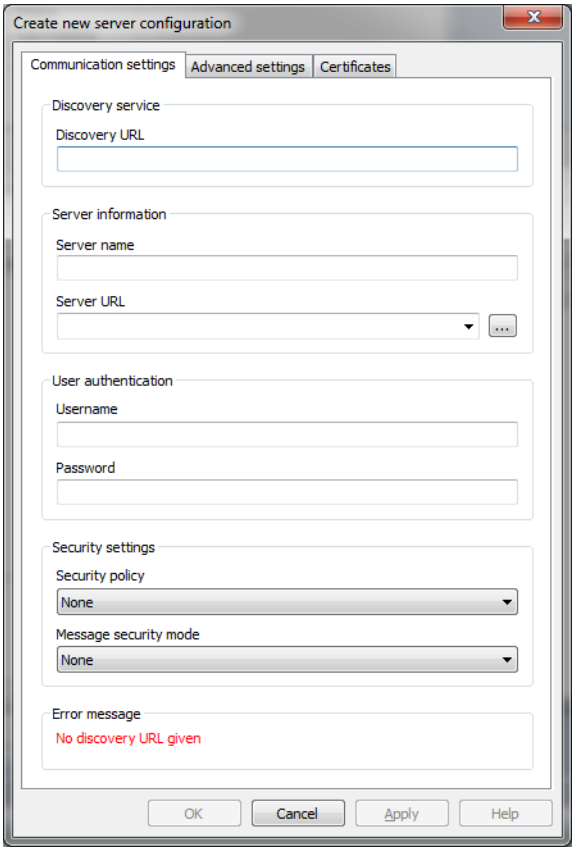


5. Switch to tab **Connections**.

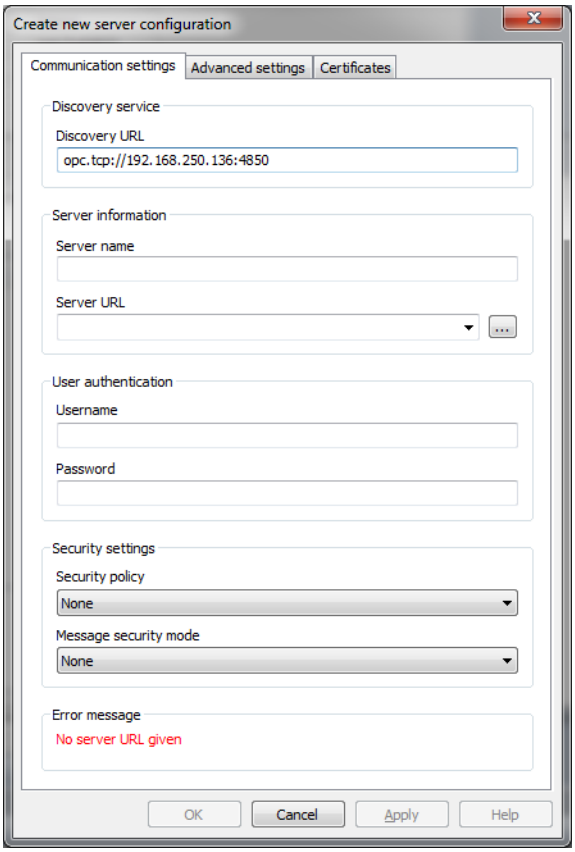
6. Click on **New** to configure a new connection.



The dialog to add a server connection is opened.

