

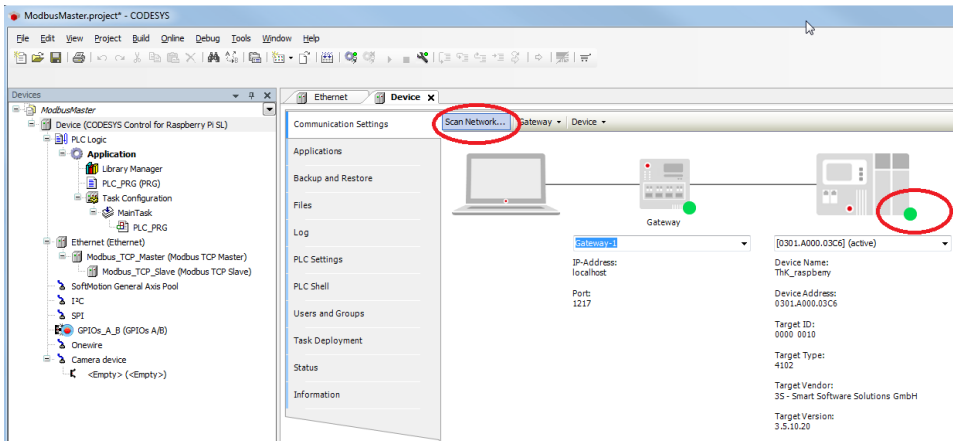
Modbus master slave communication over Ethernet

Hardware

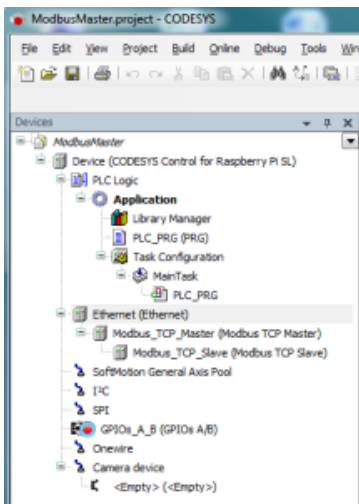
- Raspberry Pi B xy as the Modbus master
- CODESYS Control Win V3 as the Modbus slave

Requirements for the Modbus master

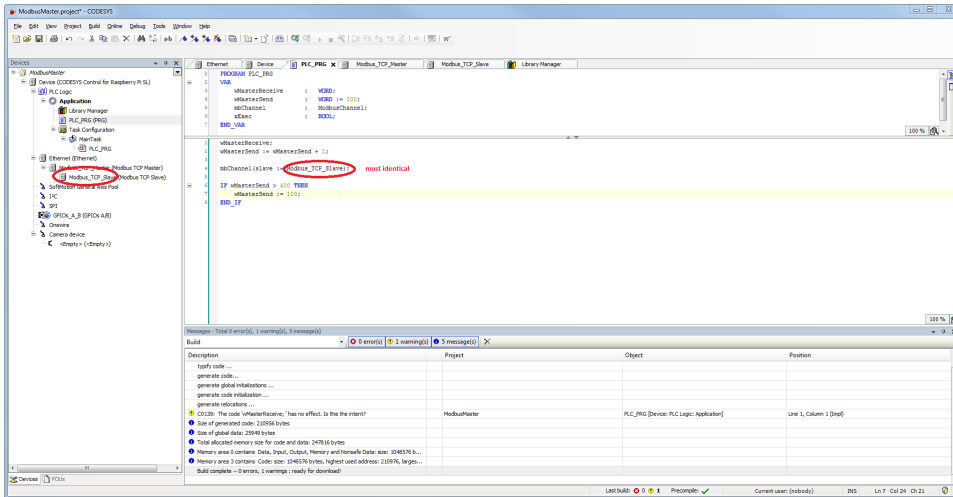
- Create a "standard project" and select "CODESYS Control for Raspberry Pi SL" as the device.
- Define the target system via [Network search](#).



- Insert an Ethernet adapter, a **Modbus_TCP_Master** and a **Modbus_TCP_Slave** in the device tree.

