IO-Link

SIKO IO-Link Device used with TIA-Portal

Implementation Guide

12/20

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1 Components used

S7-1200	Siemens PLC
ET200SP	Siemens IO-Module
CM 4xIO-Link	Siemens IO-Link Master
AG03/1 48 IP54 KR/12 A IOL2	SIKO Positioning Actuator

1.1 Objective of this manual

The main objective of this document is to show the implementation of SIKO IO-Link devices into the Siemens TIA portal. It displays the implementation of an AG03/1 into a Siemens PLC.

The manual is only a reference and not a directive of how to implement IO-Link devices. It also doesn't provide a programming guide for the Siemens programming environment. It's intended exclusively for technicians trained in control and automation technology, who have experience in installing, commissioning, programming and diagnosing systems and the relevant fieldbuses.

1.2 Trademarks

1.3 Liability

1.4 Abbreviations and terms

TIA	Totally Integrated Automation, programming environment of Siemens
PLC	Programmable Logic Controller
S7-PCT	Port configuration tool
UDT	User defined data type

2 Hardware Setup

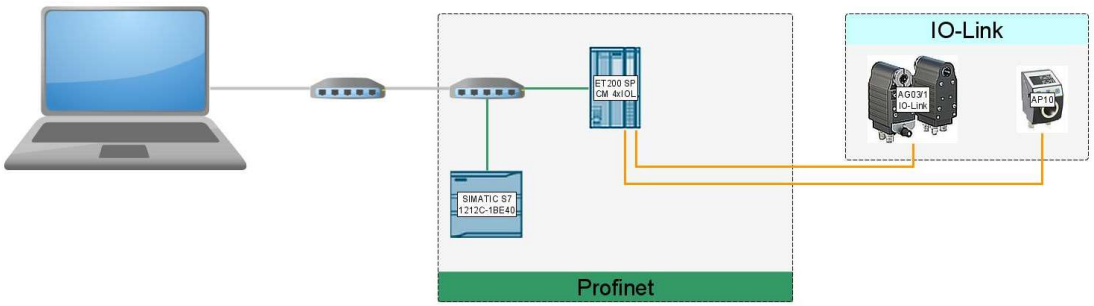

Fig. 1: Used hardware

2.1 Components

The S7-1200 PLC is wired to the Siemens power supply unit. The ET200SP is mounted together with the power supply and PLC onto a DIN rail and connected to the power supply unit. The communication between the PLC and the ET200SP is realized with Profinet. Therefore an Ethernet cable (RJ45 connectors) is plugged into port X1P2 at the PLC and port P1R at the ET200SP. The PLC (port X1P1) is connected via Ethernet cable to the PC. At last the IO-Link master is plugged into the ET200SP at slot 1 and terminated with the server module in slot 2. All connections have to be checked before supplying power to the system.

Connect the “AG03/1 48 IP54 KR/12 A IOL2” to the master according to the “Installation Instruction” found on:
http://www.siko-global.com/p/AG03_1
Connect the “AP10 IOL 20 II IP53 K” to the master according to the “Installation Instruction” found on:
http://www.siko-global.com/p/ap10

3 Software Requirements

- TIA Portal V14 SP1 Upd9
- SIKO-AG03-48-20200731-IODD1.1
- SIKO_AG03_IOL_1500_TIA_V14_SP1_Upd9_1.00.zal14 library

Fig. 2: Download software packages from website

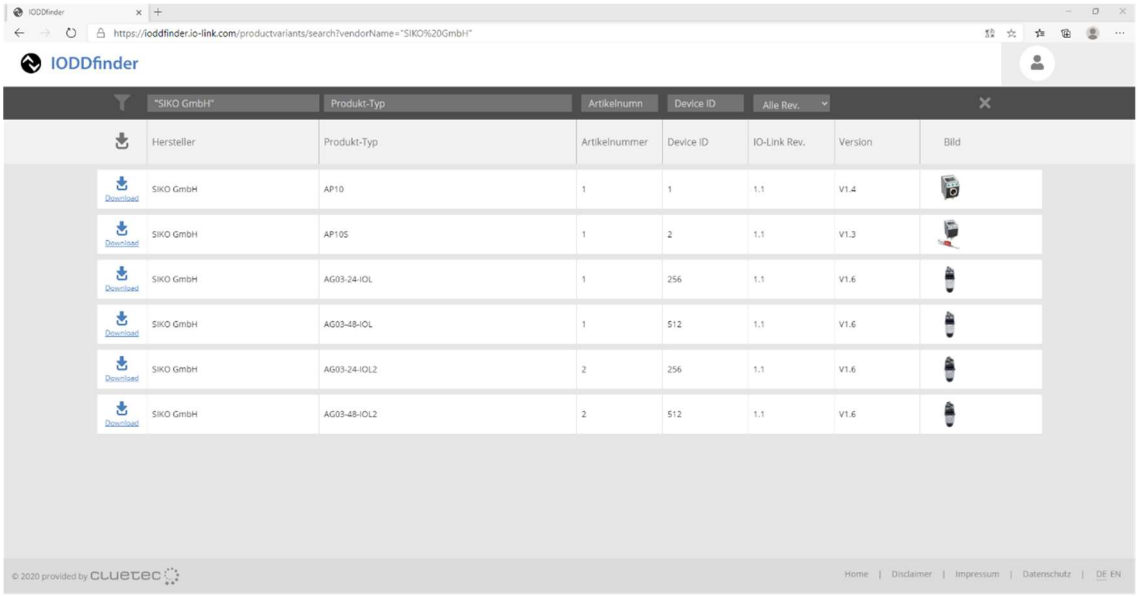

Fig. 3: Download IODD from IODD-finder

4 TIA Portal implementation

The following configuration and program examples are realized with Organization blocks (OB), Function blocks (FB), Functions (FC) and Data blocks (DB). The used languages are FBD (Function block diagram) for the OB and SCL (Structured Control Language) for all FBs.
We show in the following pages the implementation of a SIKO IO-Link device as example with the AG03/1. Other SIKO IO-Link devices implementation accordingly similar with use of their matching IODD and function block library.