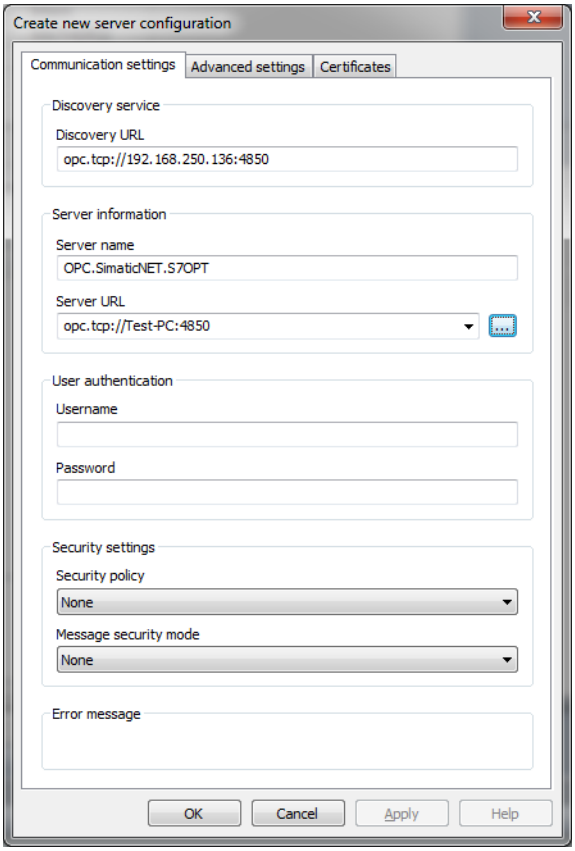


7. For the **Discovery URL** option, enter the address *opc.tcp://IP-Adresse:4850*.
   As an IP address, select the address of the computer on which SIMATIC NET has been installed.
   192.168.250.136 in this example.
   The port number *4850* is the default value of the OPC UA server in Simatic NET.

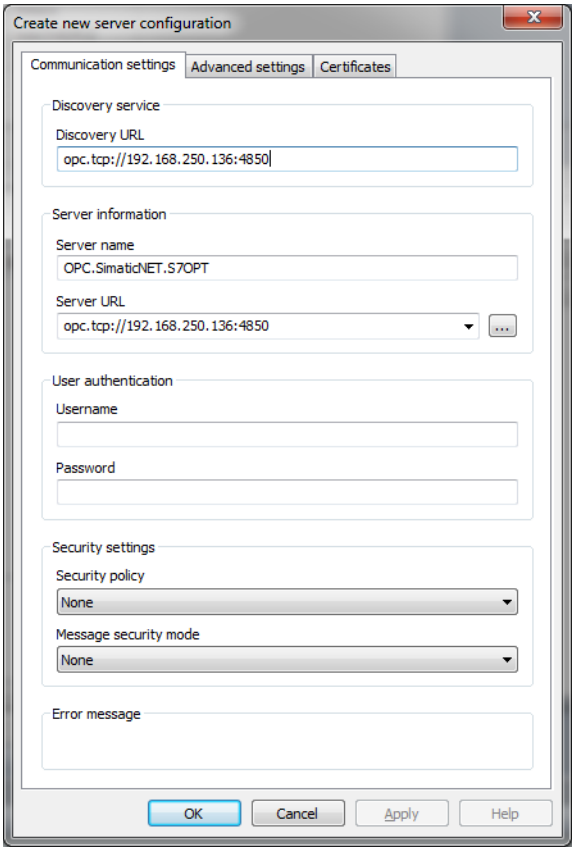


8. Switch to the **Server URL** option.
9. Click on the **...** button

The server information is read. If the PC can be contacted using naming resolution, this setting can be accepted as it is.



If the server cannot be contacted using naming resolution (pinging the server name does not get a response), the IP address can also be used as an alternative.



10. Click on **OK** to accept the settings.

    The dialog is closed.

11. Click on **OK** in the driver dialog.

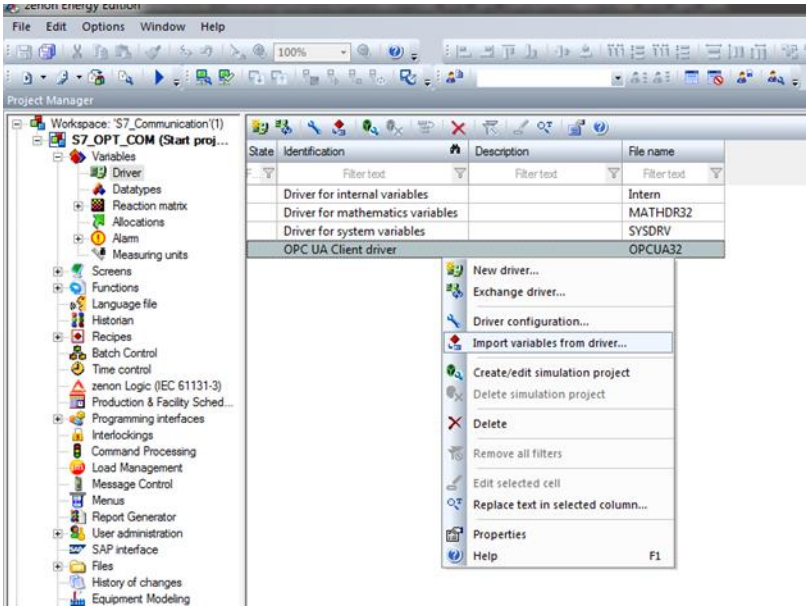
    The dialog is closed.

