



Siemens TIA Comm Driver Setup

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Introduction

This document describes how to configure communication between a Siemens S7-1200 PLC and a KEB HMI product using both Profinet and TCP/IP. The S7 TIA Profinet communication driver is compatible with Siemens SIMATIC S7-1200/1500. The S7 TIA TCP communication driver used in this project is compatible with Siemens SIMATIC S7-300/400/1200/1500.

TIA Profinet Comm Driver Setup (S7-1200/1500)

This section overviews the setup of communication between a Siemens PLC and a KEB HMI via Profinet.

1. Enable PUT/GET

In TIA Portal, navigate to *Device Configuration* in the project tree. In the *General* tab of the configuration, navigate to *Protection & Security > Connection mechanisms* and select *Permit access with PUT/GET communication from remote partner*.

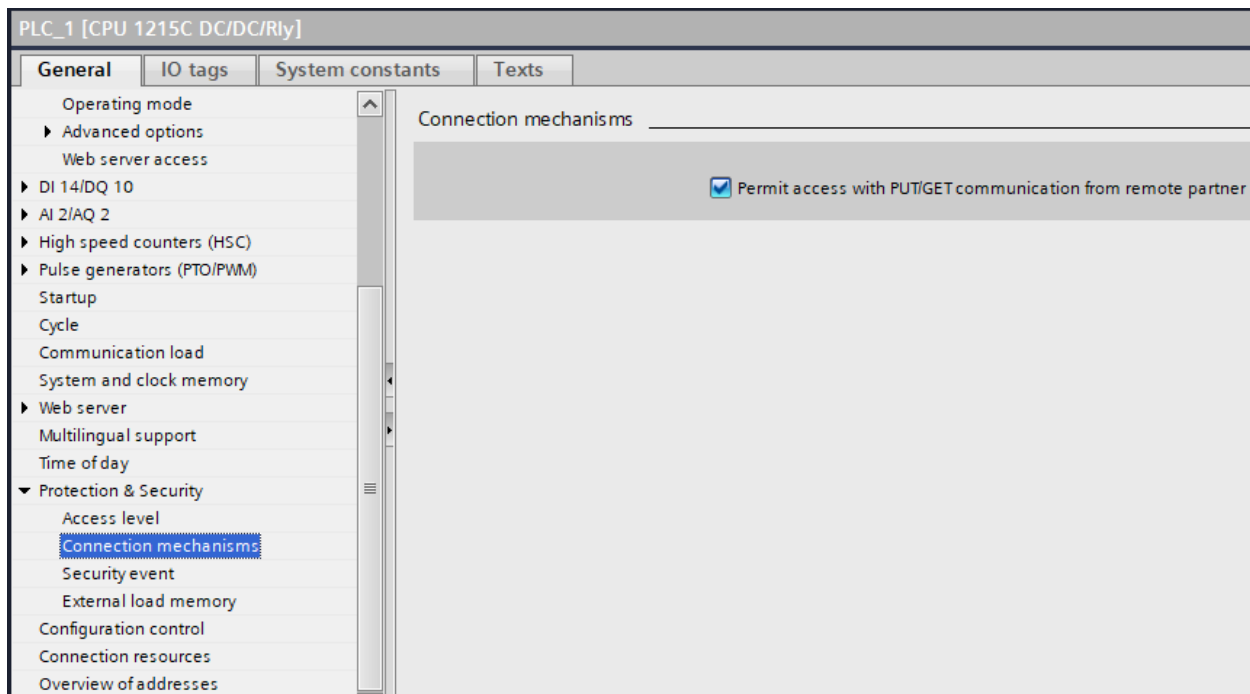


Fig. 1: Enable PUT/GET in TIA Portal

This will allow the HMI comm driver to read and write tags in the plc.

2. Enable Optimized Block Access

Select the data block of variables that are to be exchanged in the project tree, then go to *Edit > Properties*. Next, navigate to *Attributes* and select *Optimized block access*.