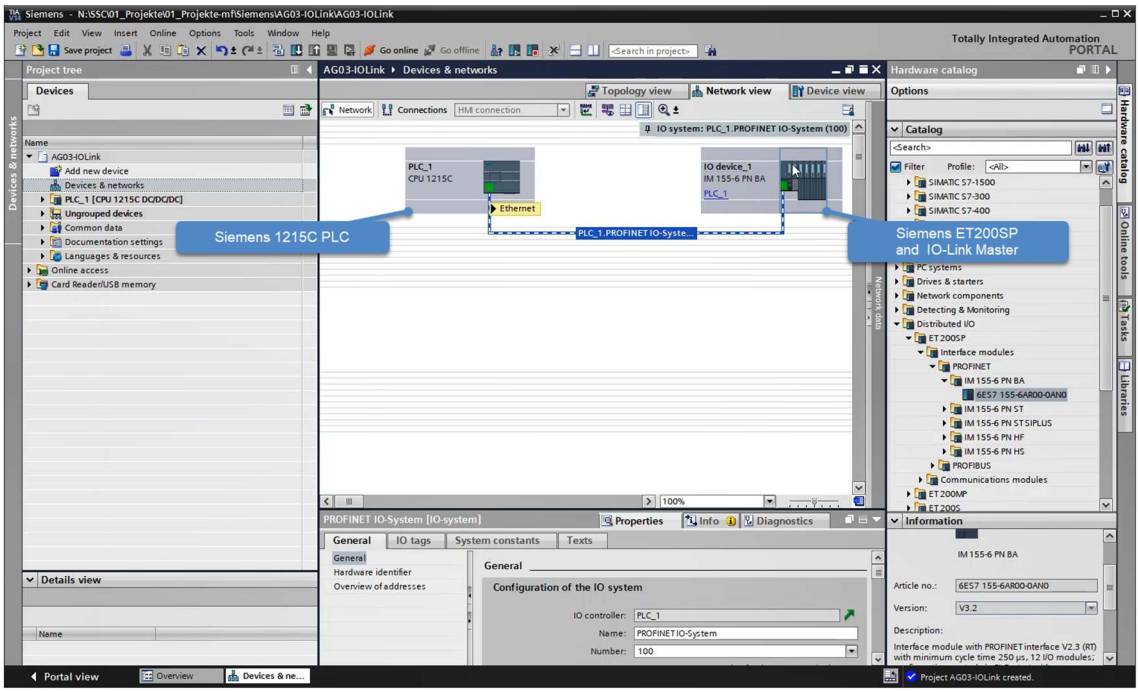

Fig. 4: Used hardware in this project

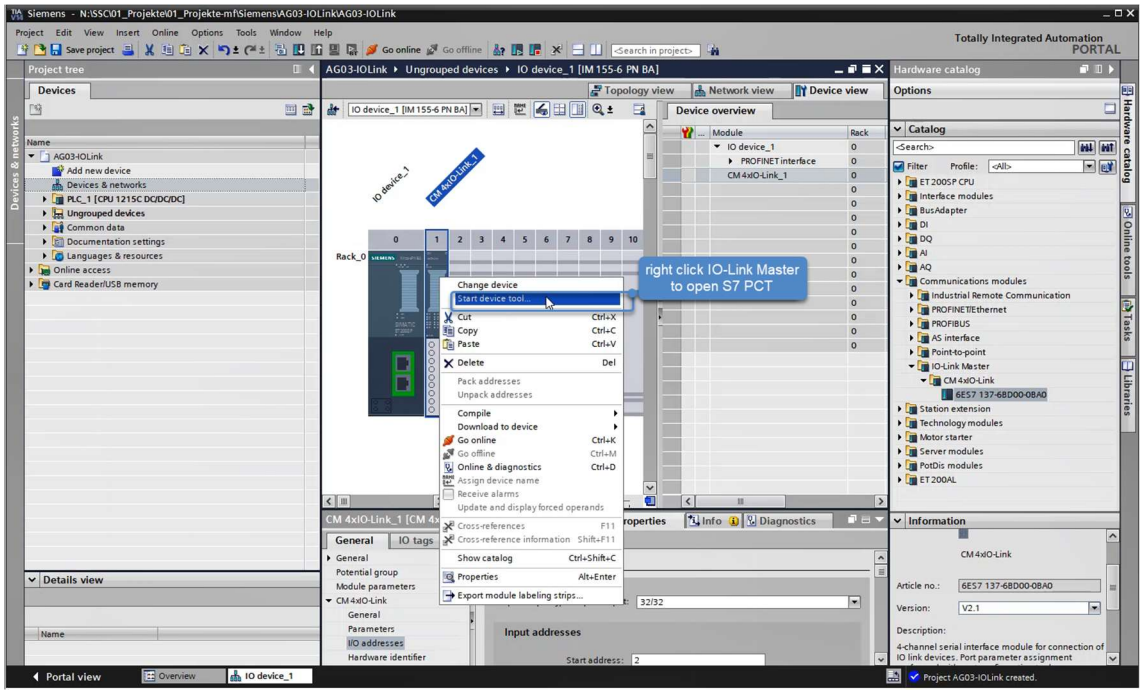

Fig. 5: Start S7-PCT

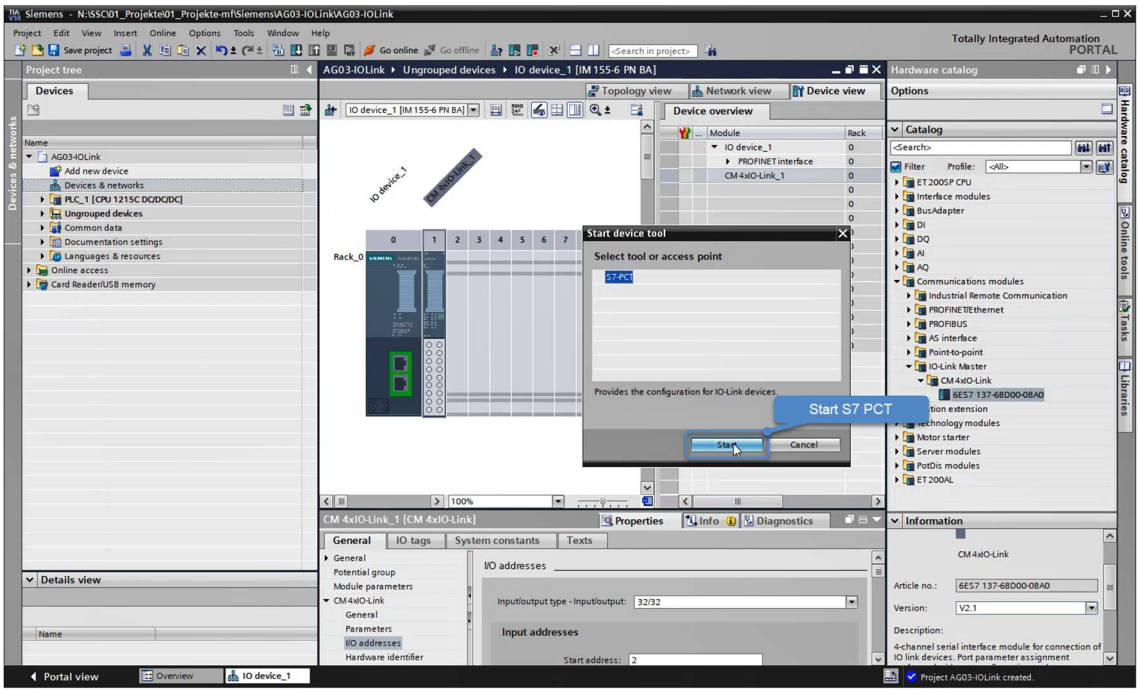

Fig. 6: Open S7-PCT with start

