



## Communication with HALCON

This example shows how a communication between HALCON and CODESYS can be realized via TCP / UDP protocol. In the CODESYS programs the CAA Net Base Services library is used.

### Product description

#### Licensing:

No license is required.

This example shows how to communicate with a HALCON program via TCP and UDP.

There are three parts of the example that demonstrate the following:

**Part 1:** The CODESYS TCP-Server communicating with HALCON TCP-Client.

**Part 2:** The CODESYS TCP-Client communicating with HALCON TCP/UDP Server.

**Part 3:** The CODESYS UDP-Peer communicating with HALCON TCP/UDP Server.

All CODESYS programs try to re-establish the connection in case of a disconnection.

CODESYS TCP-Server (PRG):

TCP-Server (PRG) connects to the HALCON TCP-Client. A STRING will be sent and the HALCON program echoes the sent STRINGS back. The server listens on 127.0.0.1:4711 and establishes a connection via NBS.TCPConnection. As soon as there is a connection the program changes into state STATE.SEND and sends a STRING, append with a number counting from 100 to 0 (and repeating). After successfully sending the counter for sent messages 'ctSendMessage' increments and the program changes into STATE.READ. The incoming message (echoed by the HALCON program) is searched for the previously sent STRING. If the STRING was found the counting variable 'ctRecAnswers' increments and the program changes back to STATE.SEND.

CODESYS TCP-Client (PRG):

TCP-Client (PRG) connects to the HALCON Server (HALCON Server must be configured to use TCP). A STRING will be sent and the HALCON program echoes the sent STRINGS back. This client tries to establish a connection to the HALCON Server on 127.0.0.1:4711. As soon as there is a connection the client changes into state STATE.SEND and sends a STRING, append with a number counting from 100 to 0 (and repeating). After successfully sending a counter for sent messages 'ctSendMessage' increments and the program changes into STATE.READ. The incoming message (echoed by the HALCON program) is searched for the previously sent STRING. If the STRING was found the counting variable 'ctRecAnswers' increments and the program changes back to STATE.SEND.

CODESYS UDP-Peer (PRG):

UDP-Peer (PRG) connects to the HALCON Server (HALCON Server must be configured to use UDP). A STRING will be sent and the HALCON program echoes the sent STRINGS back. A UDP Peer is established to 127.0.0.1:3000. As soon as there's a connection the program switches into STATE.SEND. A STRING, appended with a number counting from 100 to 0 (and repeating) gets send. After successfully sending the counter for sent messages 'ctSendMessage' increments and the program changes into STATE.READ. The incoming message (echoed by the HALCON program) is searched for the previously sent STRING. If the STRING was found the counting variable 'ctRecAnswers' increments and the program changes back to STATE.SEND.

HALCON TCP Client:

This example shows how to use generic sockets to echo received data from CODESYS TCP Server. The program opens a connecting socket to the accepting socket and reads the IP address and port of the connection. Then it receives the data from the socket. The received data will be echoed back to CODESYS TCP Server.

HALCON TCP / UDP Server:

This example shows generic sockets for exchanging data with CODESYS TCP Server and UDP Peer. All incoming messages (prefixed with a counter) are echoed back to CODESYS.

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Choose the right Protocol (UDP4, TCP4) to enable a connection to either CODESYS TCP-Server or UDP-Peer.

## General information

### Supplier:

CODESYS GmbH  
 Memminger Strasse 151  
 87439 Kempten  
 Germany

### Support:

<https://support.codesys.com>

### Item:

Communication with Halcon

### Item number:

000029

### Sales:

CODESYS Store

<https://store.codesys.com>

### Included in delivery:

- CODESYS software and / or license key with billing information
- For training courses and events: Booking confirmation

## System requirements and restrictions

|                                     |   |
|-------------------------------------|---|
| <b>Programming System</b>           | CODESYS Development System Version 3.5.1.0 or higher  |
| <b>Runtime System</b>               | CODESYS Control Version 3.5.1.0   |
| <b>Supported Platforms/ Devices</b> | All   |
| <b>Additional Requirements</b>      | Halcon 11.0.1 (Download <a href="http://www.halcon.de/halcon/download/">http://www.halcon.de/halcon/download/</a> )<br>TCP_Client.hdev<br>TCP_UDP_Server.hdev |
| <b>Restrictions</b>                 | -   |
| <b>Licensing</b>                    | No license is required.   |

*Note: Not all CODESYS features are available in all territories. For more information on geographic restrictions, please contact [sales@codesys.com](mailto:sales@codesys.com).*

*Note: Technical specifications are subject to change. Errors and omissions excepted. The content of the current online version of this document applies.*