



Enable and Use MQTT

Anybus X-gateway IIoT

APPLICATION NOTE

SCM-1202-052 EN 1.0 ENGLISH

1 About this Document

Application note on how to use an AnybusX-gateway IIoT with MQTT, including subscribing to published data using third party tools. We will use Mosquitto as MQTT broker and the MQTT.fx application as data subscriber.

2 Prerequisites

- Download and install MQTT.fx (<https://mqttx.jensd.de/>)
- Download and install Mosquitto (<https://mosquitto.org>). Guides on how to install Mosquitto on different platforms are available on the internet.
- An Anybus X-gateway IIoT, configured according to the start-up guide. The start-up guide and other documentation and files are available at www.anybus.com/support.

3 Configuration

3.1 MQTT Overview

MQTT is a publish/subscribe messaging protocol. In MQTT, there are clients and brokers. The clients can either publish data to the broker, subscribe to data from the broker, or both publish and subscribe to data from the broker. In MQTT, data is usually small bits of information (like single parameter values) and different data chunks are referred to as topics. Unlike standard client/server messaging, the clients do not need to know about each other: they only communicate with the broker, by publishing data or subscribing to data, which is then transferred to them from the broker.

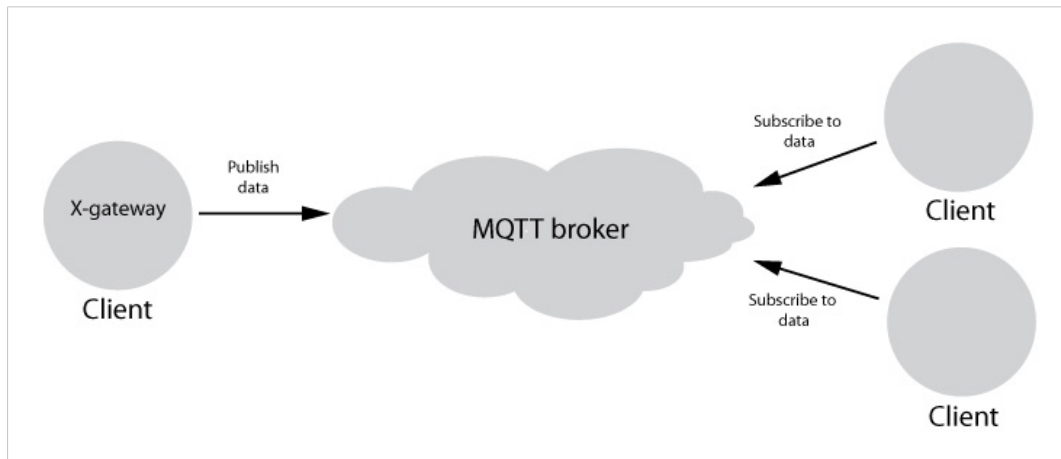


Fig. 1 MQTT overview

3.2 Configuration

Start the Mosquitto software. It will act as an MQTT message broker between the X-gateway IloT and the MQTT.fx application.

An easy check to verify that MQTT is enabled when the X-gateway IloT has started is to enter the configuration or the status web page of the device. Do this by entering the IP address of the device in the address field of a standard web browser. Both the configuration and status web page shall have an MQTT section present. From the configuration web page it is possible to configure connection and publish options of MQTT. Be sure to create a unique name for Client identifier. Base topic is not mandatory, but a unique base topic name simplifies identification of the tags in the broker. Once a broker URL has been configured and the X-gateway IloT has been restarted, it is possible to find the connection status in the MQTT section of the status web page. If the device fails to resolve the configured URL or fails to authenticate the connection, this will be communicated through that page.

The screenshot displays the configuration page for Anybus CompactCom. It features a sidebar menu on the left with options: Overview, Parameters, NETWORK, Status, Configuration, SERVICES, and SMTP. The main content area is divided into three sections, each with a 'Save settings' button:

- IP Configuration:** Includes fields for DHCP (Enabled), IP Address (10.10.55.153), Subnet Mask (255.255.254.0), Gateway Address (10.10.55.254), Host Name, and Domain name. It also includes DNS Server #1 (10.10.55.254) and DNS Server #2 (0.0.0.0).
- Ethernet Configuration:** Includes fields for Port 1 and Port 2, both set to Auto.
- MQTT Configuration:** Includes fields for Broker URL (10.10.55.41), Client identifier (MyClientIdentifier), Keep alive time (s) (60), Broker username, Broker password, Base topic (MyBaseTopic), and Quality of service (QoS 0).

At the bottom of the page, there is a copyright notice: © 2013 HMS Industrial Networks - All rights reserved, and the text 'Connecting Devices™'.

Fig. 2 Configuration view

4 Publishing Data Notifications

To receive data notifications from the X-gateway IIoT the MQTT.fx application will be used. To connect to the same Mosquitto instance as the X-gateway IIoT, enter the Connection profiles view from the Extras menu (Extras - Edit Connection Profiles). Configure the connection details and other options needed for your Mosquitto server. Once done, apply the configuration and exit this view.