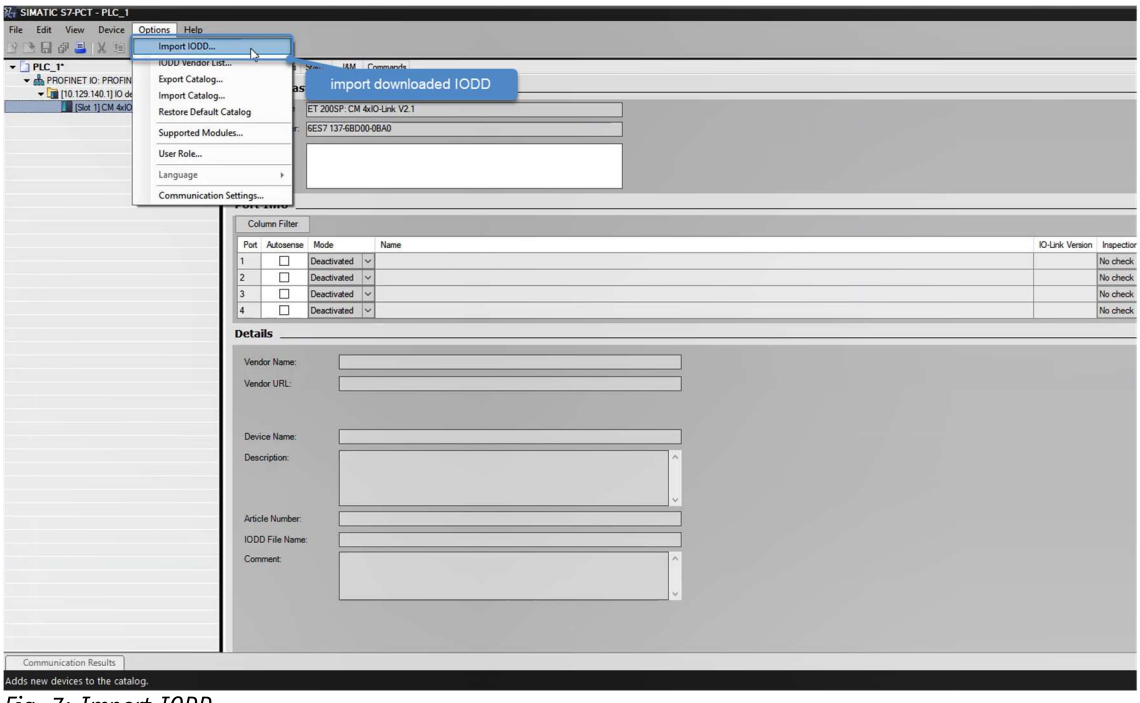

Fig. 7: Import IODD

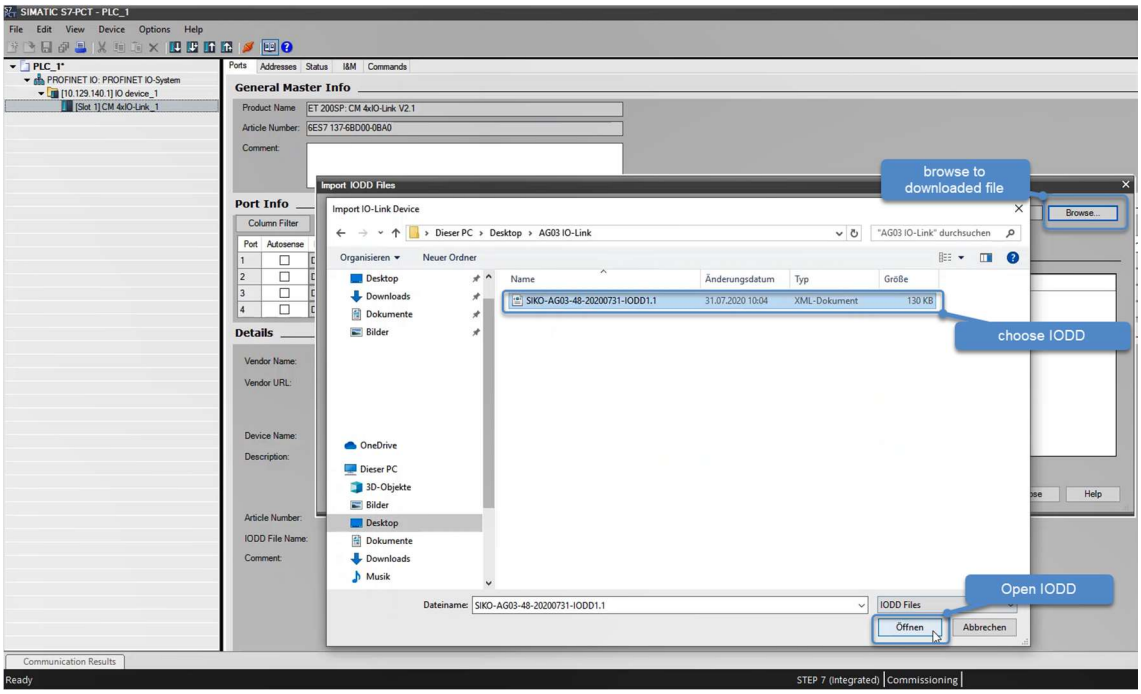

Fig. 8: Choose IODD-zip-file

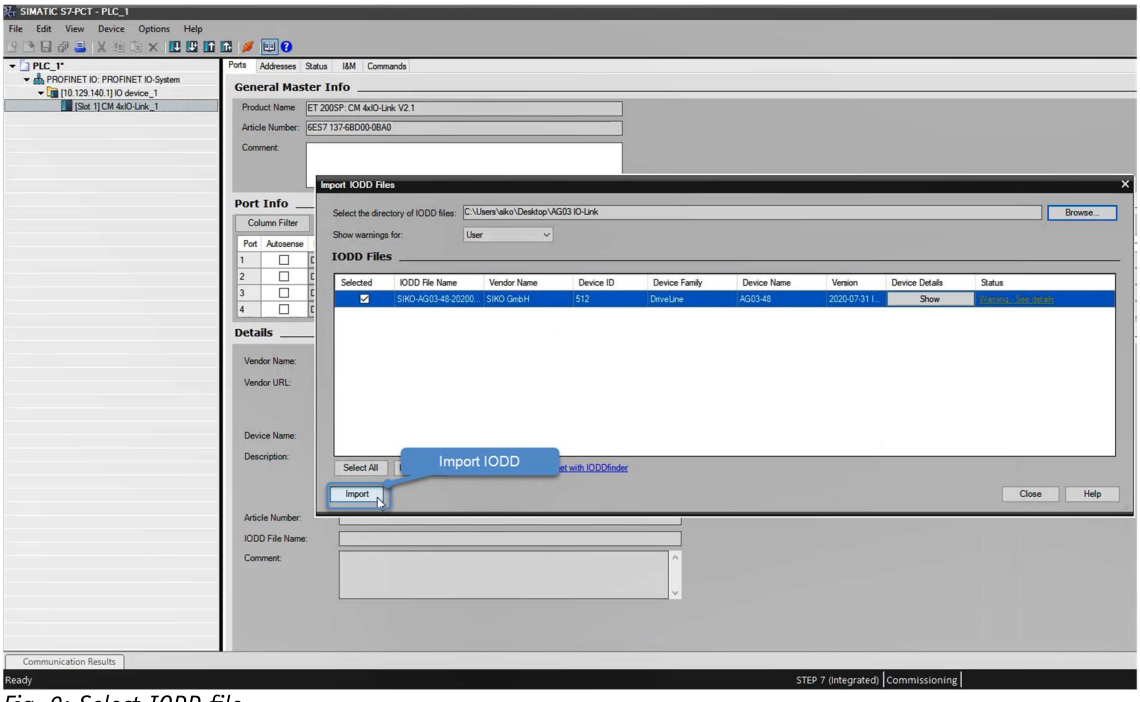

Fig. 9: Select IODD-file

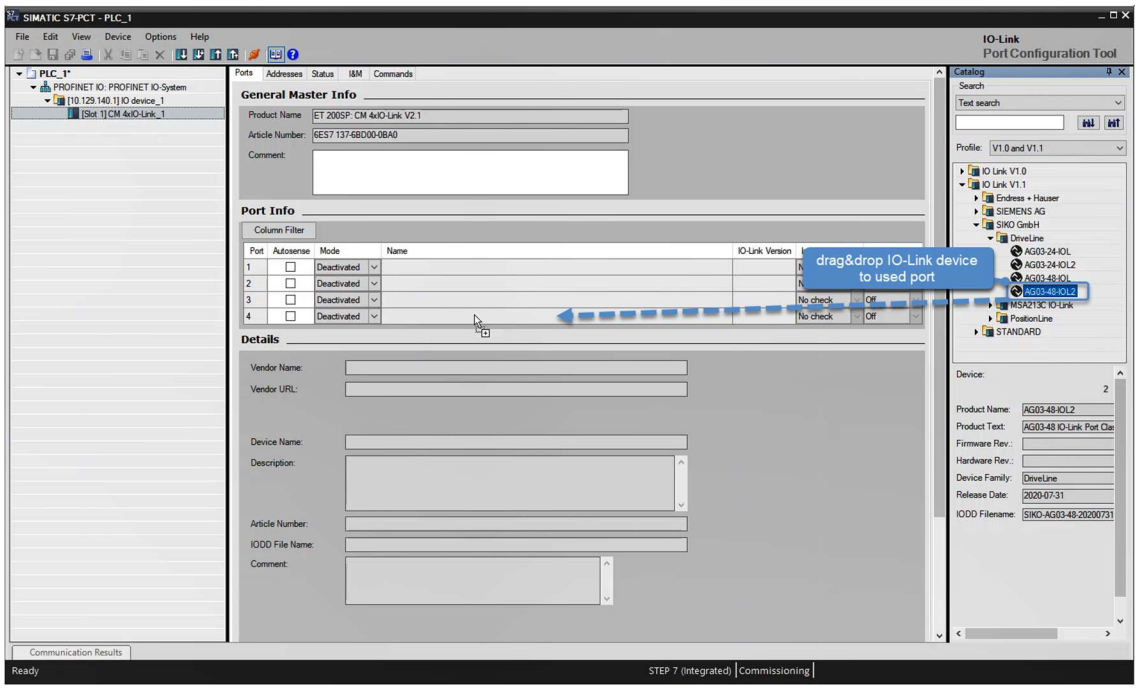

