



Automating the World

IoT Gateway and GENESIS V11 MQTT SparkplugB communication using IBH Link UA V5.37 (> August 8th 2025)

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Software versions used in this test scenario

OPC UA Server/Client:

<https://download.ibhsoftec.com/Customer/IBHOPCUaSetup.zip>

RD55:

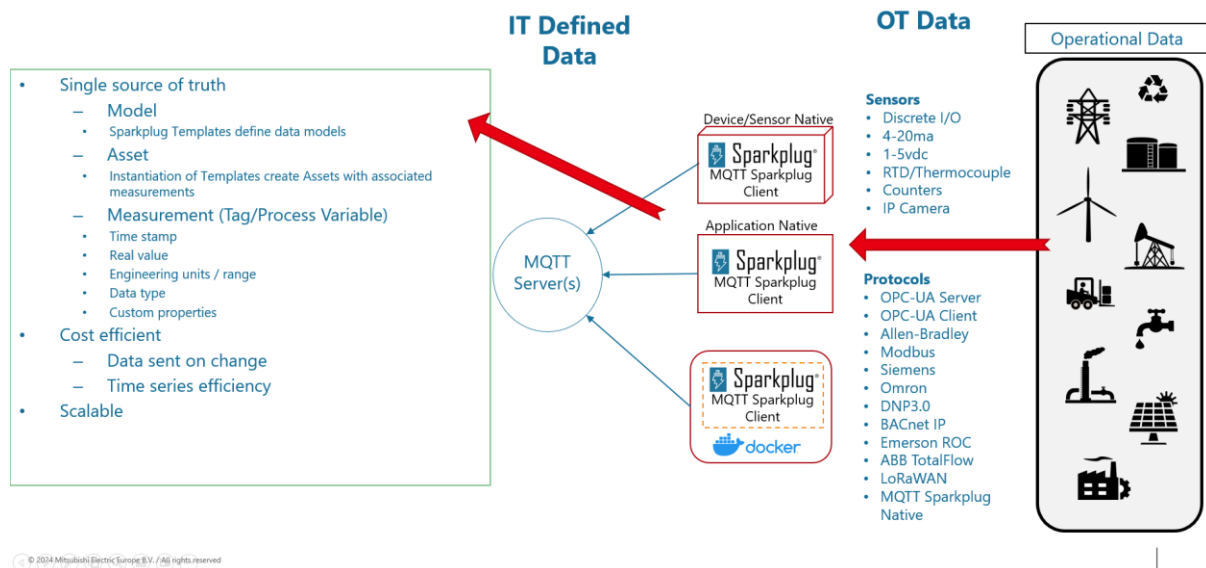
<https://download.ibhsoftec.com/Customer/Mitsubishi/IBHLinkUA-Mitsubishi-RD55UP12-V5-37.zip>

OPC UA Edito :

<https://download.ibhsoftec.com/neutral/IBHOPCUAEditor750Setup.exe>

SparkplugB Standard Summary

USING MQTT SPARKPLUG TO CONNECT OT DATA



Plug and Play Auto-Discovery:

- GroupID/NodeID/DeviceID - Where did this message come from.
- NBIRTH/DBIRTH – New Nodes/Devices/Models/Assets to discover.
- NDATA/DDATA – Node/Device Process Variable Updates.
- NCMD/DCMD – Node/Device level command for bi-directional command/control.
- NDEATH/DDEATH – Node/Device Offline indication.