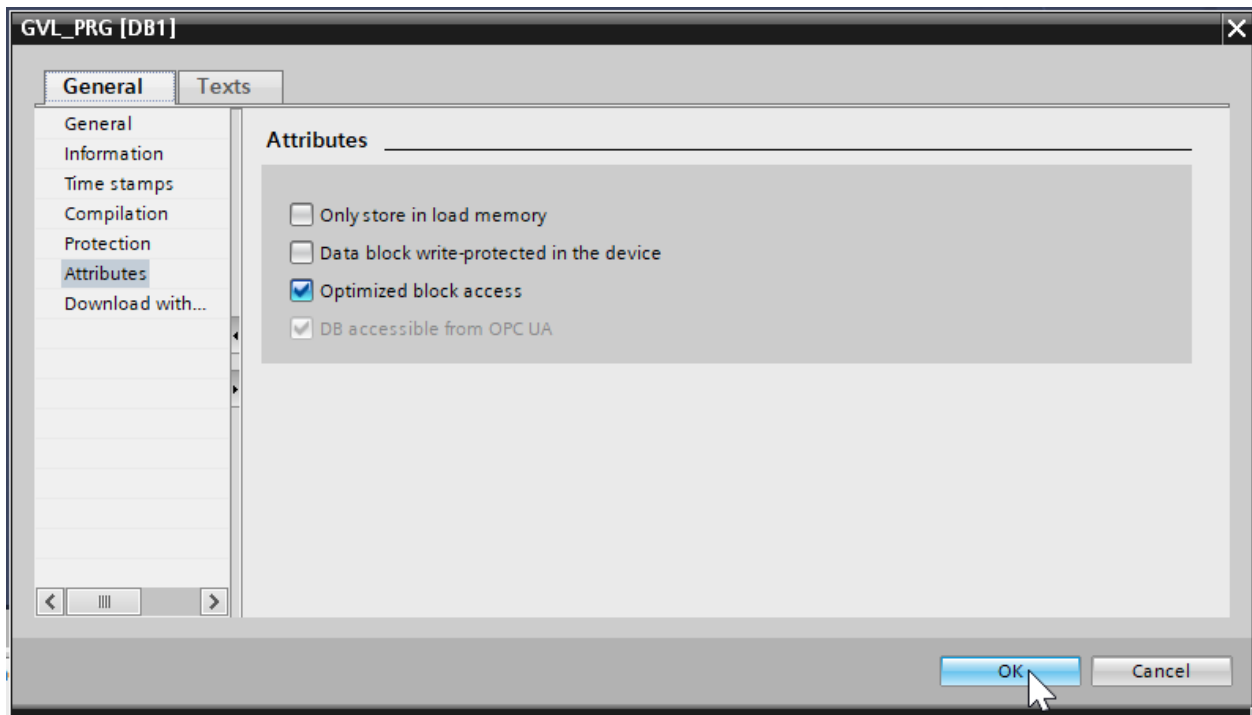


Fig. 2: Enable Optimized Block Access in TIA Portal

3. Download Project to PLC

Download the project to the Siemens PLC.

4. Add and Configure Comm Driver

In Studio HMI, right-click on *Comm. Drivers* under *Real Time DB* in the project resources and select *Add New Comm. Driver. . .* Locate the *S7 TIA PROFINET* comm driver in the *Siemens* folder. Click the checkbox next to the driver and select *OK*.

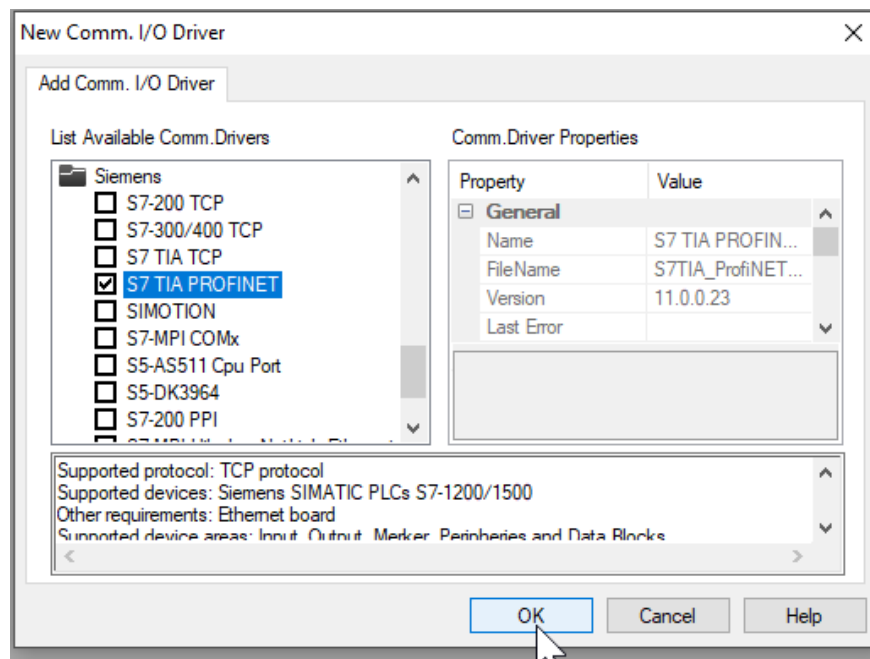


Fig. 3: Add Profinet Driver in Studio HMI

Double-click on the newly added comm driver in the project resources. The *General* properties of the comm driver can typically be left with their default values.

Next, go to the *Stations* tab and select *Add*. The *S7 TIA ProfiNET Station Group* properties can also typically be left as their default values. In the *General* properties, assign a unique *Station Name*. In the *TCP/IP Settings* enter the *Server Address* of the Siemens PLC. This should match the *IP protocol* settings in TIA Portal. All other settings may be left as their default values. Select *OK*.