Fig. 10: Drag&drop IO-Link device to port

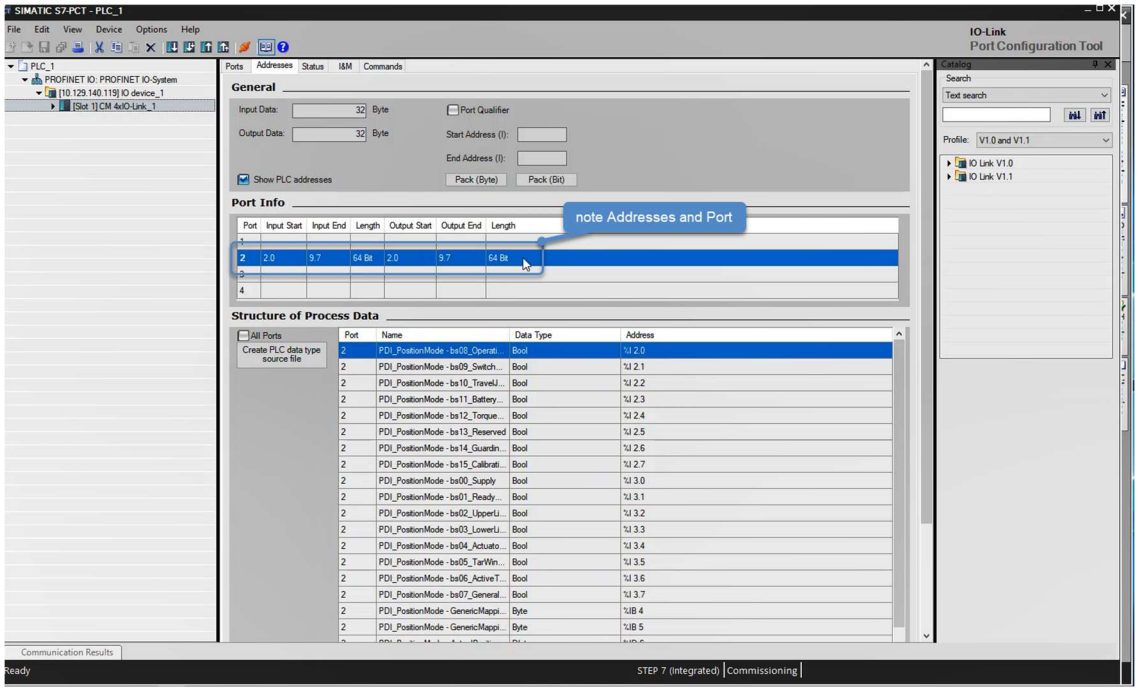

Fig. 11: Note IO-addresses and create UDT-file

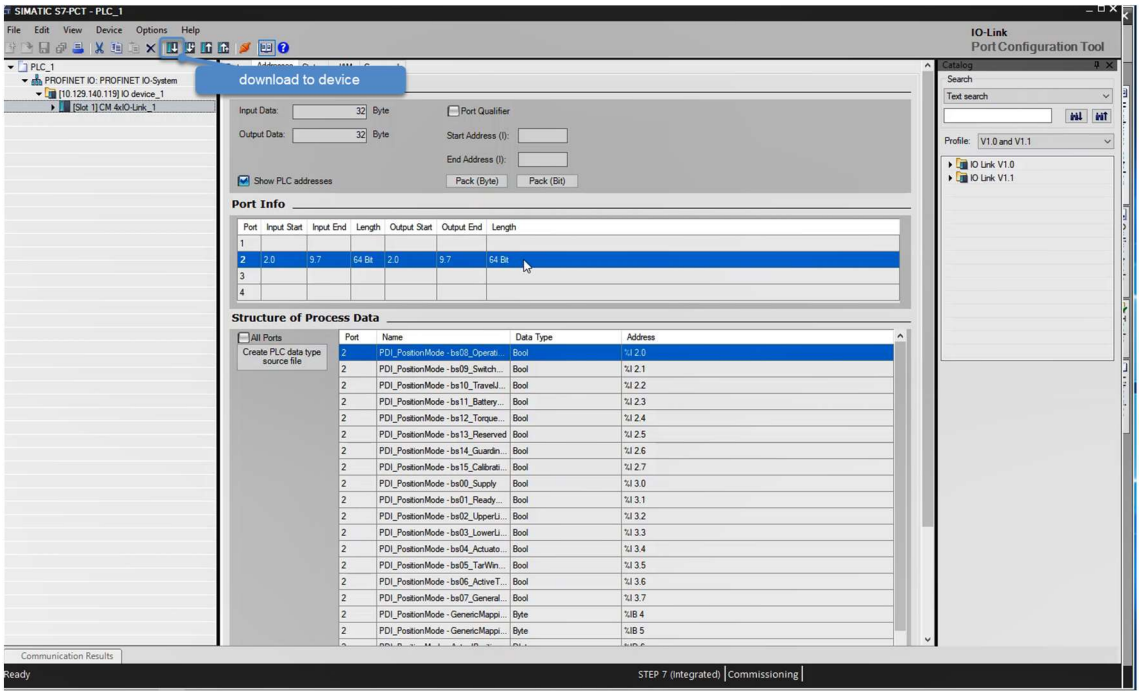

Fig. 12: Download configuration to IO-Link device