IMPORT VARIABLES

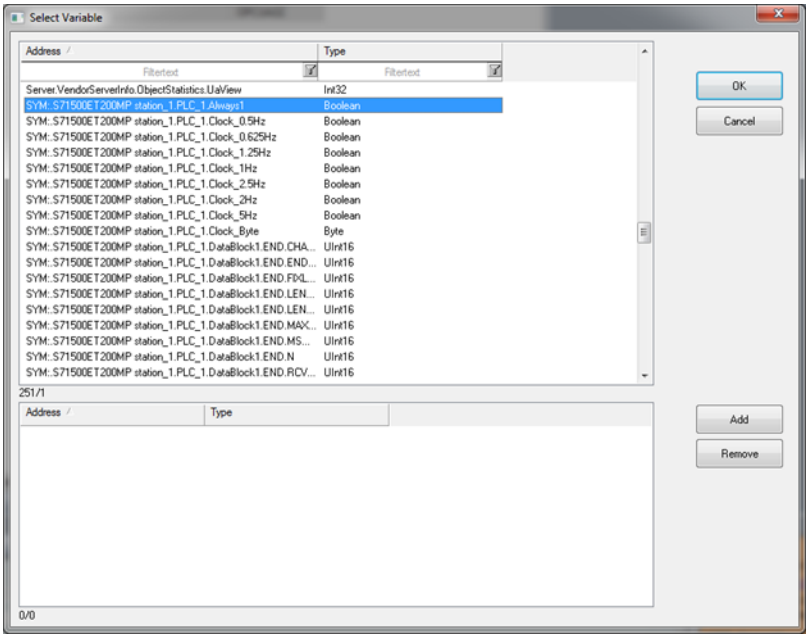
The variables can now be imported:

1. Right-click on the driver.

2. Select **Import variables from driver**.

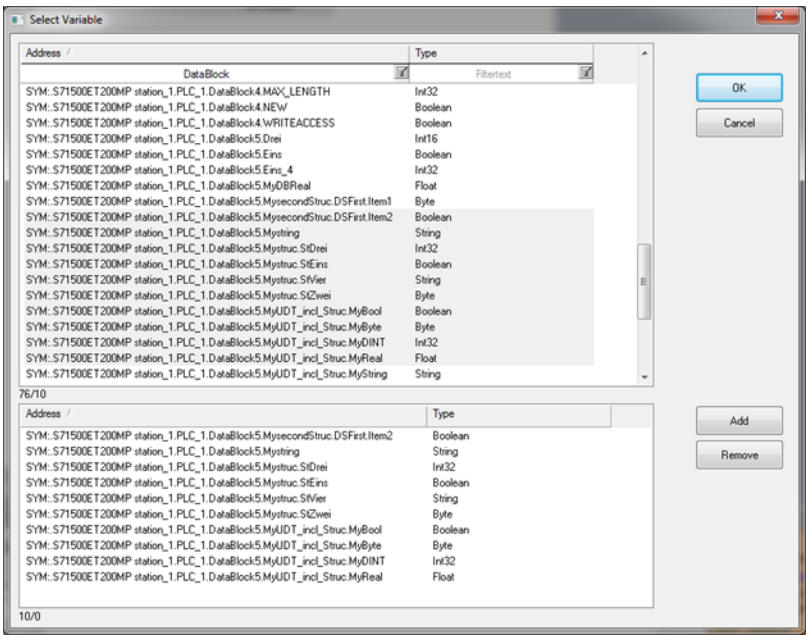


The server is read and the available variables are displayed.



3. Amend the list to your requirements with filtering.
4. Highlight the desired variables.
5. Click on the **Add** button.

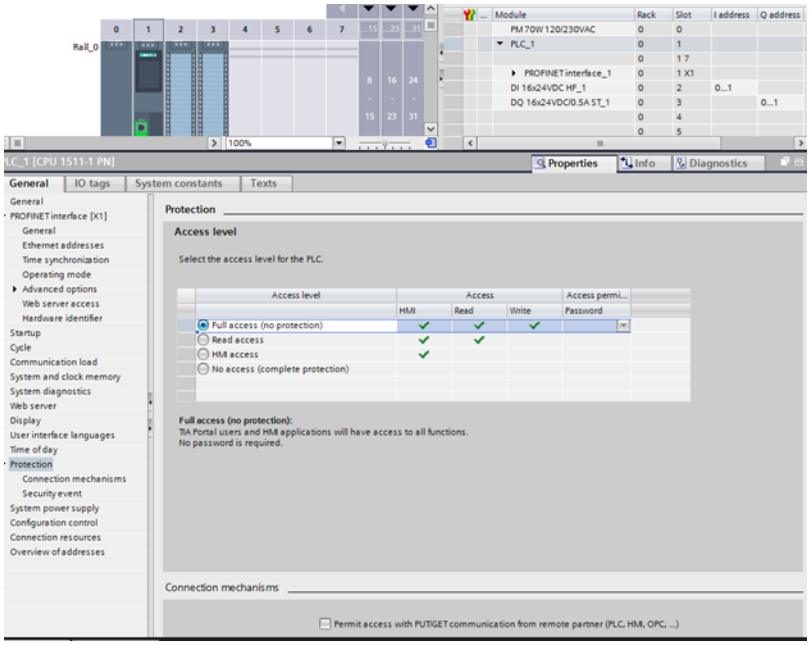
The variables are selected for import.