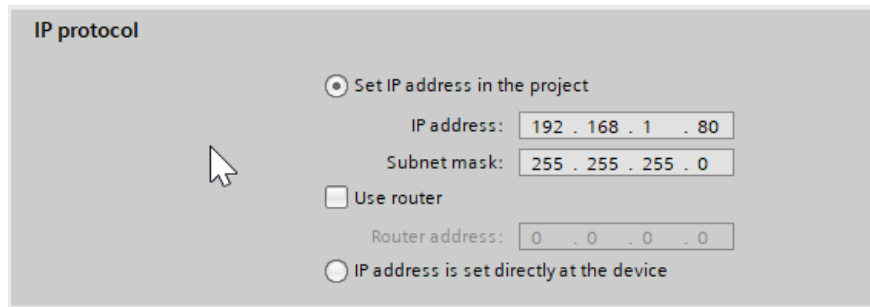


Fig. 4: Server Address in TIA Portal

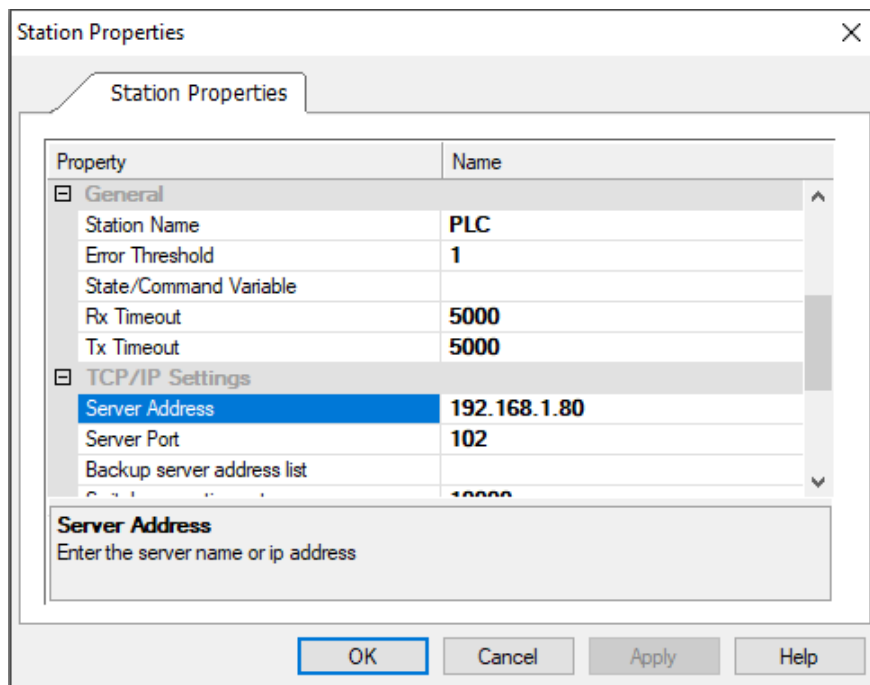


Fig. 5: Server Address Setting in Studio HMI

Test the comm driver settings by selecting a station and clicking *Test Cable/Comm..*

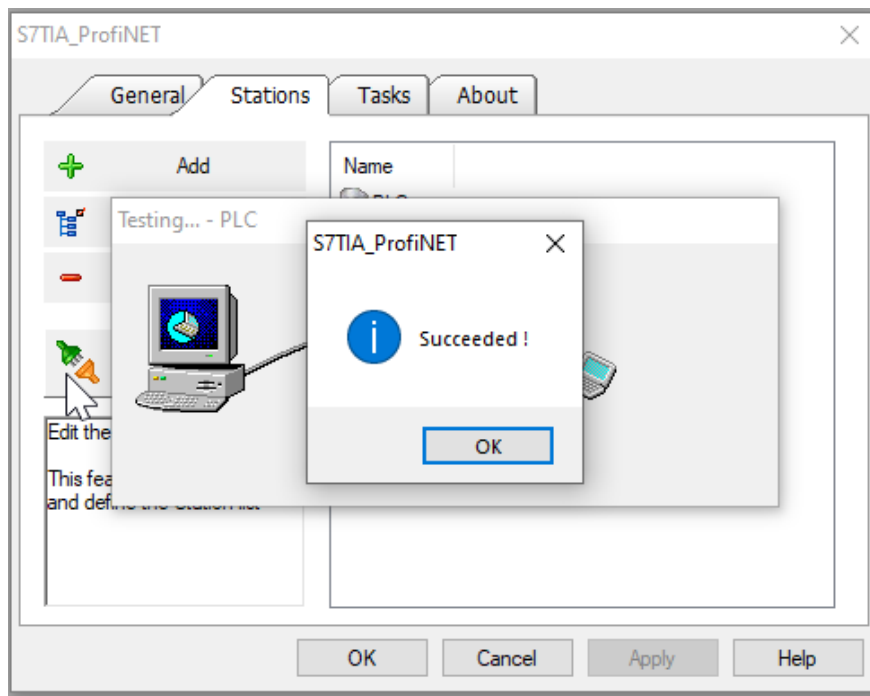


Fig. 6: Test Profinet Comm in Studio HMI

5. Import Tags

Right-click on the S7 TIA PROFINET comm driver and select *Import from PLC Database...*

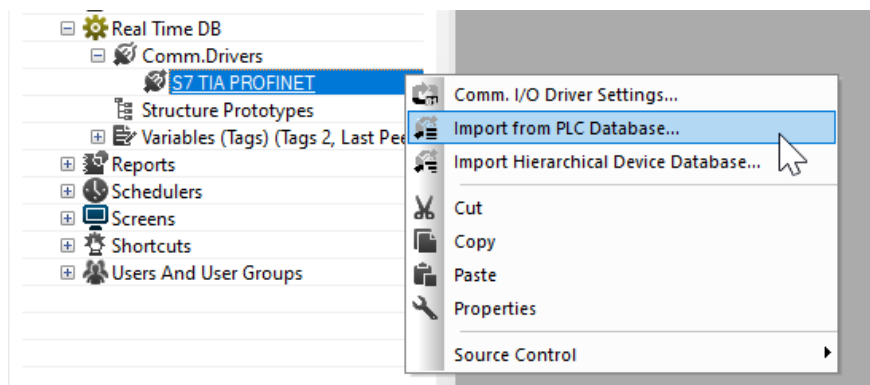


Fig. 7: Import Profinet Variables in Studio HMI

Select *From PLC*. The PLC must be on and connected to the PC to import tags in this fashion. If an active PLC connection is not available, an .apxx file may be generated in

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TIA Portal and imported via the *Browse File...* Select the tags to import, then select *Import*.

