CODESYS STORE

MQTT Client

The “MQTT Client” library allows for linking a CODESYS controller to an MQTT broker. Then messages can be sent and subscribed to based on topics.

The library “MQTT Client” is now part of the product IIoT Libraries SL and is no longer available as single product.

Product description

Licensing:

Workstation License

MQTT (Message Queuing Telemetry Transport) is an open-source IoT protocol that allows for the transmission of telemetry data as messages between devices. Device communication always takes place by means of an MQTT broker (e.g. Mosquitto https://mosquitto.org/). Messages are sent and subscribed to based on topics. A topic corresponds to a path (e.g. device1/temperature). Subscribing to messages is done by specifying a topic filter. Wildcards are also permitted (+ for one level and # for multiple levels). The message format is not fixed, which means that a JSON string or any data structure can be transmitted.

With the “MQTT Client” library, messages can be sent from a CODESYS controller to an MQTT broker, and messages can be subscribed to based on topics.

The “MQTT Client” package contains the following components:

- `MQTT Client` library with the following function blocks:
  - `MQTTClient` FB for establishing an MQTT link
  - `MQTTPublish` FB for sending messages
  - `MQTTSubscribe` FB for subscribing to messages
- Sample project “MQTTClientApp.project” with a visualization for sending and receiving messages
- Description of the function blocks (CHM help file)
- Data sheet (German/English)

Supported functions

- Publishing and subscription of messages based on MQTT V3.1.1
- TLS encryption
- Client certificates (transfer of a certificate handle)
- Quality of Service: 0, 1, and 2 (QoS0, QoS1, QoS2) for the last will, publisher, and subscriber
- Data type “Topics”: `WSTRING`
- Maximum size of a topic: 1024
- The maximum package size and payload size can be configured by means of a parameter list.
- Multitasking and multicore support (`MQTTClient`, `MQTTPublish`, and `MQTTSubscribe` can each be run on different tasks or CPU cores.)
- Last will messages (QoS0, QoS1, QoS2)
- Wildcards (# and +)

Setting up a Mosquitto MQTT broker on a Raspberry Pi

Command for installing the Mosquitto broker:

```
sudo apt-get install mosquitto mosquitto-clients
```

Command for starting and stopping the service:

```
sudo service mosquitto start
sudo service mosquitto stop
```

Commands for testing:

```
mosquitto_sub -d -V mqttv311 -t hello/world
mosquitto_pub -d -V mqttv311 -t hello/world -m "Hello!"
```

Sample project: “MQTTClientApp.project”

The sample project “MQTTClientApp.project” *(Figure 1)* demonstrates how to use the function blocks. It can also be used for testing purposes. All inputs of the function blocks can be configured from the visualization. The example contains two subscribers and two publishers.

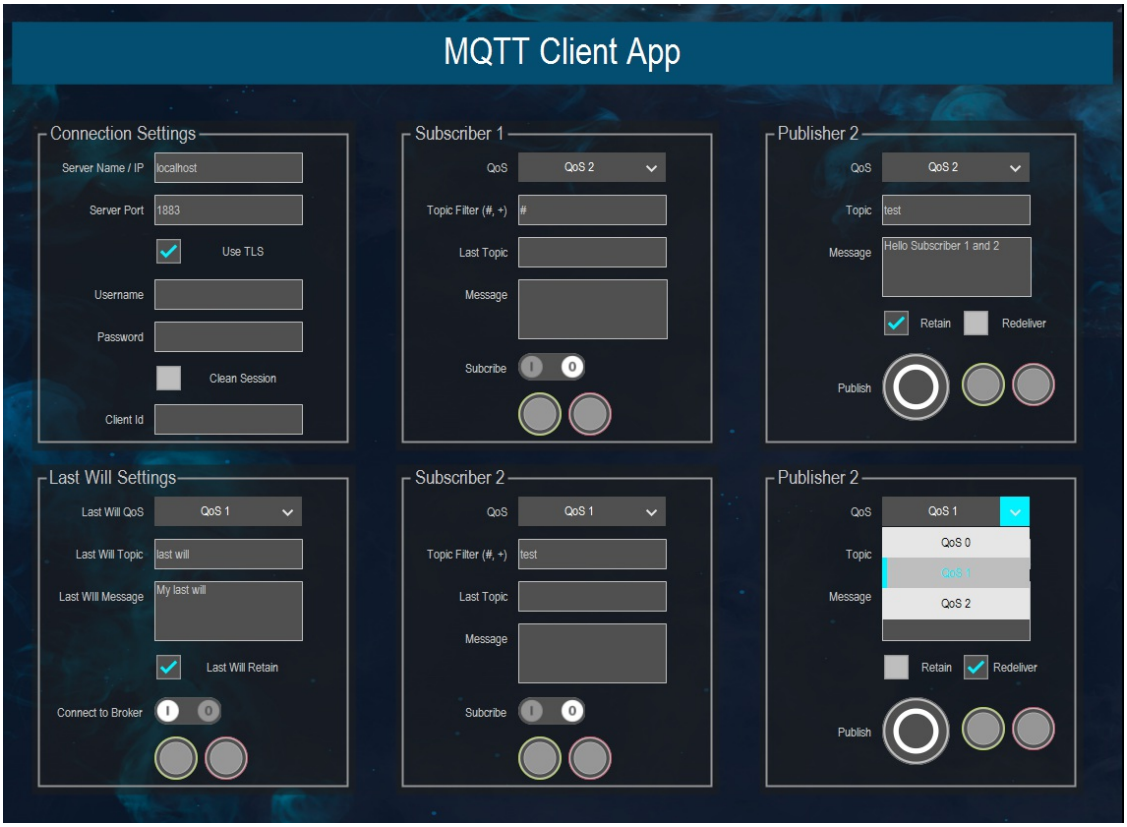

Figure 1: Sample application “MQTTClientApp.project”

General information

Supplier:

CODESYS GmbH
Memminger Strasse 151
87439 Kempten
Germany

Support:

https://support.codesys.com

Item:
MQTT Client
Item number:
2111000027
Sales:

CODESYS Store
https://store.codesys.com

Included in delivery:
CODESYS Package

System requirements and restrictions

Programming system	CODESYS Development System V3.5.14.0 or later
Runtime system	CODESYS Control V3.5.14.0 or later
Supported platforms and devices	Note: Use the “Device Reader” project for locating the functions supported by the PLC. The “Device Reader” project is available in the CODESYS Store free of charge.
Additional requirements	MQTT broker (e.g. Mosquitto https://mosquitto.org/)
Restrictions	-
Licensing	Workstation License: The license can be used on the workstation on which the CODESYS Development System is installed and executed. Licenses are activated on a software-based license container (soft container), which is permanently connected to the workstation. Alternatively the license can be stored on a CODESYS Key (USB-Dongle). By replugging the CODESYS Key, the license can be used on any other workstation.
Required accessories	CODESYS Key for CODESYS < 3.5.14.0

Note: Not all CODESYS features are available in all territories. For more information on geographic restrictions, please contact 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.