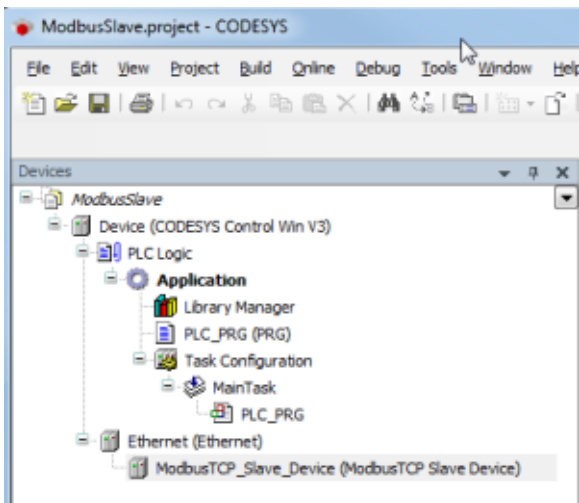


- Adapt the "PLC_PRG" as follows:



Requirements for the Modbus slave

- Create a "standard project" and select "CODESYS Control Win V3" as the device.
- Define the target system via Network search (see Modbus master).
- Insert an Ethernet adapter and a Modbus_TCP_Slave_Device in the device tree.

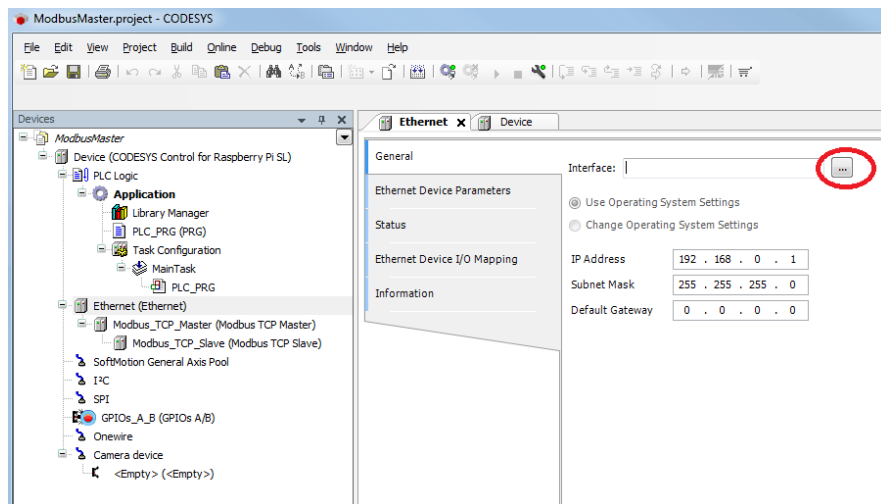


Setting on the Ethernet adapter (master and slave)

- Determine which interface is to be used.



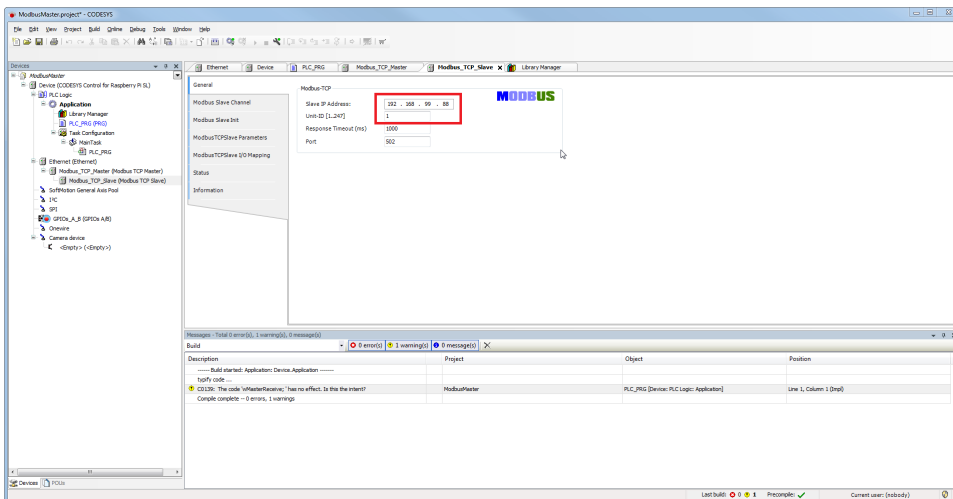
If no target system is determined, an error message appears, "Gateway not configured"



Setting on the Modbus_TCP_Slave (master)

Tab 'General'

- Enter the IP address of the slave device (in this case the CODESYS Control Win V3)
- Issue a unique ID for the Modbus configuration



Tab 'Channel'

- Create an input register (counter that is sent by the Modbus slave device) – cyclic update every 100 ms.

ModbusChannel

Channel Name: Channel 0

Access Type: Read Input Registers (Function Code 4)

Trigger: Cyclic Cycle Time (ms): 100

Comment:

READ Register

Offset:

Length: 1

Error Handling: Keep last Value

WRITE Register

Offset:

Length: 1

OK Cancel

- Create an output register for writing your own counter.