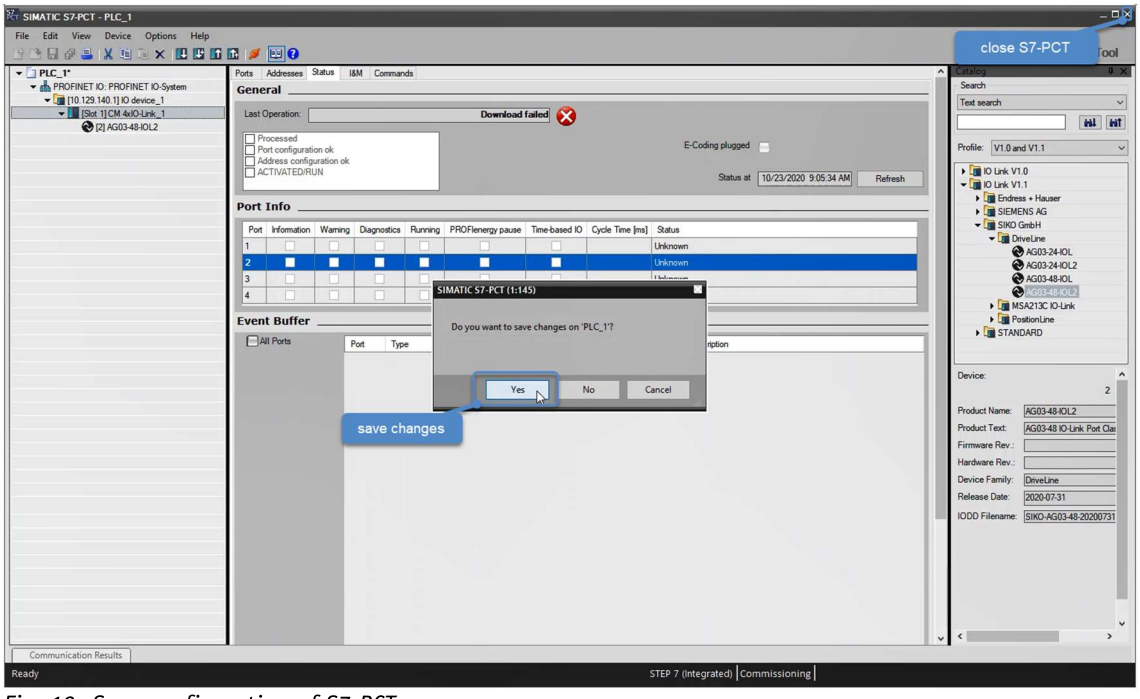

Fig. 13: Save configuration of S7-PCT

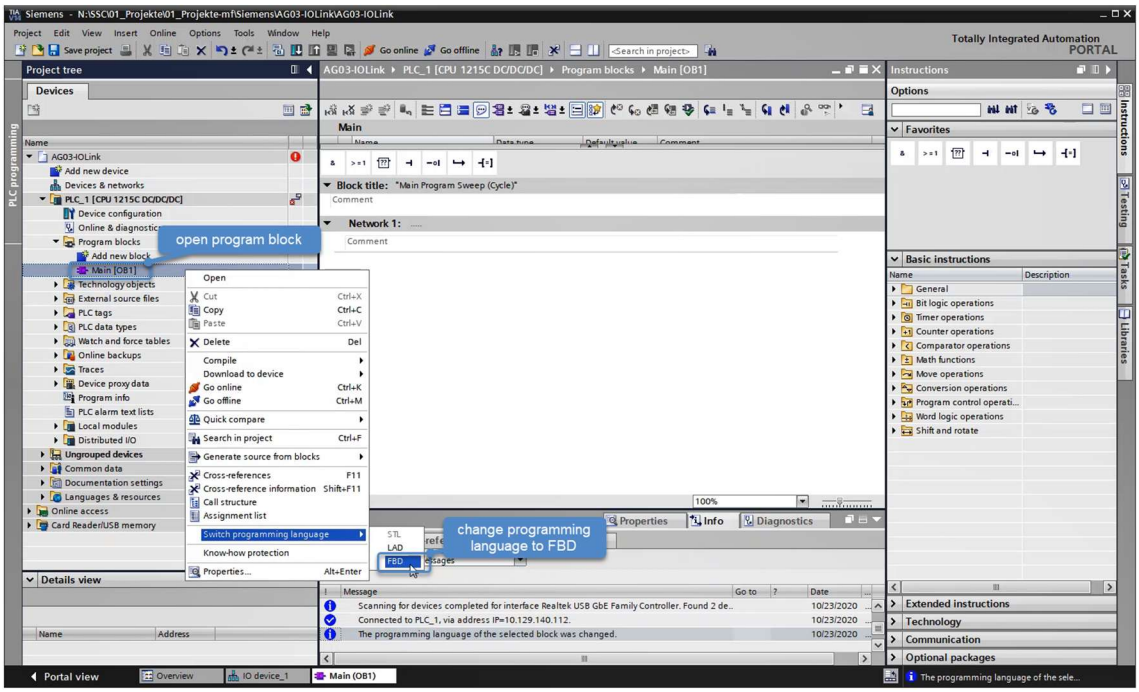

Fig. 14: Open program block

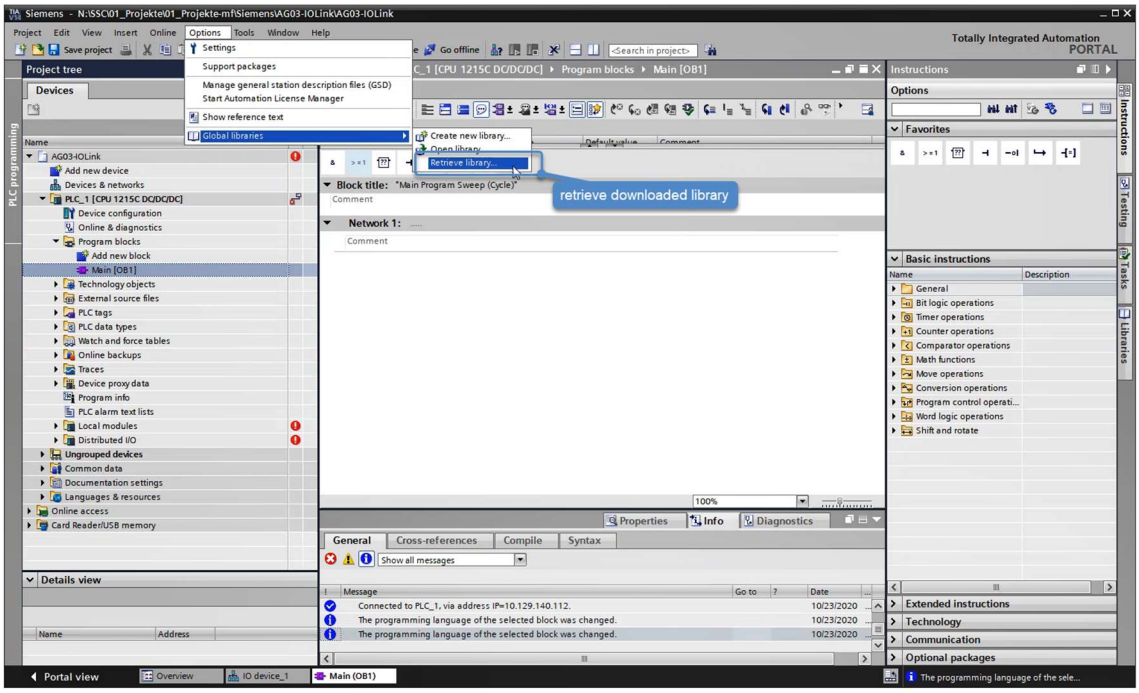