IBH OPC UA Editor Software, Version 7.50

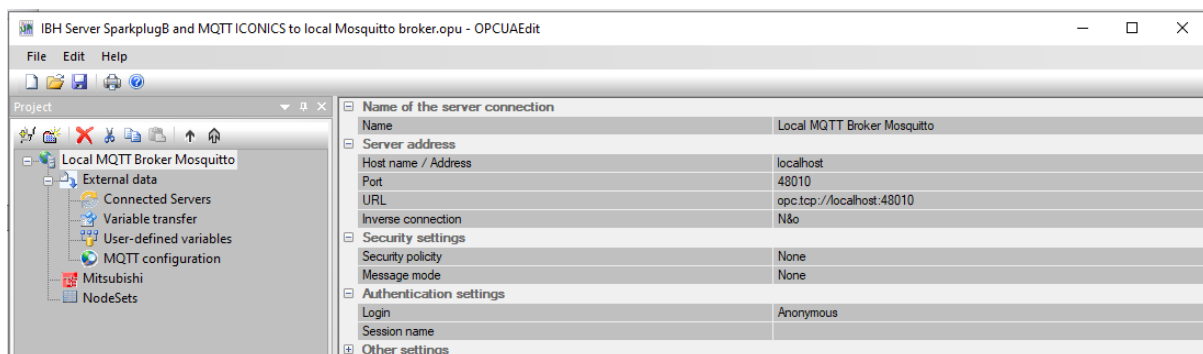


Figure 1 Connection to local MQTT broker

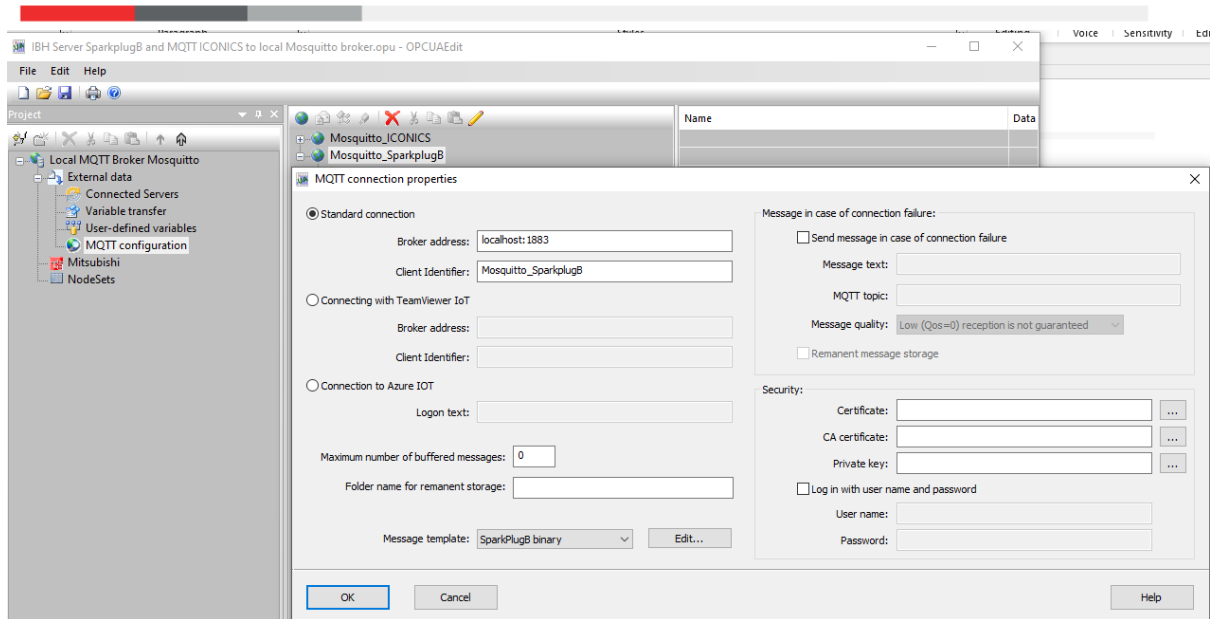


Figure 2 MQTT Publisher, SparkplugB Binary format

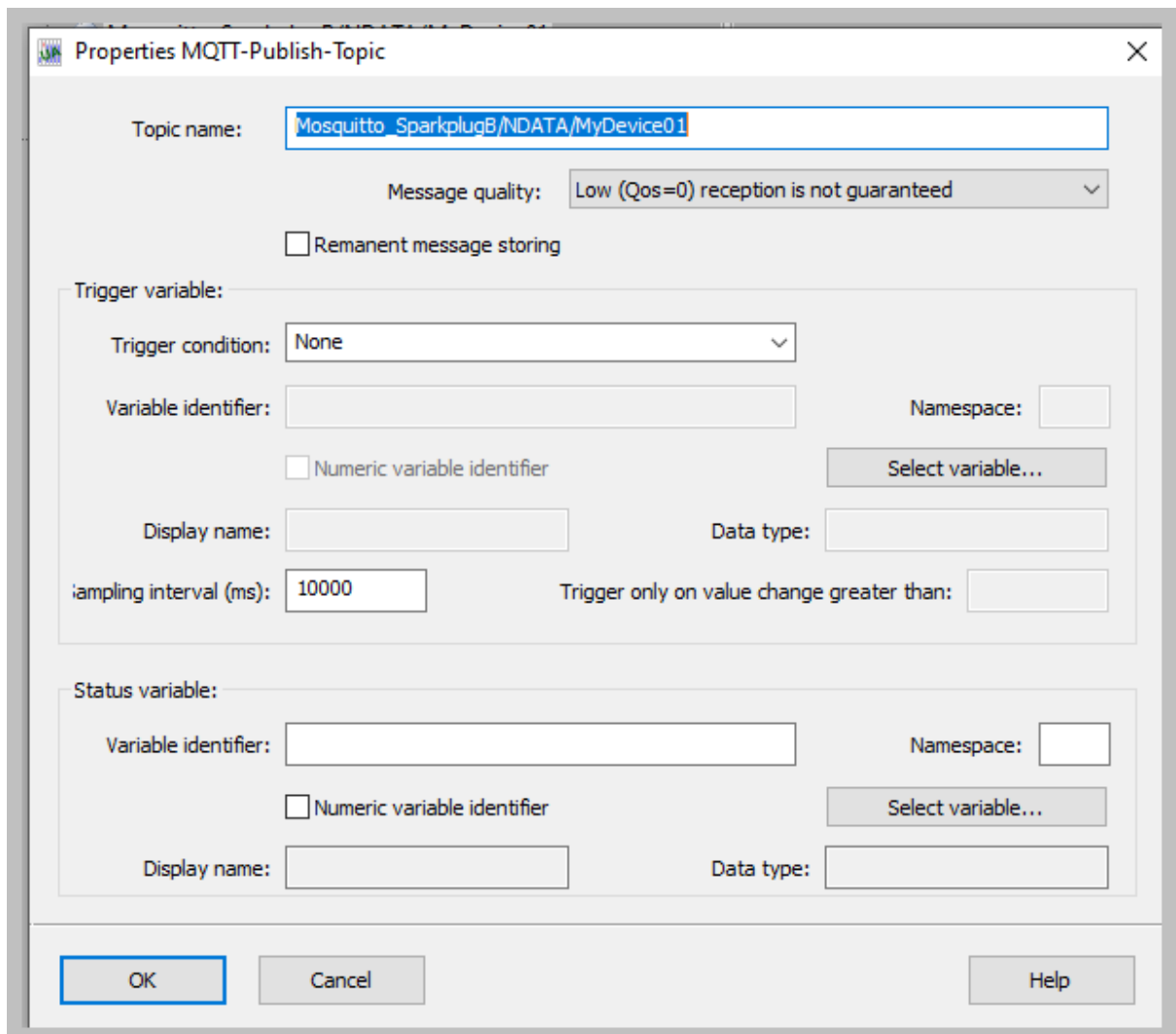