ModbusChannel

Channel Name: Channel 1

Access Type: Write Multiple Registers (Function Code 16)

Trigger: Rising edge Cycle Time (ms): 100

Comment:

READ Register

Offset:

Length: 1

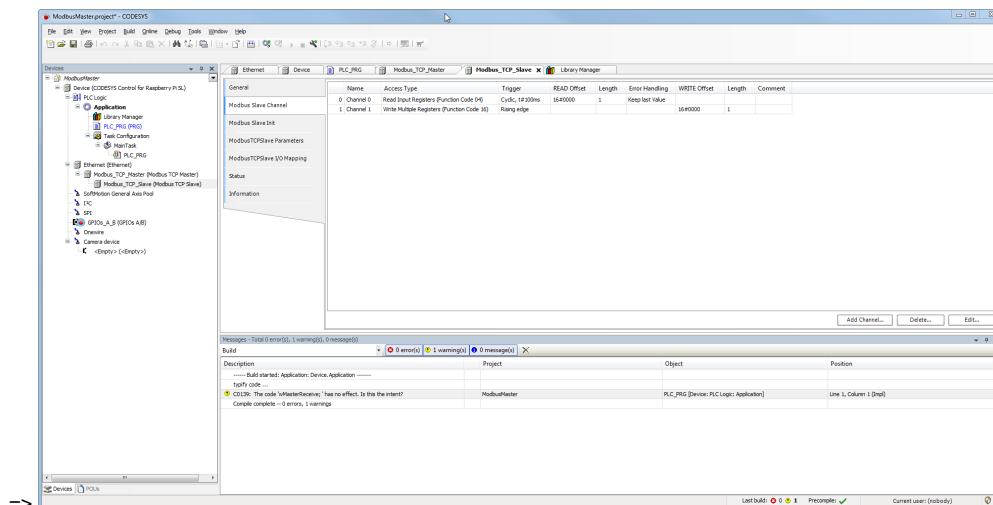
Error Handling: Keep last Value

WRITE Register

Offset:

Length: 1 We have just 1 word counter

OK Cancel

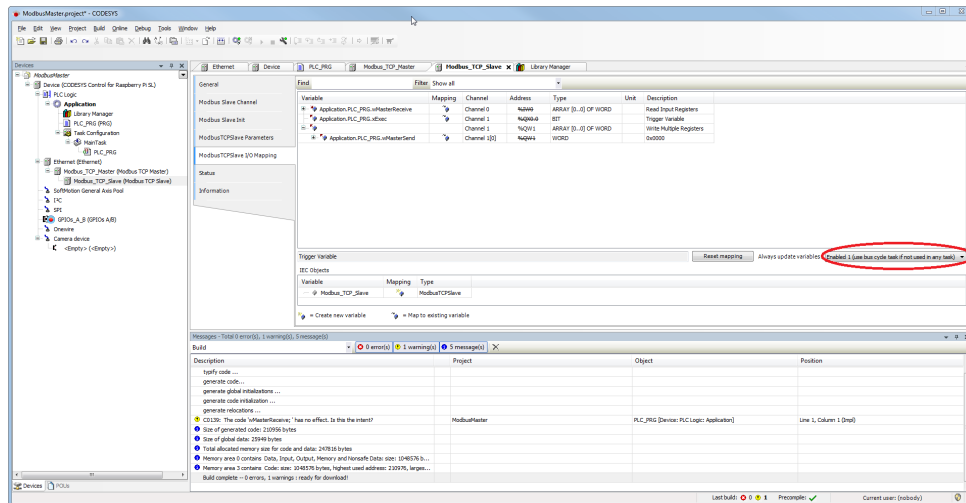


I/O mapping

- Assign input and output variables.



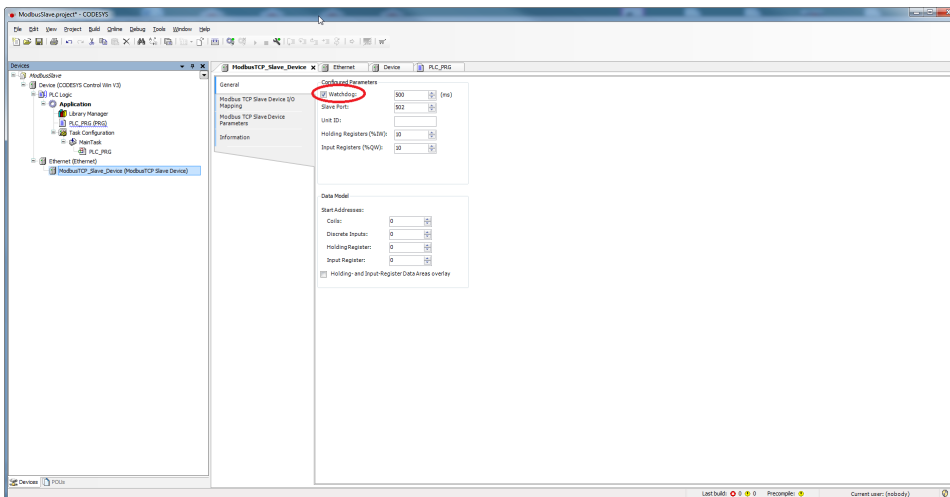
The setting of the option "Enabled 1" is necessary, since the variable "xExec" is not used in any task and writing would therefore not work.