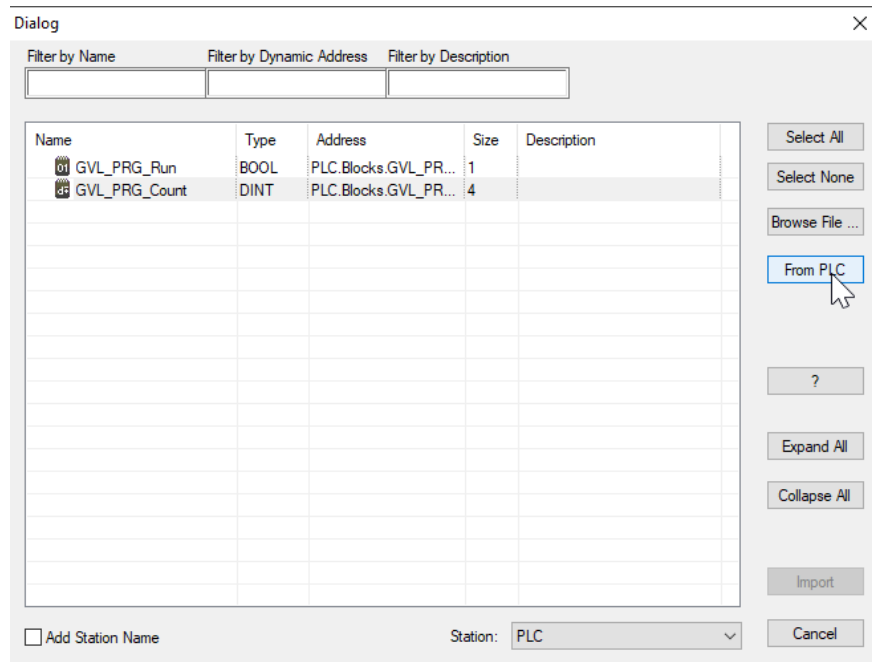


Fig. 8: Imported Profinet Variables in Studio HMI

The tags are now available to use in the HMI project under *Real Time DB > Variables*.

6. Upload and Test HMI Project

Upload the project to the KEB HMI device and run to test the variable communication. If prompted whether to install the comm driver to the HMI when uploading, select *Yes*.

TIA TCP Comm Driver Setup (S7-300/400/1200/1500)

This section overviews the setup of communication between a Siemens PLC and a KEB HMI via TCP/IP.

1. Enable PUT/GET

In TIA Portal, navigate to *Device Configuration* in the project tree. In the *General* tab of the configuration, navigate to *Protection & Security > Connection mechanisms* and select *Permit access with PUT/GET communication from remote partner*.