Figure 3 Publish Topic every 10 seconds

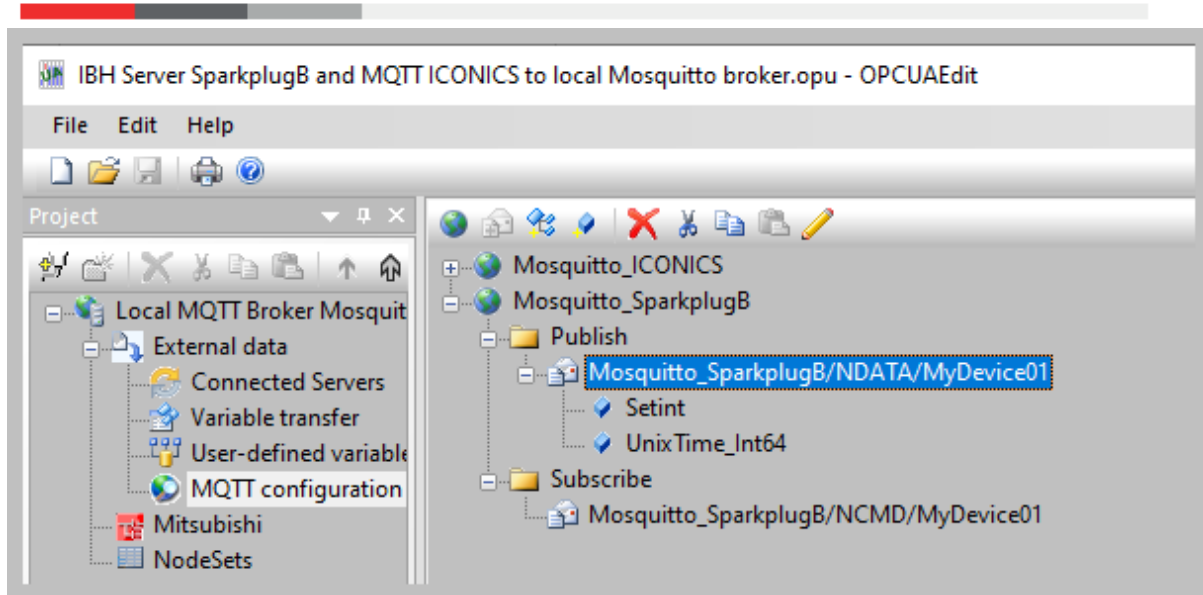


Figure 4 Test item, internal fixed value and Unix Time in ms

Confirming Topic Publishing in MQTT Explorer

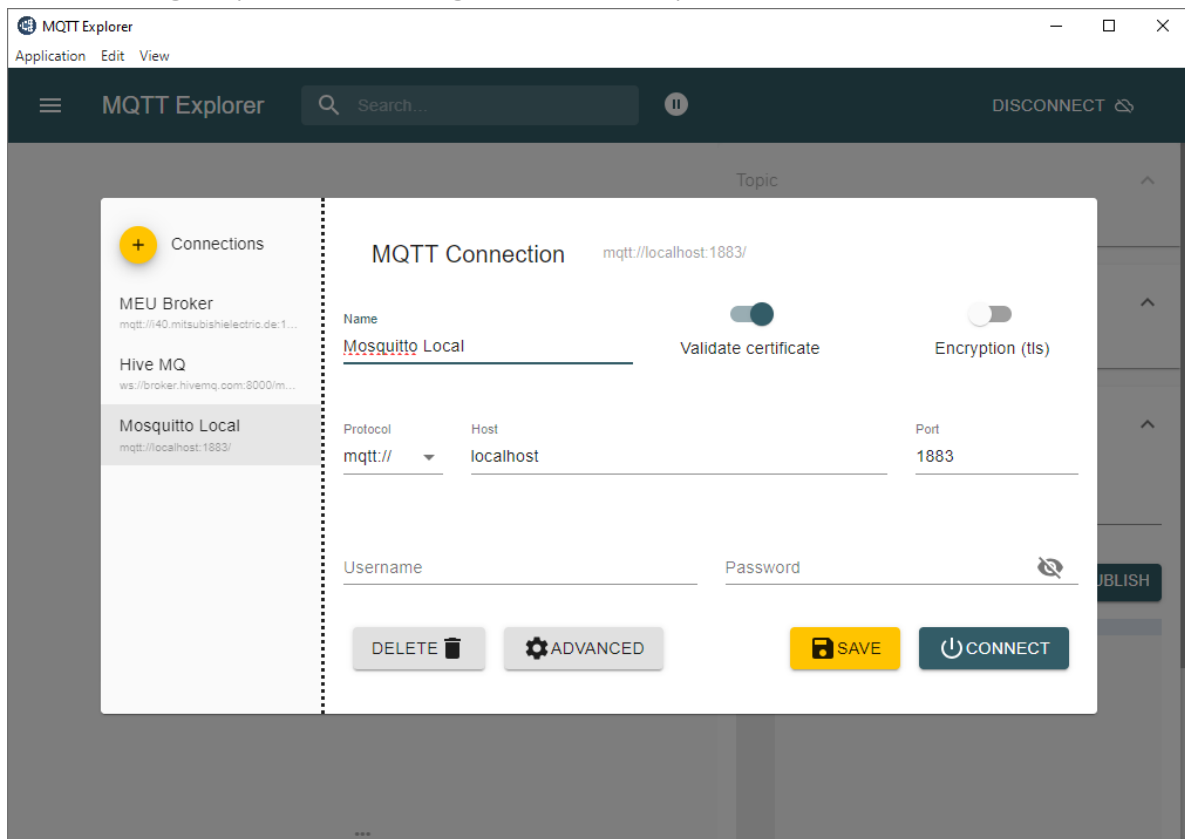