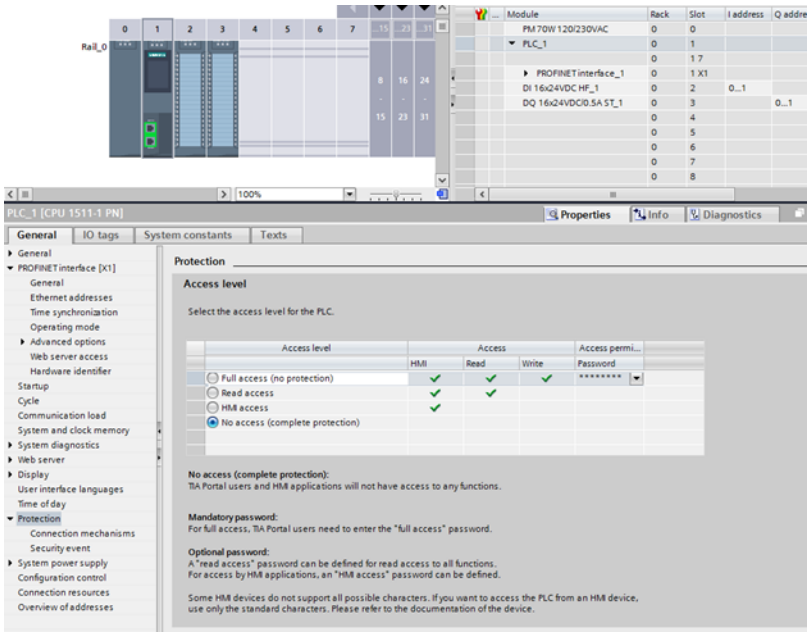
6. Click on **OK** to import the variables. The dialog is closed in the process.

7 Note on password-protected communication

You can set password protection:

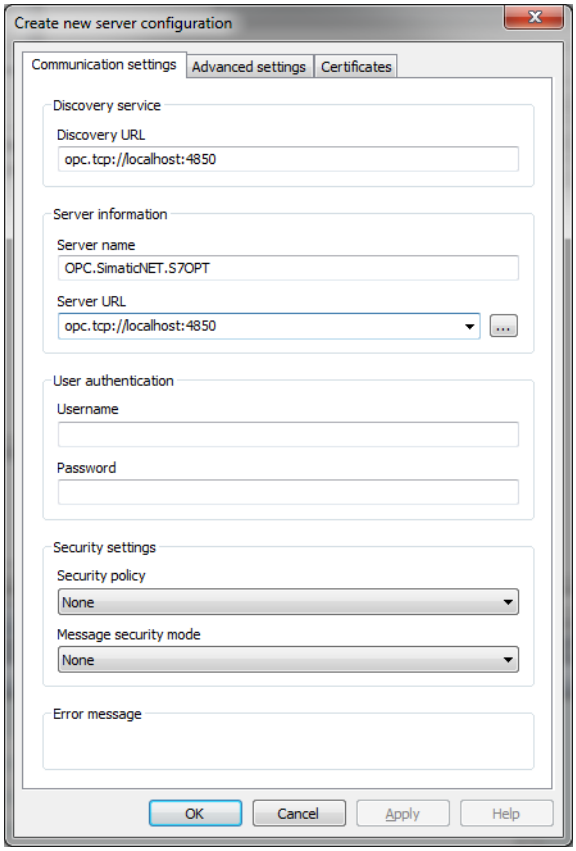


The exchange of data with configured data continues to work:



8 Redundant structure

You can allow redundant communication in that, on the zenon computer (**Server 1** or **Server 2**), the SIMATIC NET - Softnet-IE program is installed. In this case, use **localhost** or *127.0.0.1* as the network address in the driver dialog.



This way both servers have access to the communication. A second PC station must be configured in the TIA project accordingly.