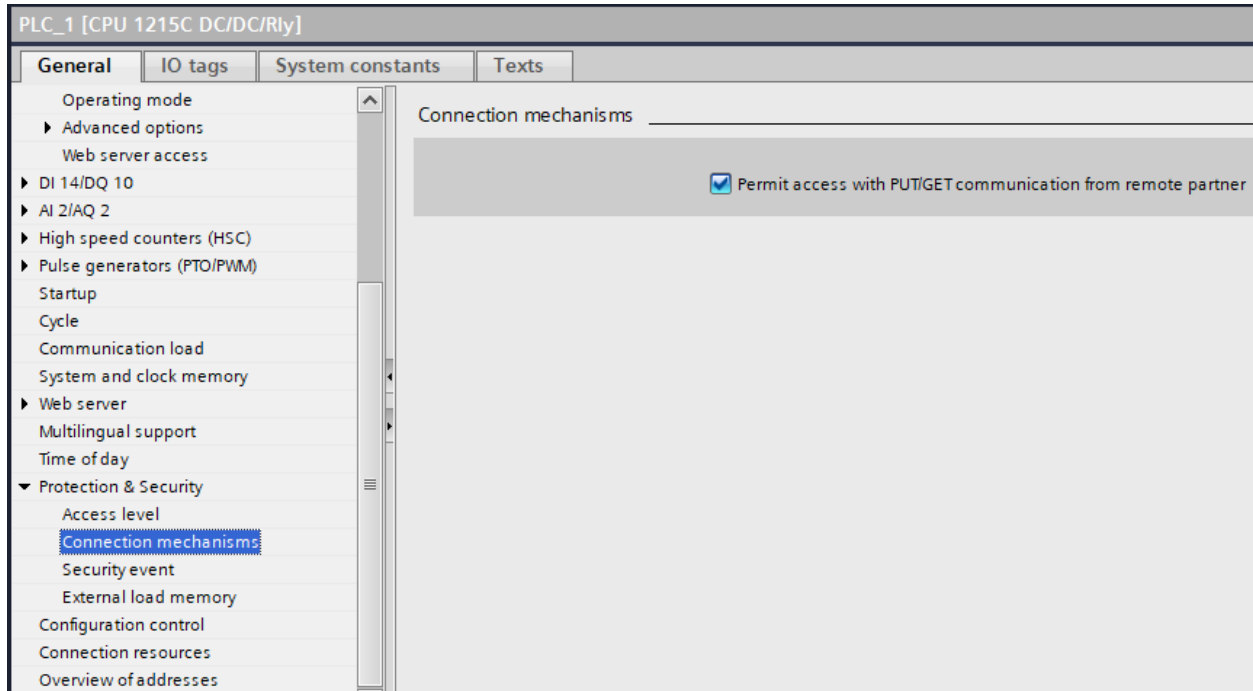


Fig. 9: Enable PUT/GET in TIA Portal

This will allow the HMI comm driver to read and write tags in the plc.

2. Disable Optimized Block Access

Select the data block of variables that are to be exchanged in the project tree, then go to *Edit > Properties*. Next, navigate to *Attributes* and DESELECT *Optimized block access*.

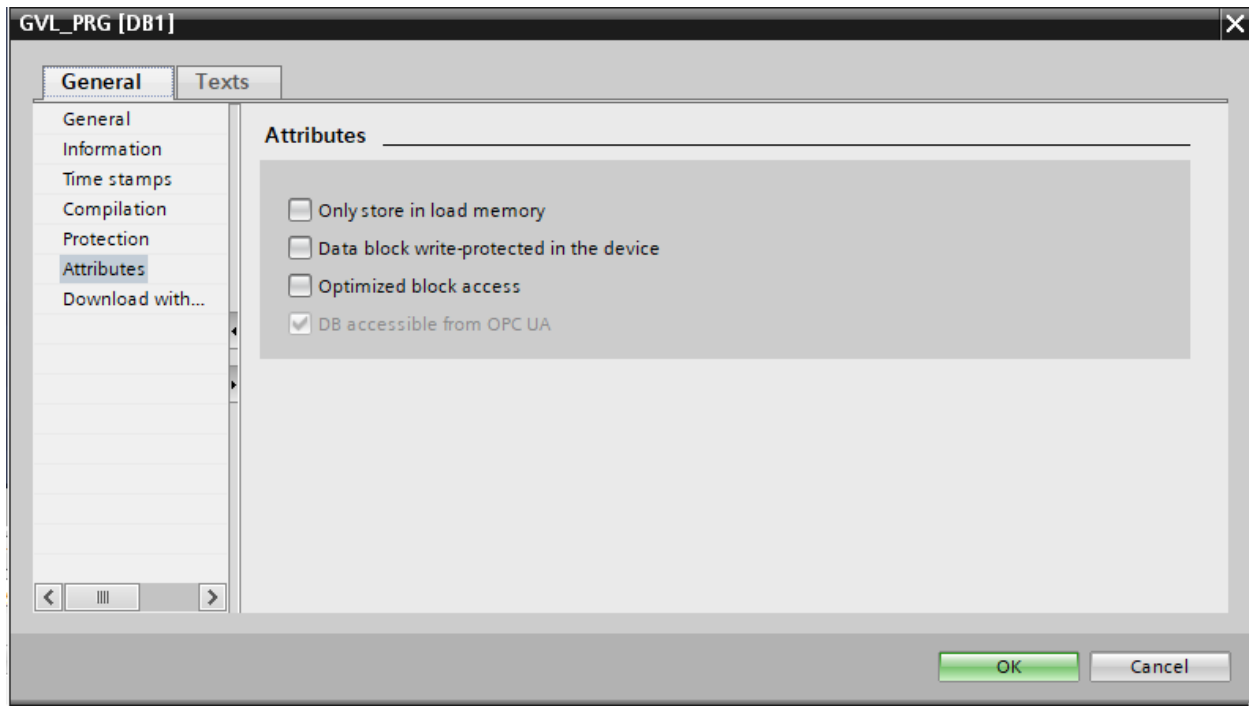


Fig. 10: Disable PUT/GET in TIA Portal

3. Download Project to PLC

Download the project to the Siemens PLC.

4. Add and Configure Comm Driver

In Studio HMI, right-click on *Comm. Drivers* under *Real Time DB* in the project resources and select *Add New Comm. Driver...*. Locate the *S7 TIA TCP* comm driver in the *Siemens* folder. Click the checkbox next to the driver and select *OK*.