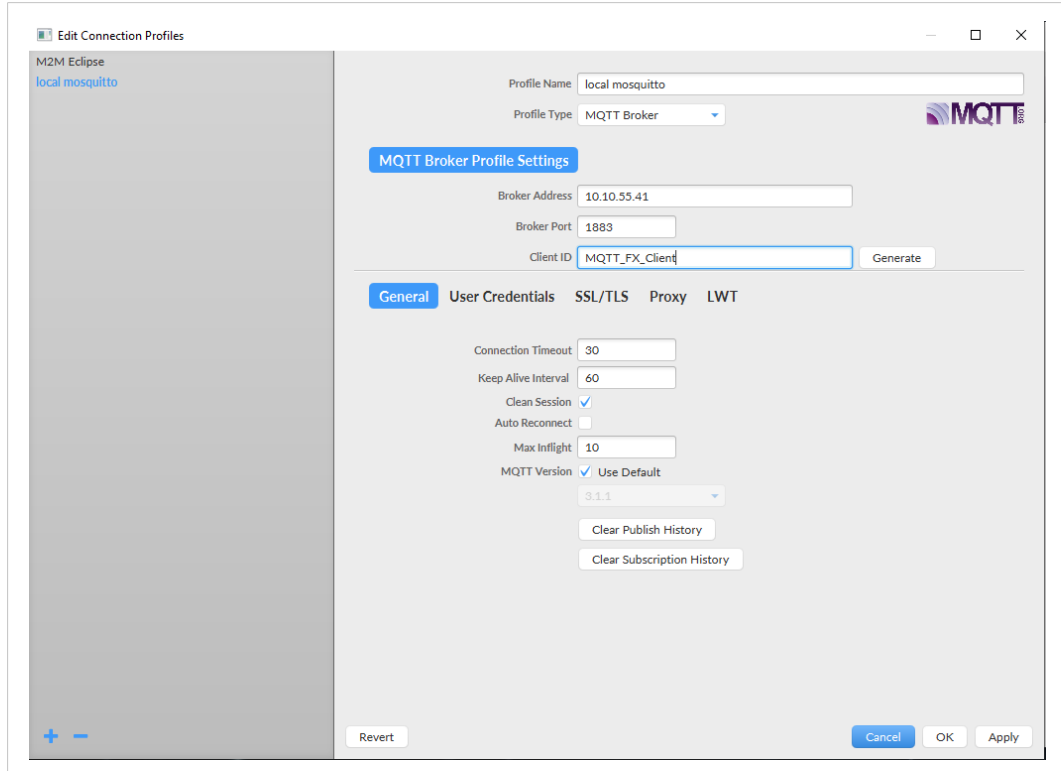


Fig. 3 Connection profiles view

To receive the data notifications published by the X-gateway IIoT, a subscription must be registered to the Mosquitto server.

1. Select the newly created connection profile at the top of the main window and press the Connect button.
2. Open the **Subscribe** tab.
3. Enter the topic string that the device publishes data on in the text box. Note that the topic string must be preceded by the base topic name and the string "Parameter" in the following way: **MyBaseTopic/Parameter/TestParam1**.
4. Press the **Subscribe** button.

When the X-gateway IIoT has data to publish, e.g. when data is changed, it publishes the data to the Mosquitto server, which in turn forwards the data to the subscribing MQTT.fx application. The data will then show up in the console window in the Subscribe tab.

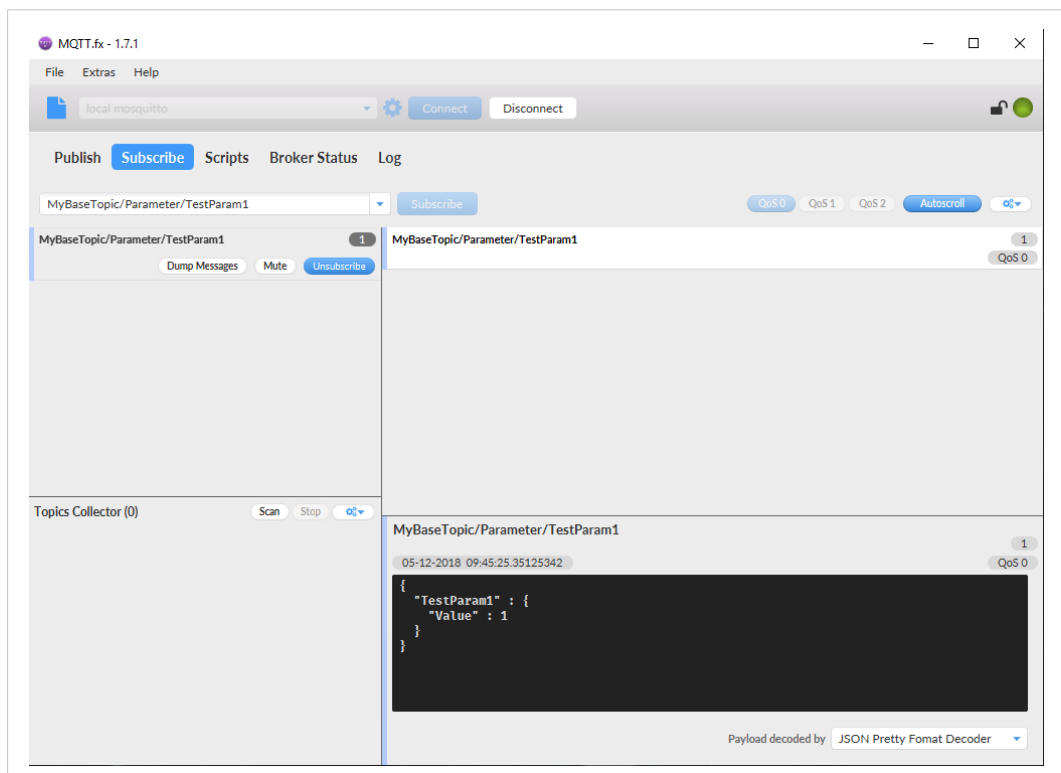


Fig. 4 Subscribe tab

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