

MQTTspB Simulator

This document has information on the MQTTspB Simulator configuration and Runtime Behavior. Below you will find more information on the requirements and supported features.

 [Watch a video on how to use the MQTT Simulator with Tag Provider here.](#) (no audio)

Application Requirements

This simulator application comes with the default installation of product version **9.2**. The executable file can be found under the `../9.2/MQTTspBSimulator.exe` directory.

Make sure to execute the file from inside this folder, to guarantee all dependencies are satisfied.

Supported Features

The following features are supported:

- Connection to Brokers (local and Remote) that may (or not) require a Username and Password.
- Customization of Topic parameters - GroupID, NodeID and DeviceID.
- Create Multiple NodeIDs in the same GroupID, each with its own DeviceID's.
- Create Multiple DeviceIDs in the same NodeID.
- Change the DeviceIDs attributes using a config file.
- Publish NBIRTH, DBIRTH, DDATA, NDEATH and DDEATH messages.

 The Simulator is **Write-Only!** You will not be able to subscribe to any topic, only publishing is allowed.

Configuration File

The DeviceID attributes can be customized using the configuration file, `MQTTspBSimulator.exe.config`. This file uses an XML syntax that is parsed during the application initialization.

This means that any change that is made requires the application to be **restarted** in order to be applied.

The file syntax is illustrated below.

```
<?xml version="1.0" encoding="utf-8" ?>
<configuration>
  <appSettings>
    <add key="Name" value="Type=string;Sampling=constant;range=;defaultValue=Barcelona" />
    <add key="State" value="Type=int;Sampling=variable;range=0,10;defaultValue=" />
    <add key="Longitude" value="Type=double;Sampling=constant;range=1.56,2.49;defaultValue=" />
    <add key="Latitude" value="Type=double;Sampling=constant;range=41.34,41.71;defaultValue=" />
    <add key="PanelPower" value="Type=double;Sampling=variable;range=200,500;defaultValue=" />
    <add key="PanelVoltage" value="Type=double;Sampling=variable;range=-220,220;defaultValue=" />
    <add key="PanelCurrent" value="Type=double;Sampling=variable;range=-10,10;defaultValue=" />
    <add key="TemperaturePort" value="Type=double;Sampling=variable;range=15,35;defaultValue=" />
  </appSettings>
</configuration>
```

Each AppSetting entry have two parameters, *Key* and *Value*.

- **Key:** Attribute Name that will be added to the DeviceID payload.
- **Value:** Attribute customization parameters (Type, Sampling, Range and DefaultValue). The parameters are detailed below:
 - **Type:** Variable DataType - It can be string, int or double
 - **Sampling:** Defines if attribute will have its value changed on each iteration

- **Variable:** Data changes on every DDATA message sent
- **Constant:** Attribute is sent only in DBIRTH message
- **Range:** Min and Max range For int and double types only.
- **DefaultValue:** Default value for For string type the value will be a concatenation of "Default- Value - DeviceID".



The file name must be the same as the executable file. If one is changed, the other must be as well.

Application Settings

The Simulator is divided in 3 tabs, Connection String Parameters, Simulation Settings and Runtime Simulation Settings. More information on each one is available below.

MQTTspB Simulator
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<p>Connection String Parameters</p> <p>Broker URL: <input style="width: 90%;" type="text" value="127.0.0.1"/></p> <p>Port: <input style="width: 80%;" type="text" value="1883"/></p> <p>Username: <input style="width: 90%;" type="text"/></p> <p>Password: <input style="width: 90%;" type="text"/></p> <p style="text-align: right;"> Disconnect Connect </p>	<p>Simulation Settings</p> <p>Base GroupID Name: <input style="width: 90%;" type="text" value="GroupID"/></p> <p>Base NodeID Name: <input style="width: 90%;" type="text" value="NodeID"/></p> <p>Number Of Nodes: <input style="width: 80%;" type="text" value="1"/></p> <p>Base DeviceID Name: <input style="width: 90%;" type="text" value="DeviceID"/></p> <p>Number Of Devices per Node: <input style="width: 80%;" type="text" value="1"/></p> <p style="text-align: right;"> Apply </p>
<p>Runtime Simulation Settings</p> <p> Send one Data Sample Send Continuous Data Show Log </p>	
<p>Status:</p>	

Connection String Parameters

- **Broker URL:** MQTT Broker (Server) Default value is loopback (local) ip (127.0.0.1).
- **Port Number:** MQTT Broker listening port Default value is 1883.
- **Username:** Username defined on the This will be requested if the Broker needs this configuration (optional).
- **Password:** Password defined on the This will be requested if the Broker needs this configuration (optional).
- **Connect:** Connect to Broker.
- **Disconnect:** End connection.



The Simulator does not support Ssl Protocols.

Simulation Settings

- **Base GroupID Name:** GroupID name that will be used in the payload
- **Base NodeID Name:** NodeID name that will be used in the payload. When there are more than one node, the names will be a concatenation the base name and index.

E.g.: NodeID 1, NodeID 2 ... NodeID N.

- **Number of Nodes:** Amount of Nodes that will be created
- **Base DeviceID Name:** DeviceID name that will be used in the payload. When there are more than one device, the names will be a concatenation the base name and index.

E.g.: DeviceID 1, DeviceID 2 ... DeviceID N.

- **Number of Devices per Node:** Amount of Devices that will be created.
- **Apply:** Apply new settings.

Runtime Simulation Settings

- **Send one Data Sample:** Send one DDATA message for each Device created in the session.
- **Send Continuous Data:** Send continuous DDATA messages with a time rate of 1 second.
- **Show Log:** Shows log window with diagnostics messages. You can also see log messages in the status bar at the bottom of the application.