Fig. 15: Retrieve library

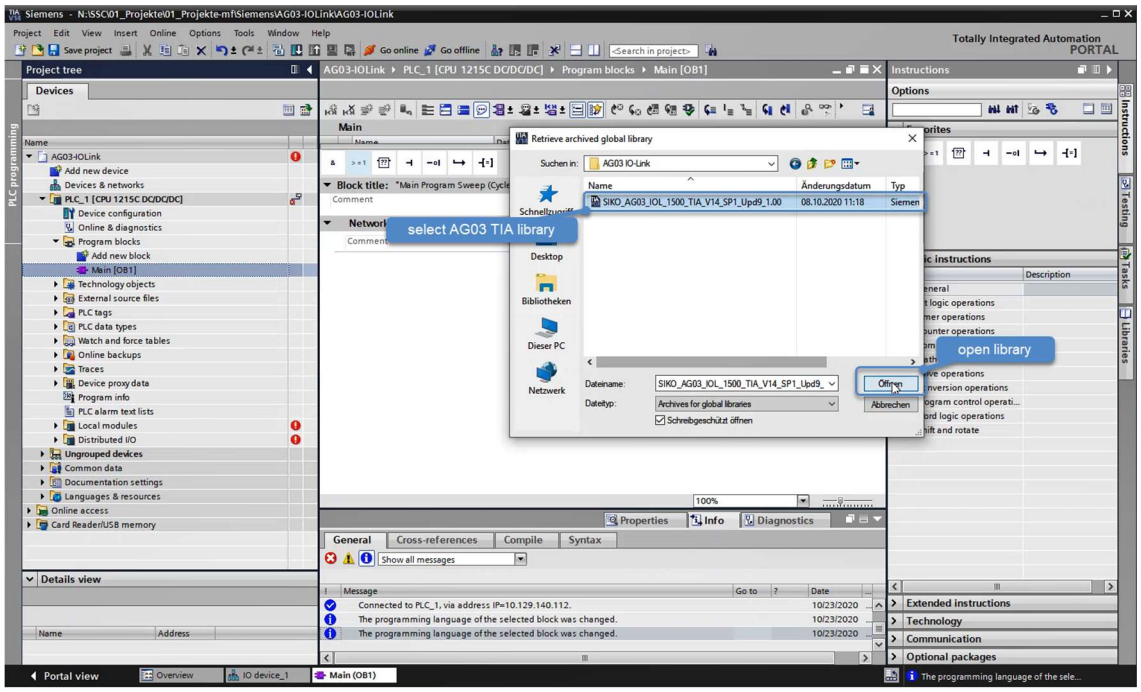

Fig. 16: Choose library

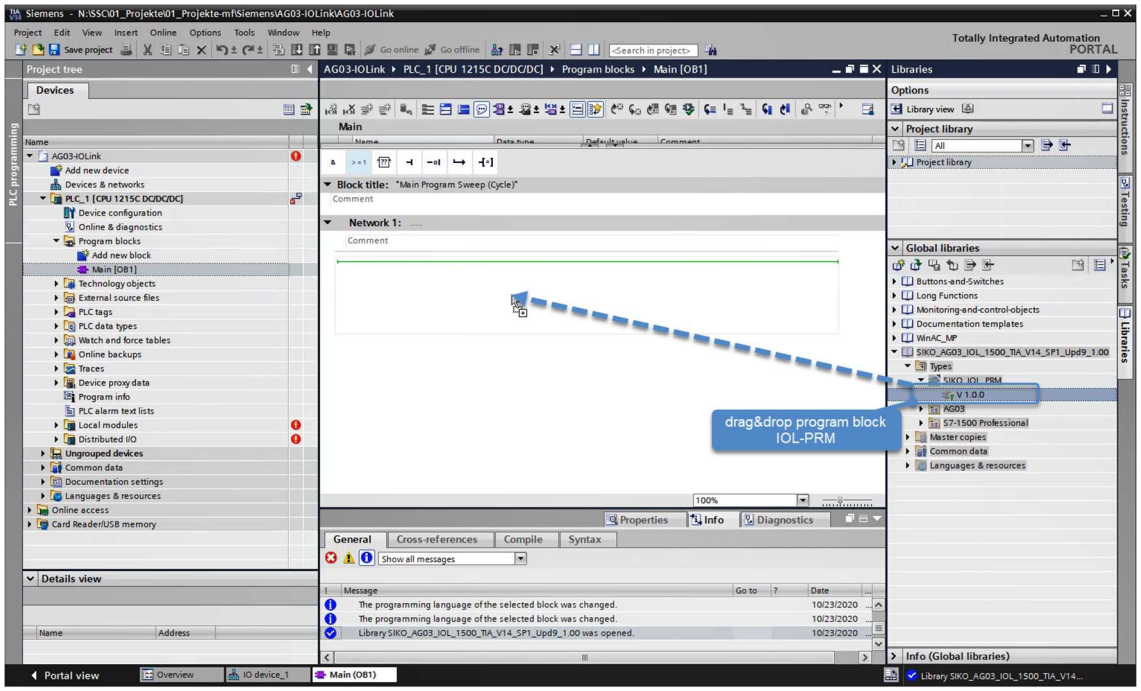

Fig. 17: Drag&drop function block

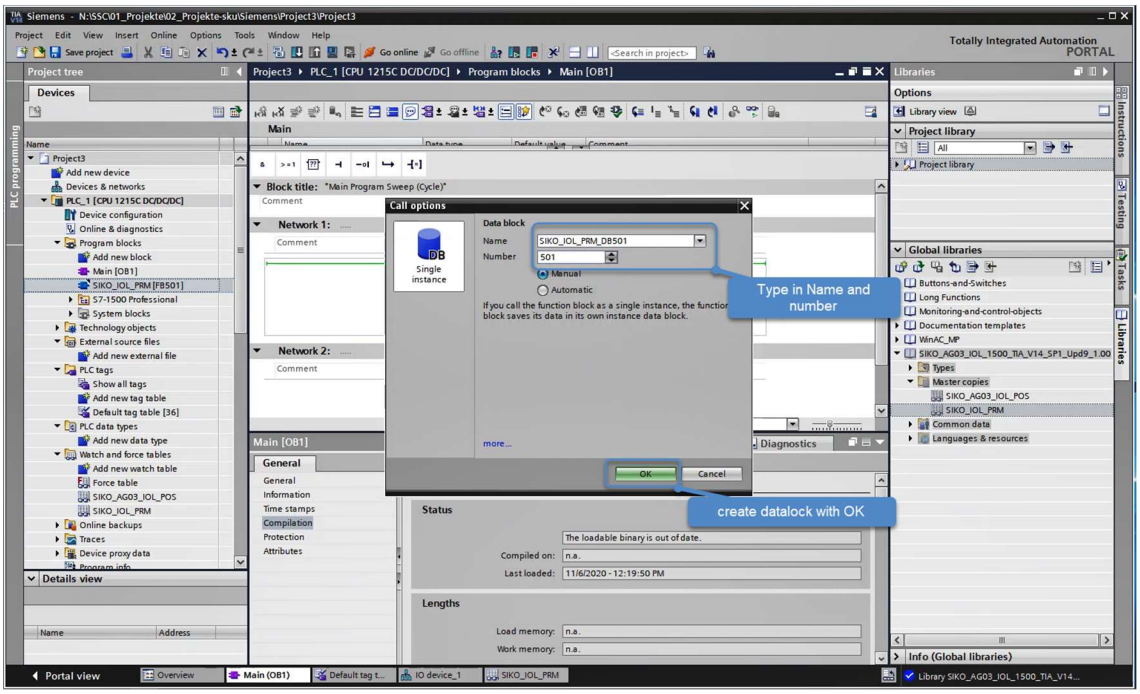

Fig. 18: Create data block

