## Modbus TCP Slave: Using the "Application" Channel Trigger

(i)

The Modbus slave from the FAQ Modbus Communikation Master/Slave via Ethernet is used here.

- Create a "Standard project" and select CODESYS Control Win V3 as the device.
- Define the target system by means of the Network scan.



• Insert an Ethernet adapter in the device tree and specify the interface to be used.

If a target system is not defined yet, then the error message "Gateway not configured" is displayed. 1 Modbus\_ChannelConfApplication.project\* - CODESYS <u>File Edit View Project Build Online Debug Tools Window Help</u> 🎦 🖆 🔜 🖕 🗠 🗠 🐇 🛍 🕼 🐫 🌿 🍓 🌿 🏙 🔚 🕲 + 🗗 🎬 🖤 🧐 📦 🕞 📲 🧏 🕼 🖆 👘 👘 👘 🌾 🌾 👘 👘 👘 👘 Devices Device 🗃 Ethernet 🗙 Modbus\_ChannelConfApplication • Device (CODESYS Control Win V3) General Interface: ... E PLC Logic Ethernet Device Parameters Application IP Address 192 . 168 . 0 . 1 💼 Library Manager Subnet Mask 255 . 255 . 255 . 0 Status PLC\_PRG (PRG) Default Gateway 0.0.0.0 Task Configuration Ethernet Device I/O Mapping 🚊 🥩 MainTask Adjust Operating System Settings PLC\_PRG Information Ethernet (Ethernet)

• Insert a Modbus TCP Master below the Ethernet adapter in the device tree.

Insert a Modbus TCP Slave below the Modbus TCP Master in the device tree.



• Insert it in the Modbus Slave Channel tab and set the properties as follows:

| Channel        |   |                     |   |  |  |  |  |
|----------------|---|---------------------|---|--|--|--|--|
| Name           | Channel 0                                   |                     |   |  |  |  |  |
| Access Type    | Write Multiple Registers (Function Code 16) |                     |   |  |  |  |  |
| Trigger        | Application •                               | Cycle Time (ms) 100 |   |  |  |  |  |
| Comment        |   |                     |   |  |  |  |  |
| READ Register  |   |                     |   |  |  |  |  |
| Offset         | 0x0000                                      |                     | w |  |  |  |  |
| Length         | 0   |                     |   |  |  |  |  |
| Error Handling | Keep last Value 👻                           |                     |   |  |  |  |  |
| WRITE Register |   |                     |   |  |  |  |  |
| Offset         | 0x0000                                      |                     |   |  |  |  |  |
| Length         | 1   |                     |   |  |  |  |  |
|                |   |                     |   |  |  |  |  |

• Adapt the POU PLC\_PRG as follows:

Declaration

| VAR |             |   |                |
|-----|-------------|---|----------------|
|     | xExec       | : | BOOL;          |
|     | wMasterSend | : | WORD := 100;   |
|     | mbChannel   | : | ModbusChannel; |
| END | _VAR        |   |                |
|     |             |   |                |

## Implemen tation

mbChannel(slave := Modbus\_TCP\_Slave, xExecute := xExec);

• Assign the variable wMasterSend to the output Channel 0[0] in the tab ModbusTCPSlave I/O Mapping.

|  | Device Ethernet            | Modbus_TCP_Slave X PLC_PRG      |                        |                                   |                               |  |           |                  |
|--|----------------------------|---------------------------------|------------------------|-----------------------------------|-------------------------------|--|-----------|------------------|
| Hodbus_ChannelConfilpplication     Image: Modbus_ChannelConfilpplication     Image: Modbus_ChannelConfilpplication | General                    | Find Filter                     | Show all               | •                                 |                               |  |           |                  |
| Duc Logic     Duc Logic     Duc Logic     Duc Logic     Duc Logic     Duc Logic                                    | Modbus Slave Channel       | Variable N                      | Tapping Channel        | Address Type                      | Unit Description              |  |           |                  |
| Library Manager  | Modbus Slave Init          | Application.PLC_PRG.wMasterSend | Channel 0 Channel 0[0] | NGQW0 ARRAY [00] OF<br>NGQW0 WORD | WORD Write Multiple<br>0x0000 | e Registers                              |           |                  |
| Task Configuration     Start Addition  | ModbusTCPSlave Parameters  |                                 |                        |                                   |                               |  |           |                  |
| PLC_PRG  | ModbusTCPSlave I/O Mapping |                                 |                        |                                   |                               |  |           |                  |
| Modbus_TCP_Master (Modbus TCP Master)  | Status                     |                                 |                        |                                   |                               |  |           |                  |
| []] Modbus_TCP_Slave (Modbus TCP Slave)  | Information                |                                 |                        |                                   |                               |  |           |                  |
| Modbus_TCP_Slave   | Find                       | Filt                            | er Show all            |                                   |                               | <ul> <li>Add FB for IO Channe</li> </ul> | el →≣ G   | io to Instance   |
|  |                            |                                 |                        |                                   |                               |  |           |                  |
| Modbus Slave Channel   | Variable                   |                                 | Mapping                | Channel                           | Address                       | Туре                                     | Unit      | Description      |
| Madhua Claus Isit  | 🖃 🍢                        |                                 |                        | Channel 0                         | %QW0                          | ARRAY [00] OF WORD                       |           | Write Multiple   |
| Modbus Slave Inc   | 🗄 - 🍢 Appl                 | ication.PLC_PRG.wMasterSend     | ۵.                     | Channel 0[0]                      | %QW0                          | WORD                                     |           | 0x0000           |
|  |                            | -                               |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters  |                            |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping  |                            |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping<br>ModbusTCPSlave IEC Objects                              | 1                          |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping<br>ModbusTCPSlave IEC Objects<br>Status                    |                            |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping<br>ModbusTCPSlave IEC Objects<br>Status<br>Information     |                            |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping<br>ModbusTCPSlave IEC Objects<br>Status<br>Information     |                            |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping<br>ModbusTCPSlave IEC Objects<br>Status<br>Information     | <                          |                                 |                        |                                   |                               |  |           |                  |
| ModbusTCPSlave Parameters<br>ModbusTCPSlave I/O Mapping<br>ModbusTCPSlave IEC Objects<br>Status<br>Information     | <                          |                                 |                        | Reset Mapping                     | Always upda                   | stevariables Enabled 1 (use              | bus cycle | task if not used |

• Start the project and set the variable *xExecute* to *TRUE* so that the new value is passed to the slave.