Figure 5 Connection setup

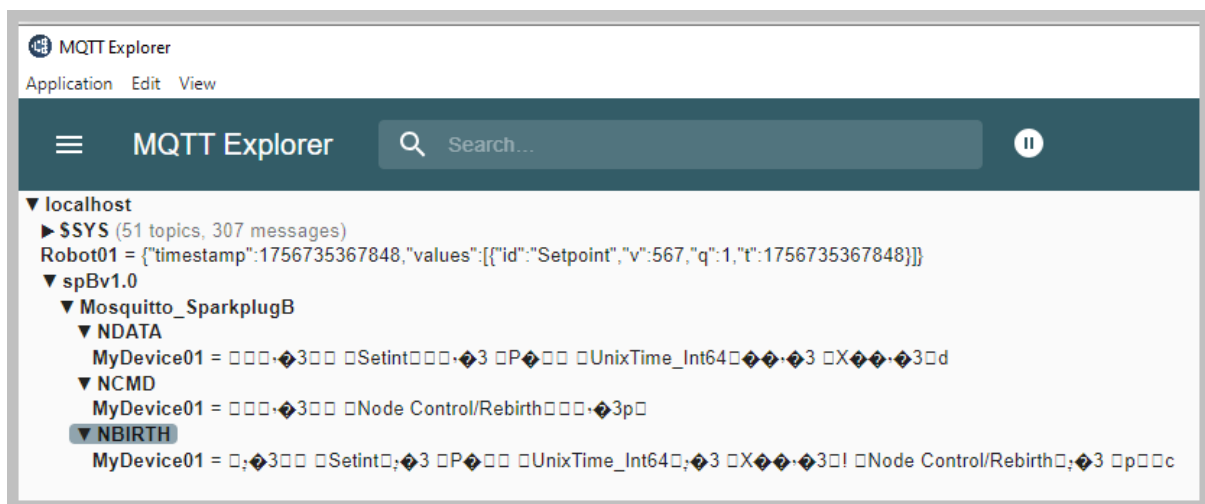


Figure 6 SparkplugB Topic including NBIRTH after GENESIS Publisher restart and requesting NCMD

Confirming Communication in Wireshark

IBH Software sends BIRTH message first

- **BIRTH** message
 - responsible for informing the backend system of all the information about the node/device,
 - this includes every metric it will publish data for in the future.

Then the DATA messages begin:

- **DATA** message -> updates metrics data (read)