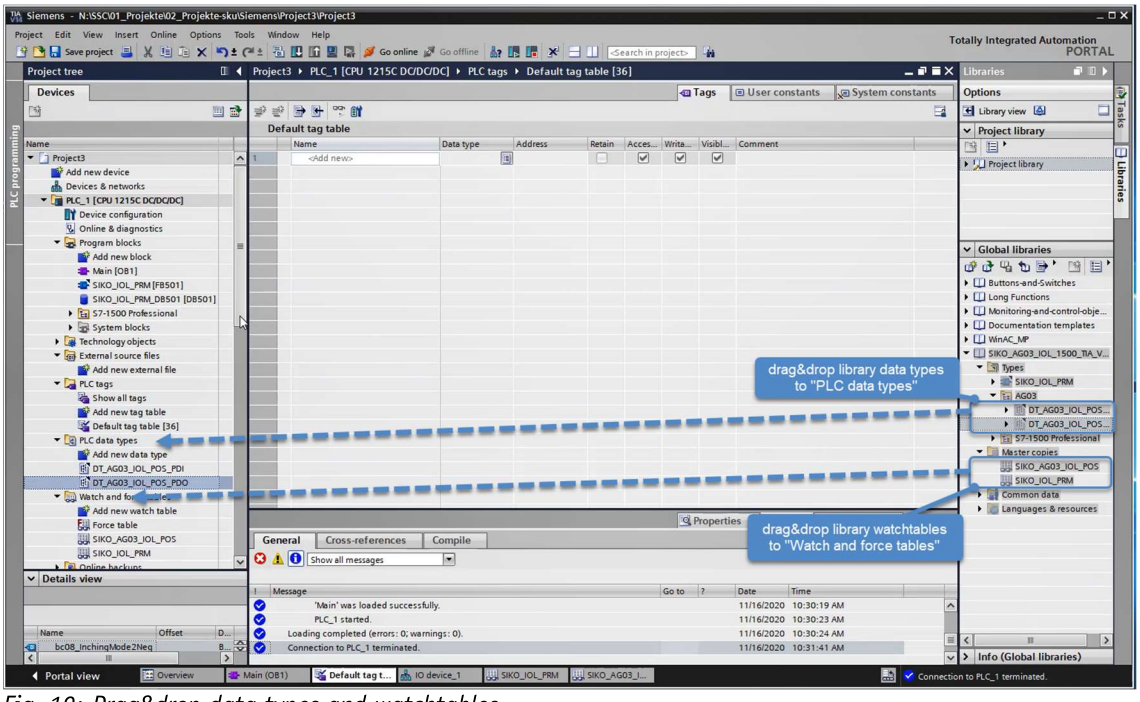

Fig. 19: Drag&drop data types and watchtables

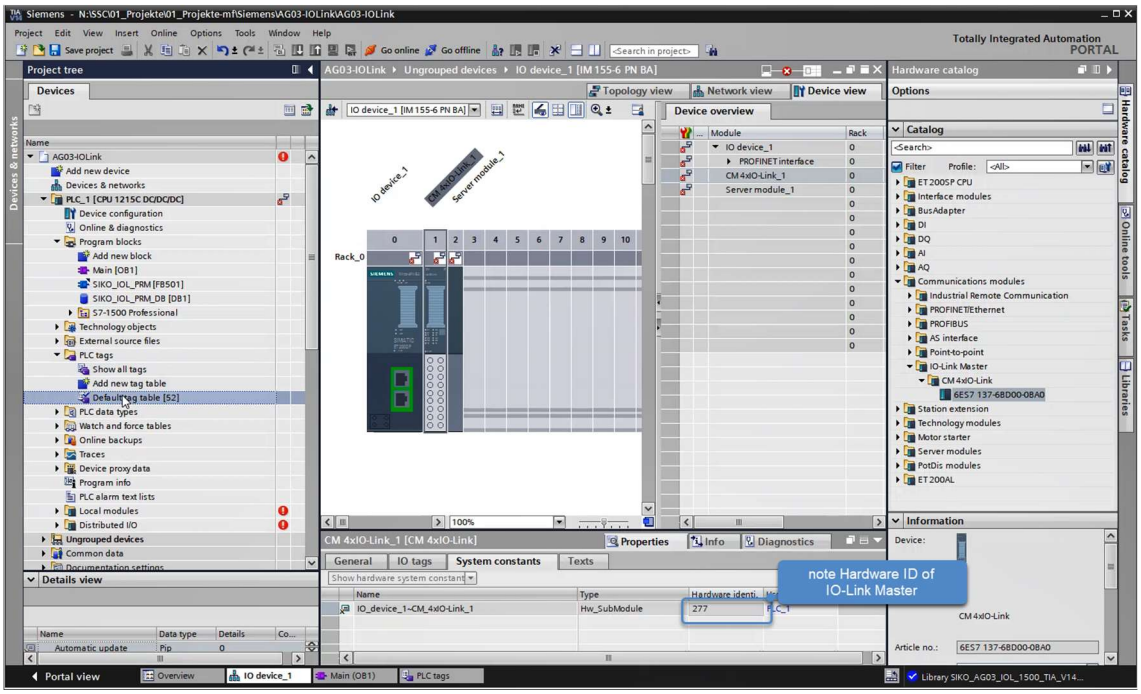

Fig. 20: Note Hardware-ID

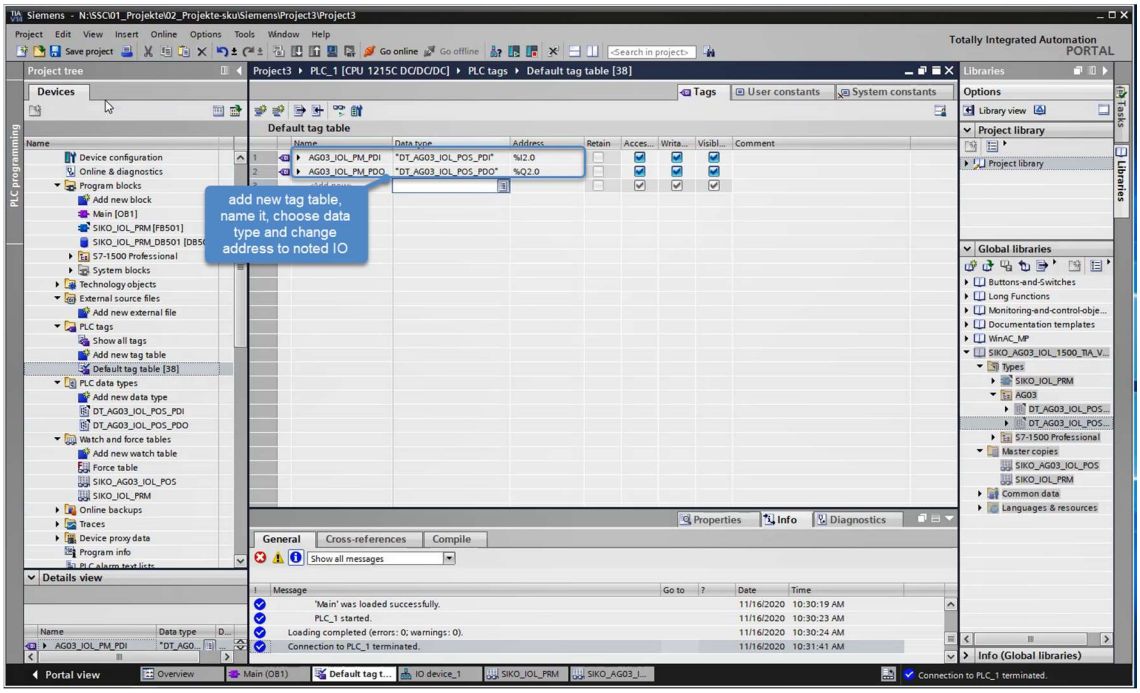