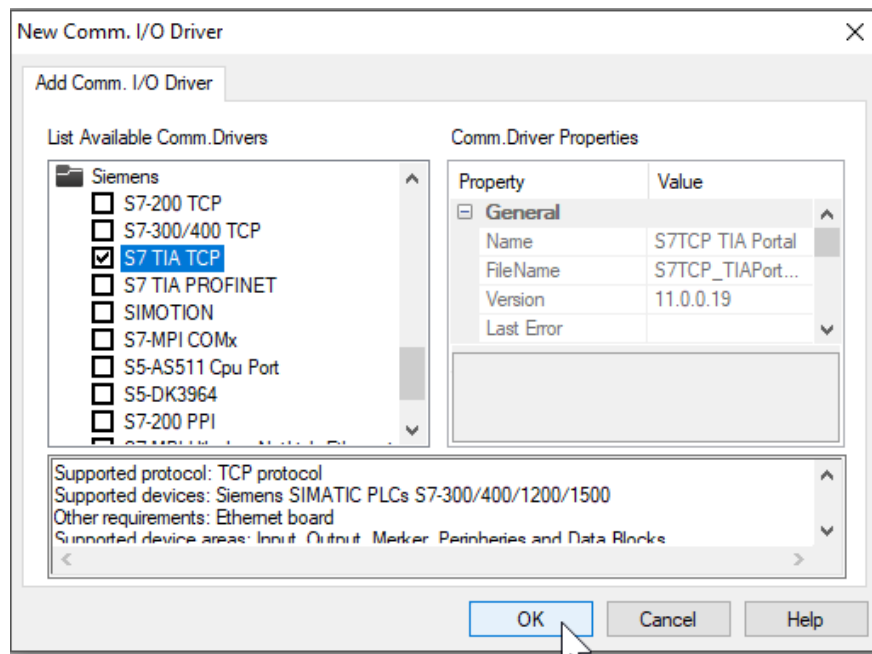


Fig. 11: Add TCP Driver in Studio HMI

Double-click on the newly added comm driver in the project resources. The *General* properties of the comm driver can typically be left with their default values. Next, go to the *Stations* tab and select *Add*. Under the *S7 TCP Station Group* properties, enter the *Slot* of the PLC from the TIA Portal project.

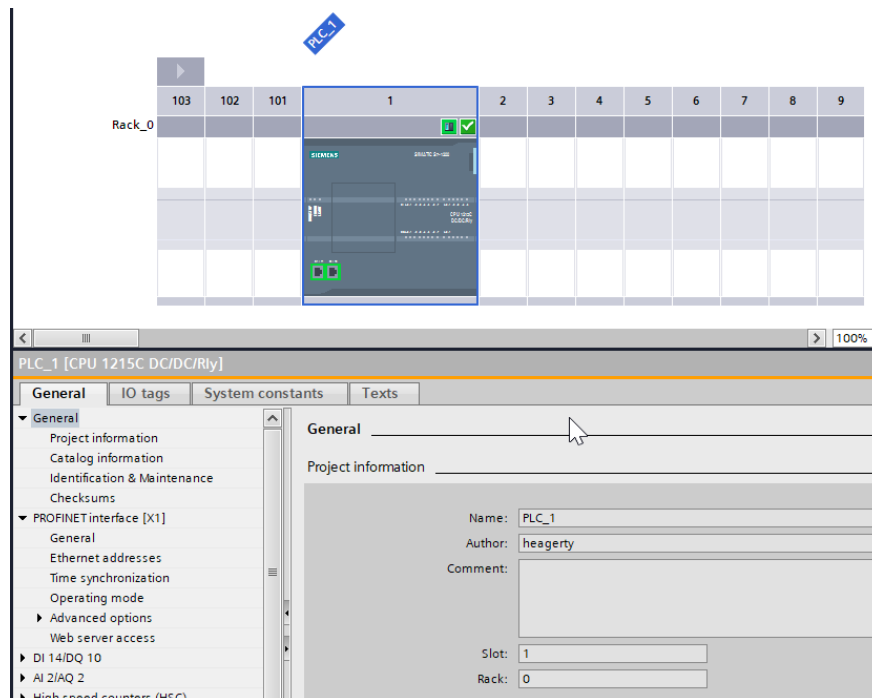


Fig. 12: Device Slot in TIA Portal

In the example pictured above, the device slot is 1.

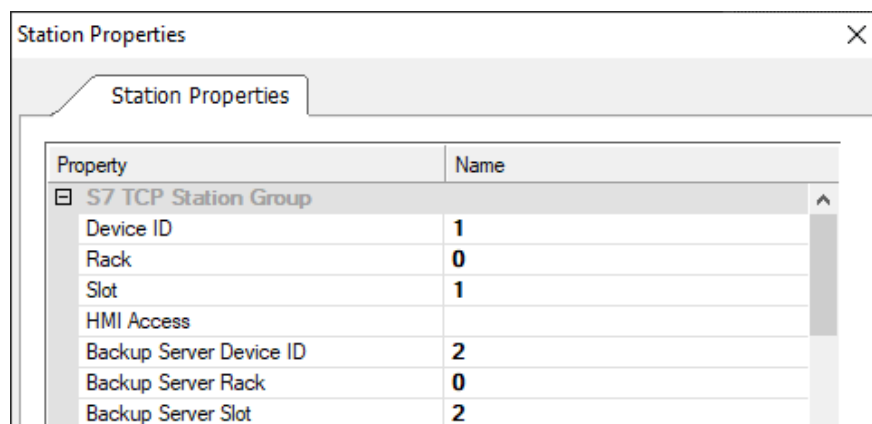


Fig. 13: TCP Station Group Properties in Studio HMI

In the *General* properties, assign a unique *Station Name*. In the *TCP/IP Settings* enter the *Server Address* of the Siemens PLC. All other settings may be left as their default values. Select *OK*.