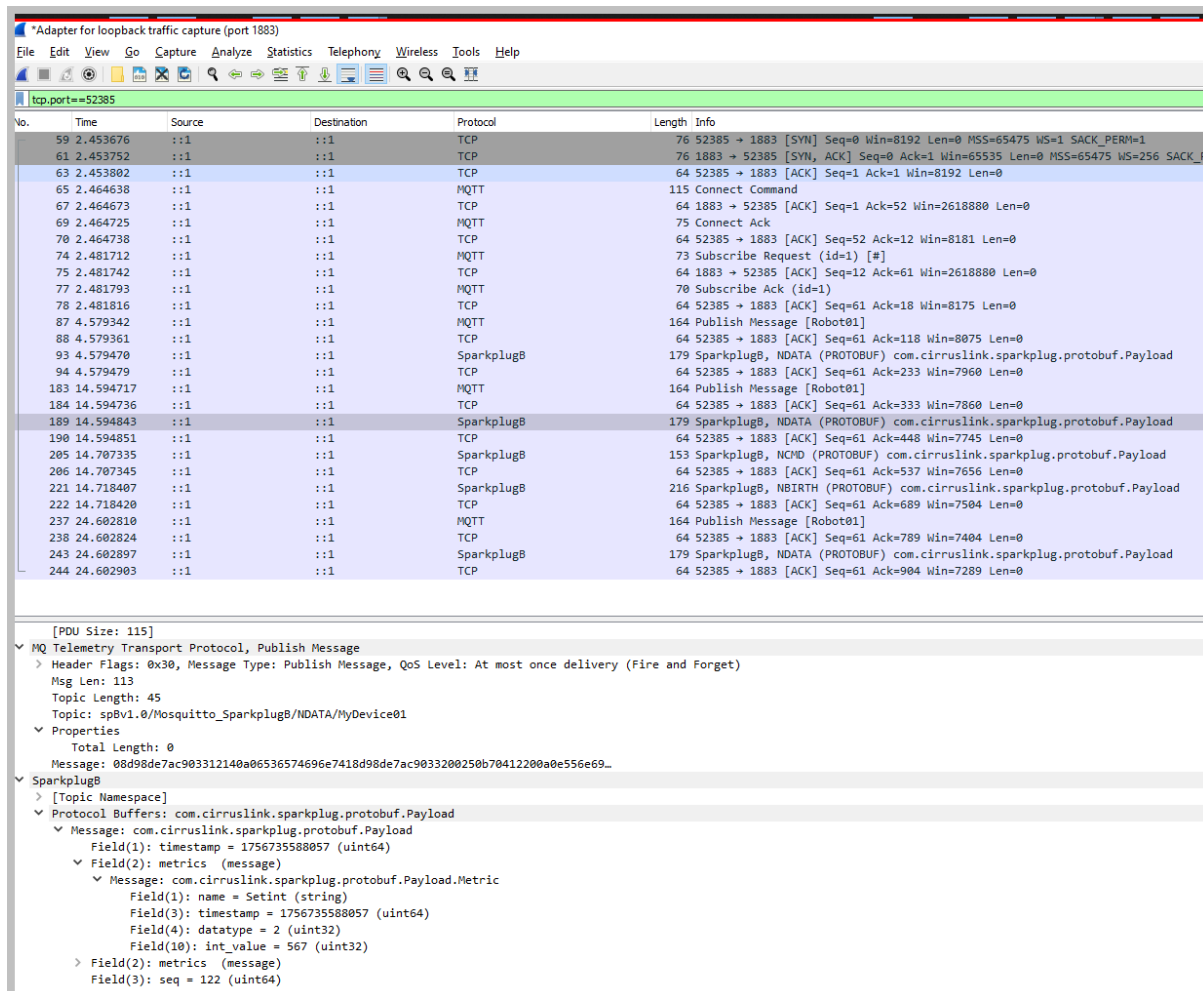


Figure 7 from Publisher to Broker (Port 1883)

GENESIS Version 11 MQTT SparkplugB Setup

- DATA CONNECTIVITY => INTERNET OF THINGS
 - Set up an MQTT Broker
 - Under Subscriber Connections add new Sparkplug Subscriber Connection
 - In Sparkplug Settings section, choose MQTT Broker
 - Configure the rest of the subscriber connection settings
 - Rebirth Settings – to request MQTT Broker to re-send its Sparkplug address space (via BIRTH type message)
 - Make sure that the Subscription Service is started!