Fig. 21: Add global tags

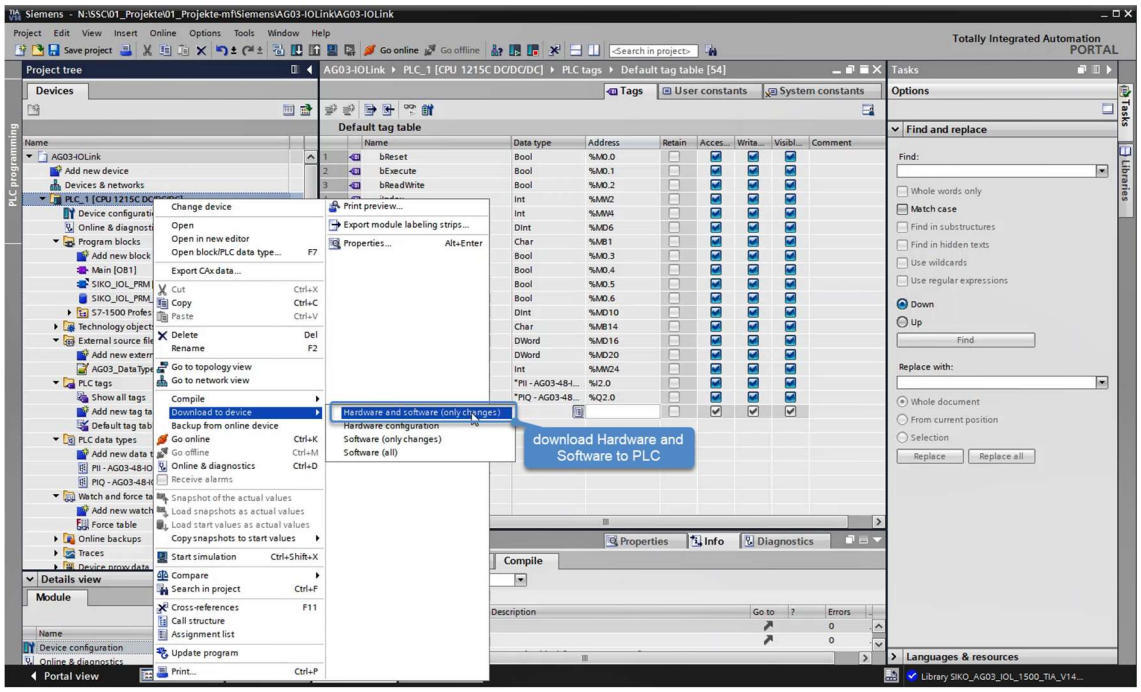

Fig. 22: Download hardware and software

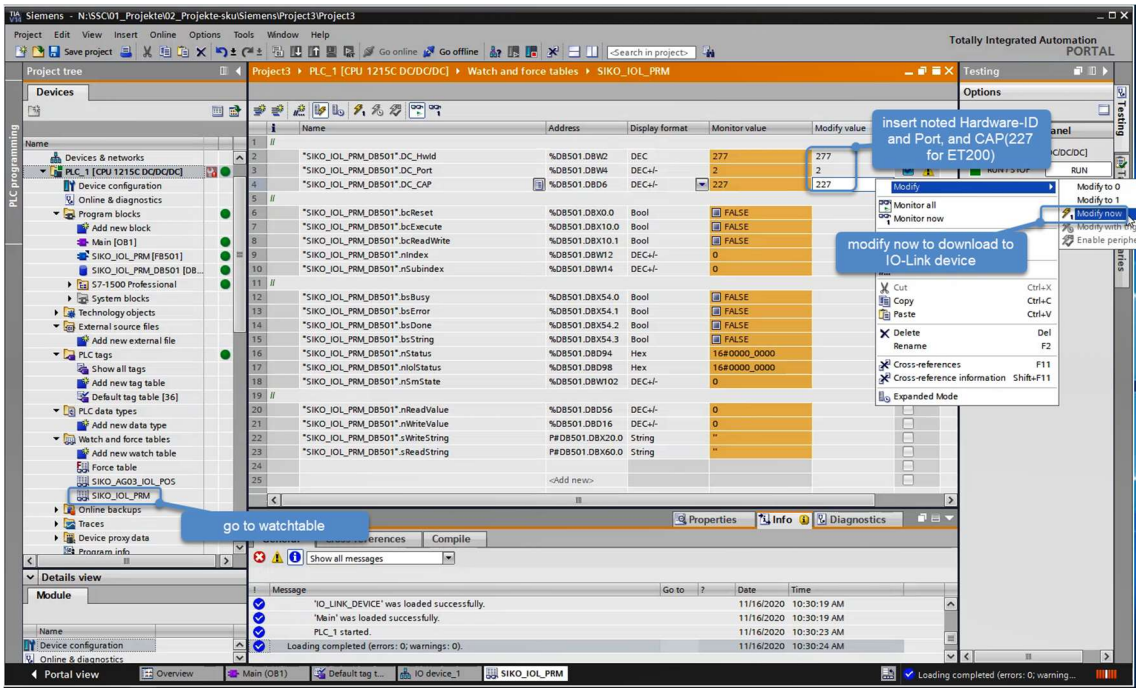

Fig. 23: Configure watch table

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