Settings on the Modbus_TCP_Slave_Device (slave)

Tab 'General'

- Activate monitoring of the communication.



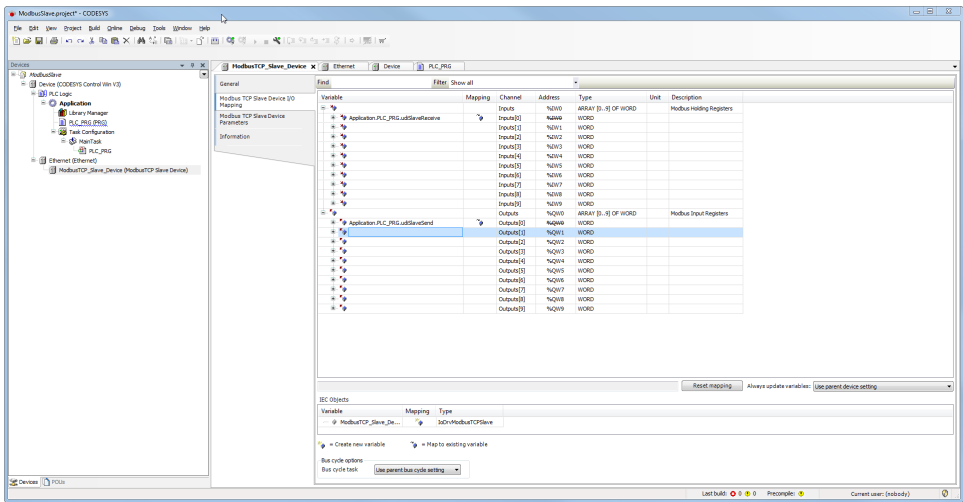
The **unit ID** must not be used for Modbus TCP!
This is only used for TCP/RTU gateways.



The unit ID is only used for forwarding (gateway) to a Modbus Serial Bus.
For TCP/IP, the MODBUS-Server is addressed by means of the IP address. In this case, the MODBUS unit ID is not used (the value 0xFF has to be used).
For a serial connection, the Modbus devices are addressed with unit IDs from 1 to 247 (0 is used for broadcast addresses).

Tab 'I/O mapping'

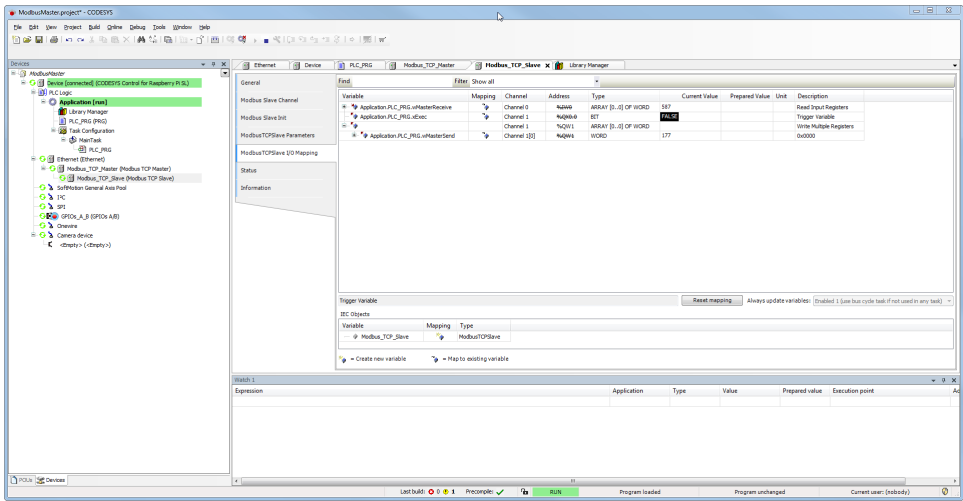
- Assign input and output variables.



Downloading and starting the projects

Master

- Load the application to the controller.



Slave

- Load the application to the controller

⚠ The value changes only after transmission has been triggered manually in the master.