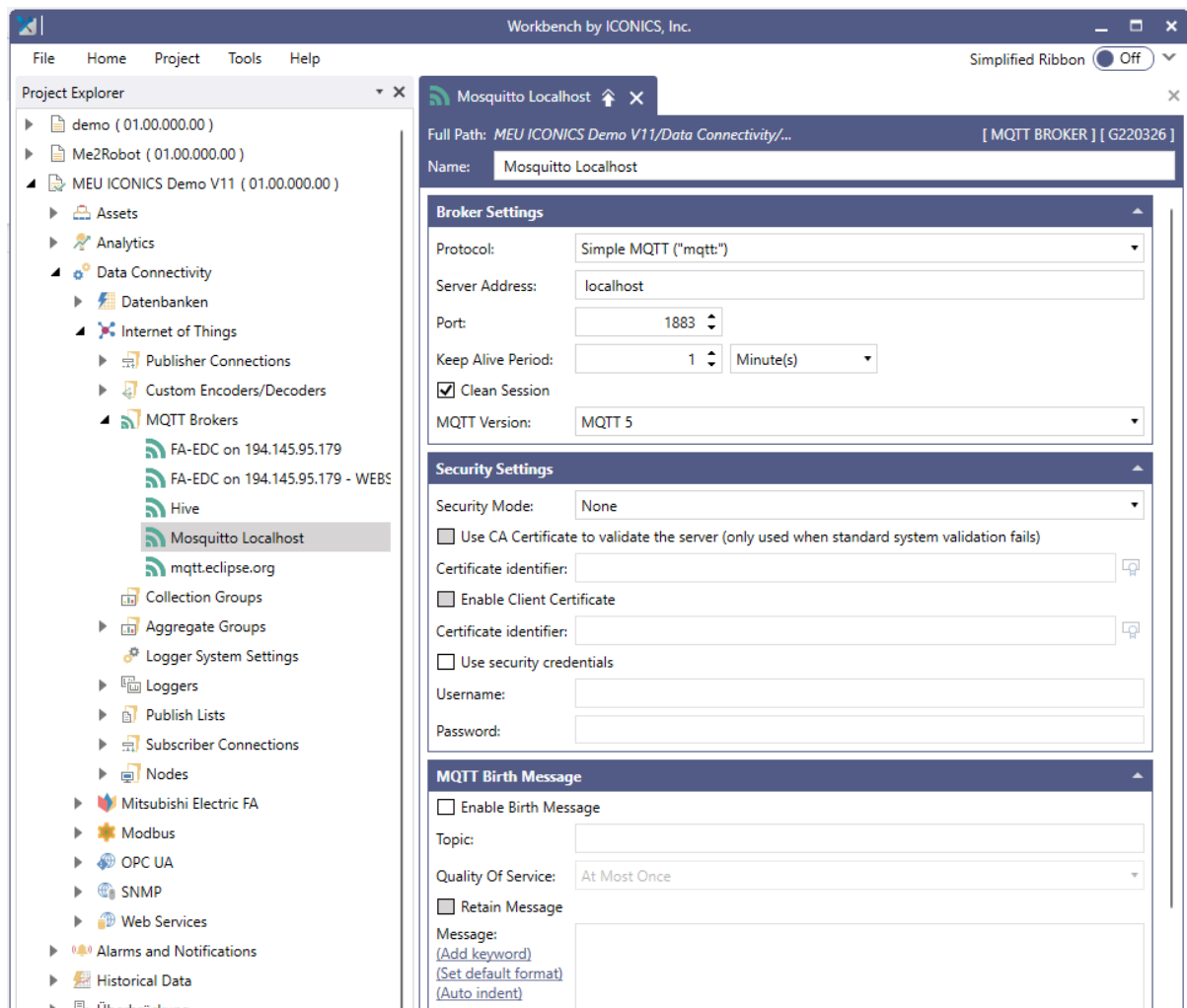


Figure 8 Define MQTT Broker

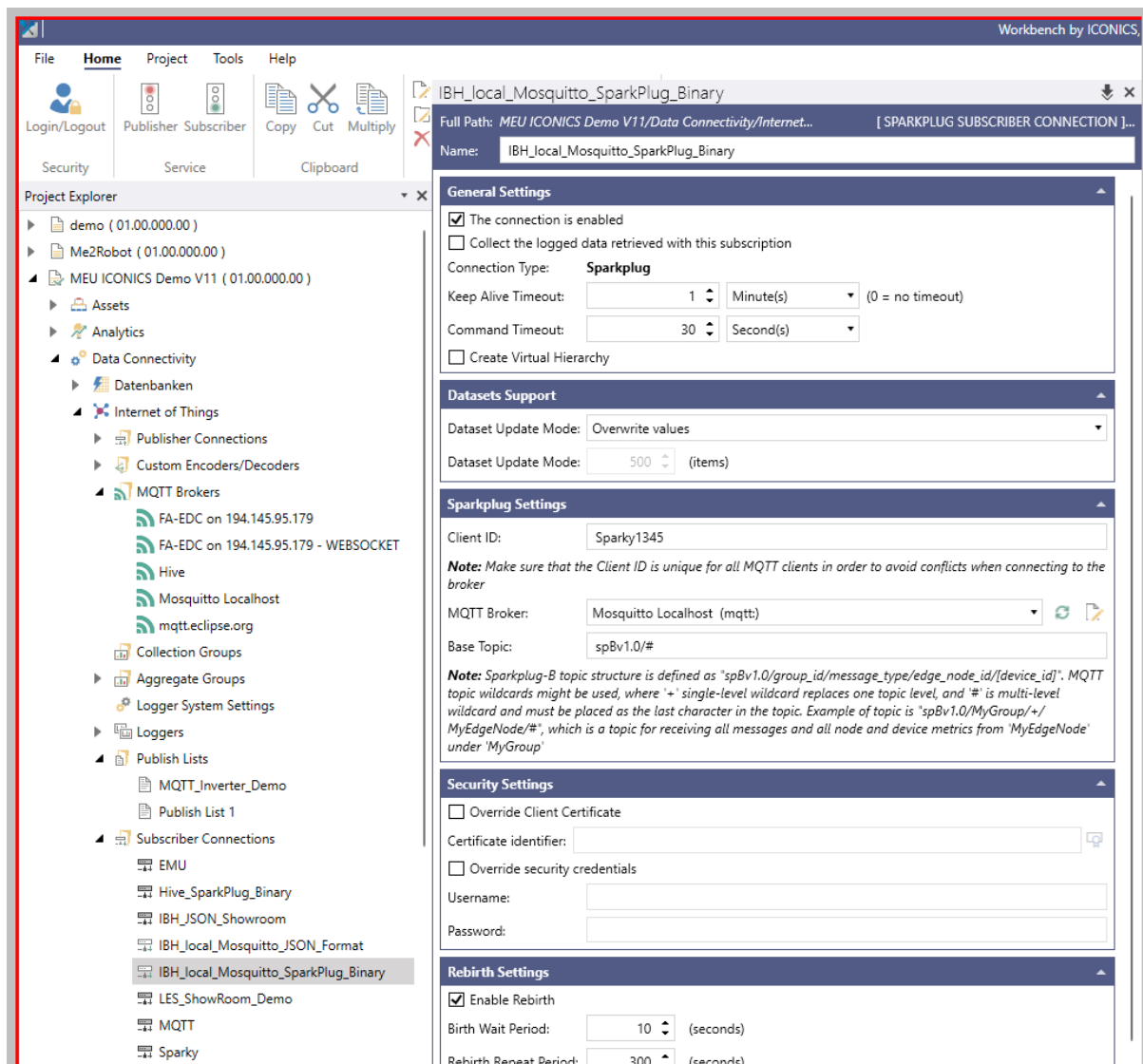
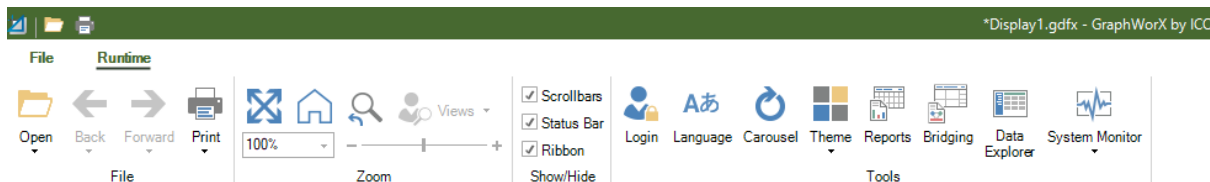


Figure 9 Define Subscriber connection

Use Data Explorer to confirm the data

Name	Value	Timestamp	Quality	Data Type	Access	User Access	Tag
Setint	567	9/1/2025 4:12 PM	Good	builtin: Int16	R W	R W HR HW	iot:sp:IBH_local_Mosquito_SparkPlug_Binary/Mosquito
UnixTime_Int64	1756735928358	9/1/2025 4:12 PM	Good	builtin: Int64	R W	R W HR HW	iot:sp:IBH_local_Mosquito_SparkPlug_Binary/Mosquito

Simple drag-and-drop visualization of the datapoint:



567.00

iot:sp:Sparky/Mosquito_SparkplugB/MyDevice01/Robot01/Setint

Important notes and alternative Setup using DDATA topics

In the newest version only the "namespace/" part of the topic is filled out automatically (spBv1.0/)


The Topic definitions must start with the group_id before DDATA or NDATA. Two alternatives :

1. For the N... topics it should be **"MyGroupId/NDATA/MyEdgeNodeId"** (used in above Example)
2. For the D... topics it should be **"MyGroupId/DDATA/MyEdgeNodeId/MyDeviceId"**

If you omit the MyGroupId we now use the default name "group_id" as written in the specs.

If you omit the MyEdgeNodeId we now use the default name "edge_node_id" as written in the specs.

If you omit the MyDeviceId we now use the default name "device_id" as written in the specs.



Older projects (before V5.37) will not work anymore, it is vital to change the projects accordingly.

For the “Node Control/Rebirth”:

To receive the “Node Control/Rebirth it is enough to have a simple and empty Topic
“Mosquitto_SparkplugB/NCMD/MyDevice01” as subscribed.

There is no need to add metrics to this topic.

The Rebirth will now be sent immediately upon reception of NCMD or DCMD instead of scheduling it for the next data change.

Due to limitations in GENESIS, values can not be published from GENESIS to the MQTT Broker using SparkplugB messages!