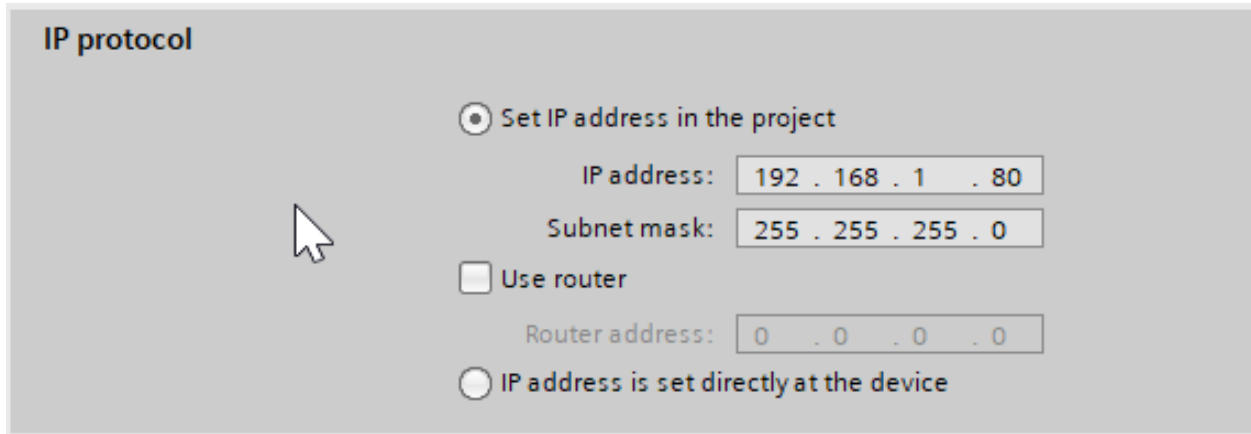


Fig. 14: Server Address in TIA Portal

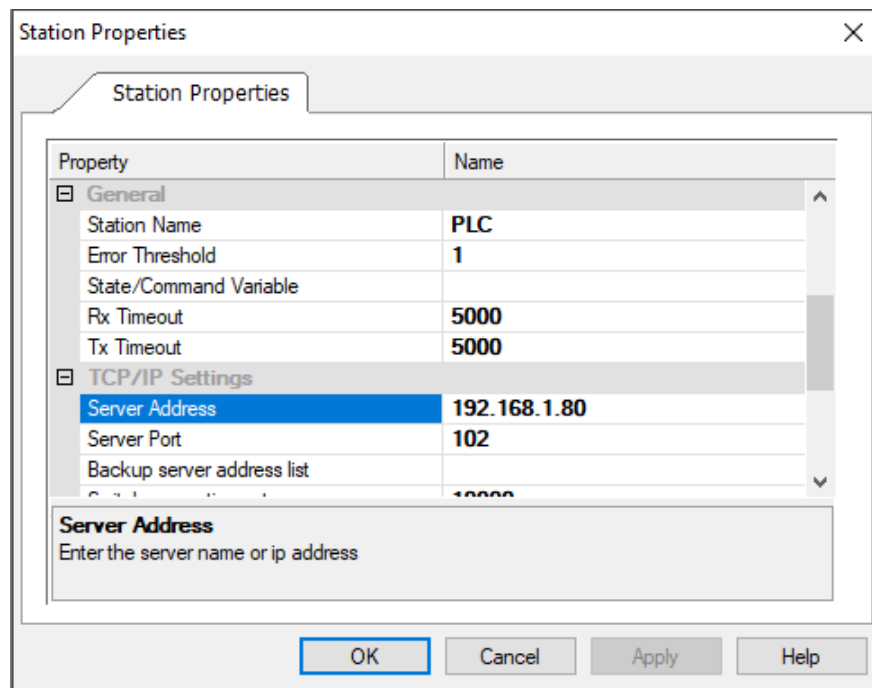


Fig. 15: Server Address Setting in Studio HMI

Test the comm driver settings by selecting a station and clicking *Test Cable/Comm..*

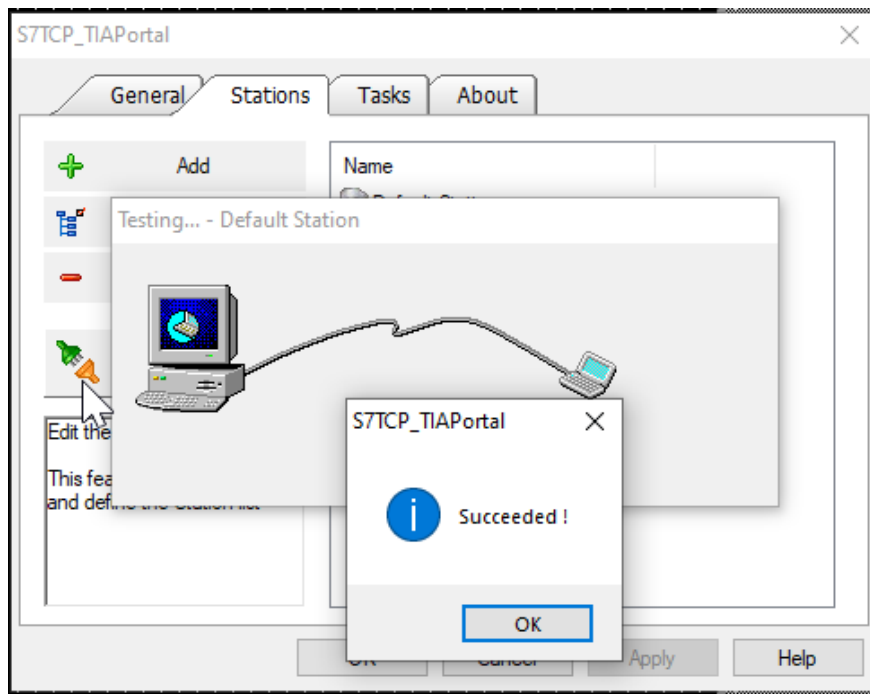


Fig. 16: Test TCP Comm in Studio HMI

5. Import Tags

Right-click on the S7 TIA TCP comm driver and select *Import from PLC Database...*

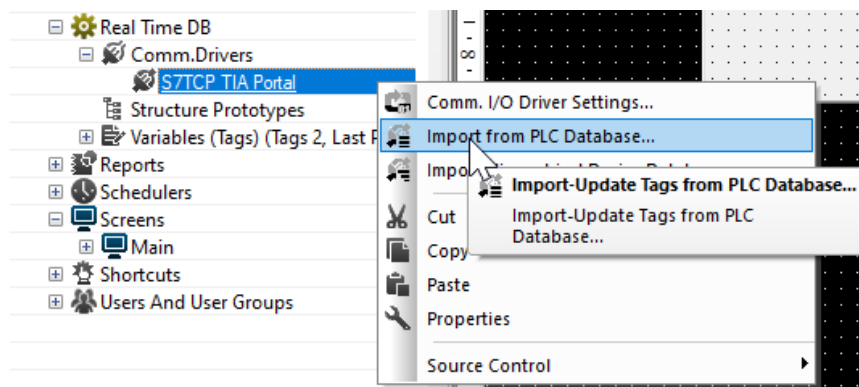


Fig. 17: Import TCP Variables in Studio HMI

Select *From PLC*. The PLC must be on and connected to the PC to import tags in this fashion. If an active PLC connection is not available, an .apxx file may be generated in

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TIA Portal and imported via the *Browse File...* Select the tags to import, then select *Import*.

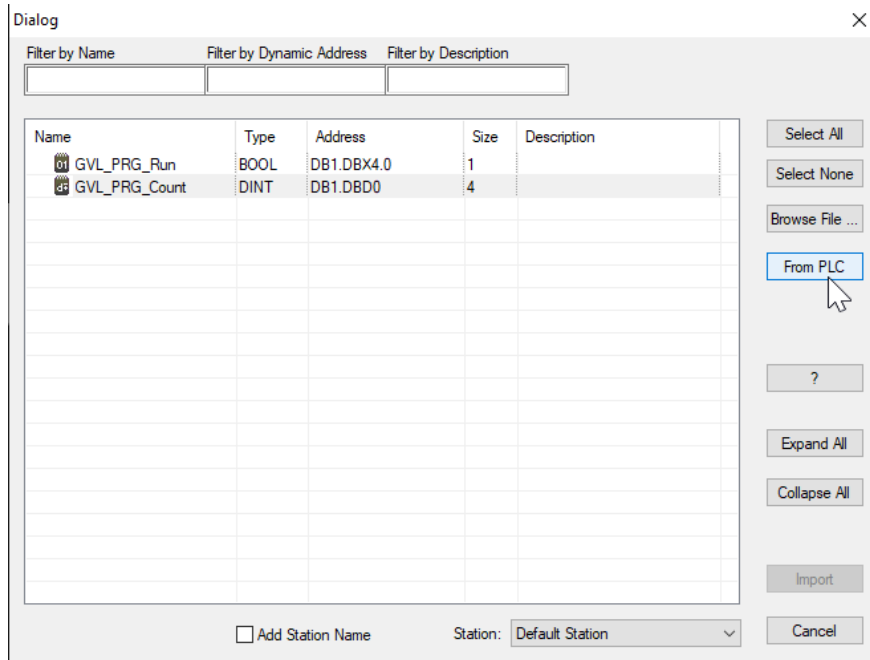


Fig. 18: Imported tCP Variables in Studio HMI

The tags are now available to use in the HMI project under *Real Time DB > Variables*.

6. Upload and Test HMI Project

Upload the project to the KEB HMI device and run to test the variable communication. If prompted whether to install the comm driver to the HMI when uploading, select *Yes*.

Disclaimer

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Inspection of our units in view of their suitability for the intended use must be done generally by the user. Inspections are particularly necessary, if changes are executed, which serve for the further development or adaptation of our products to the applications (hardware, software or download lists). Inspections must be repeated completely, even if only parts of hardware, software or download lists are modified.

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Americas:

KEB America, Inc.
5100 Valley Industrial Blvd South
Shakopee, MN 55379, USA
(+1) 952-224-1400
info@kebamerica.com

Headquarters:

KEB Automation KG
Suedstrasse 38
D - 32683 Barntrup, Germany
(+49) 5263 401-0
info@keb.de