CONNECTING SENQUIP DEVICES TO AZURE

1. Introduction

This Application Note details how to integrate Senquip telemetry devices with Microsoft Azure Iot Hub using MQTT and SAS tokens. This communication method is secured using TLS, and it is simple to generate the authentication tokens from the Azure Portal. Senquip devices also have the Microsoft CA Certificate built into the firmware, making setup even easier.

Azure IoT Hub provides a cloud-hosted solution back-end, and provides a secure, easy to use method of authenticating devices. IoT Hub uses security tokens to authenticate devices and services to avoid sending keys on the wire. Additionally, security tokens are limited in time validity and scope. These security tokens are also known as Shared Access Signature (SAS) tokens.

MQTT stands for Message Queuing Telemetry Transport and is a lightweight, publish-subscribe network protocol that transports messages between devices.

2. Requirements

The Senquip device must be running firmware *SFW002-5.4.0* or later

3. Azure Setup

This guide assumes an Iot Hub instance has already been created on Azure and is ready to connect devices.

1. In Azure Iot Hub, Click 'Add Device' in Figure 1.

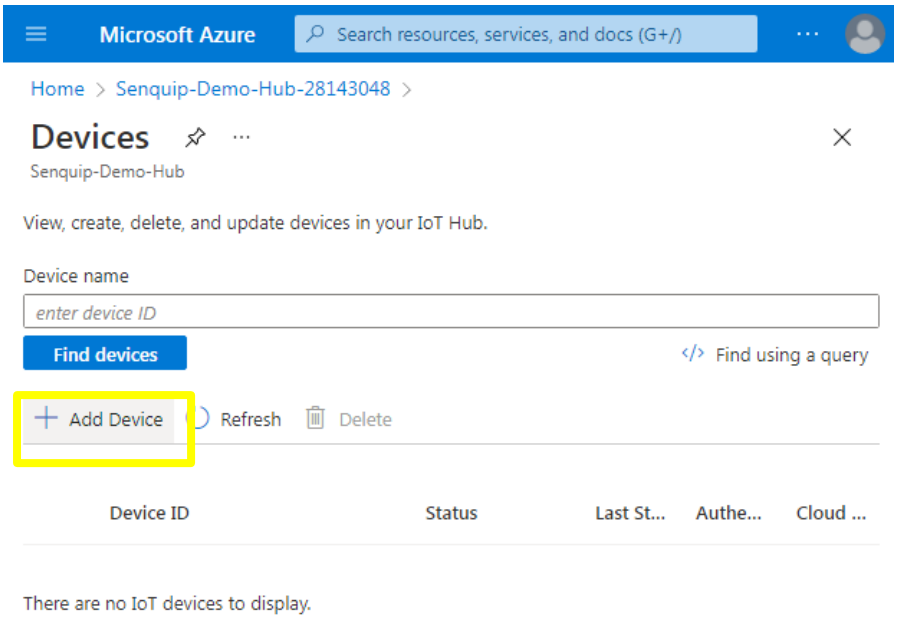

Figure 1 - Device Hub

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2. Enter the Device ID, choose 'Symmetric key' authentication type and select 'Auto-generate keys' as shown in Figure 2.

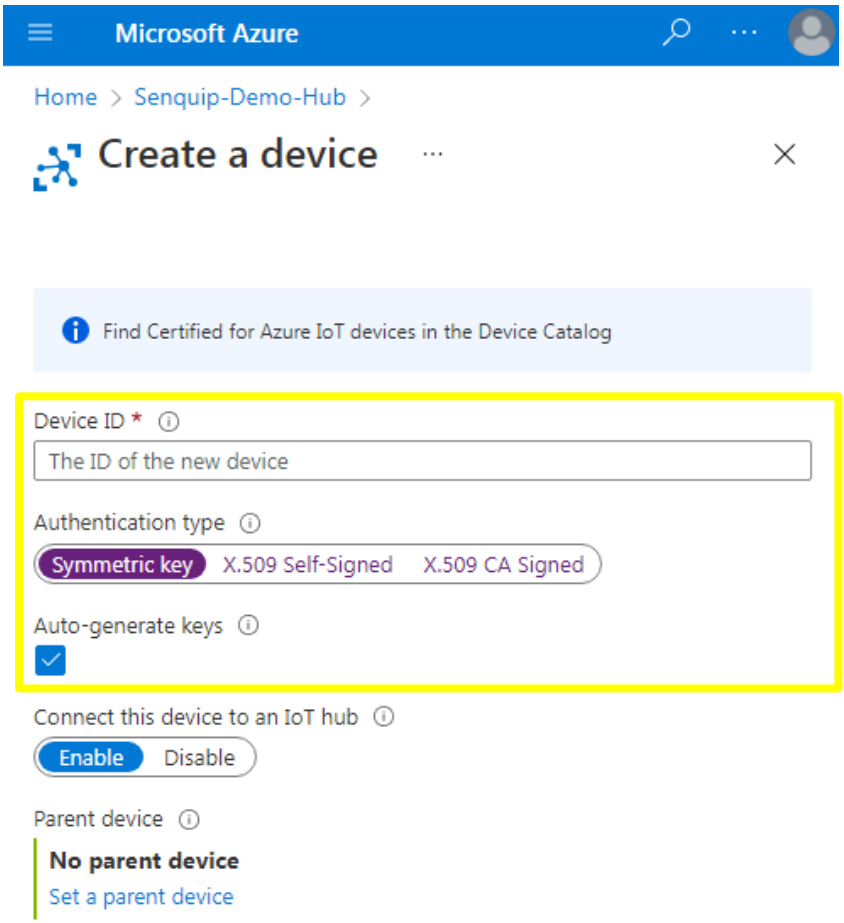

Figure 2 - Create a Device

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3. Once the device has been created, find the new device in the Hub and open it's properties as shown in Figure 3. Copy the 'Primary Connection String' value – this will be entered on the Senquip Portal device settings.

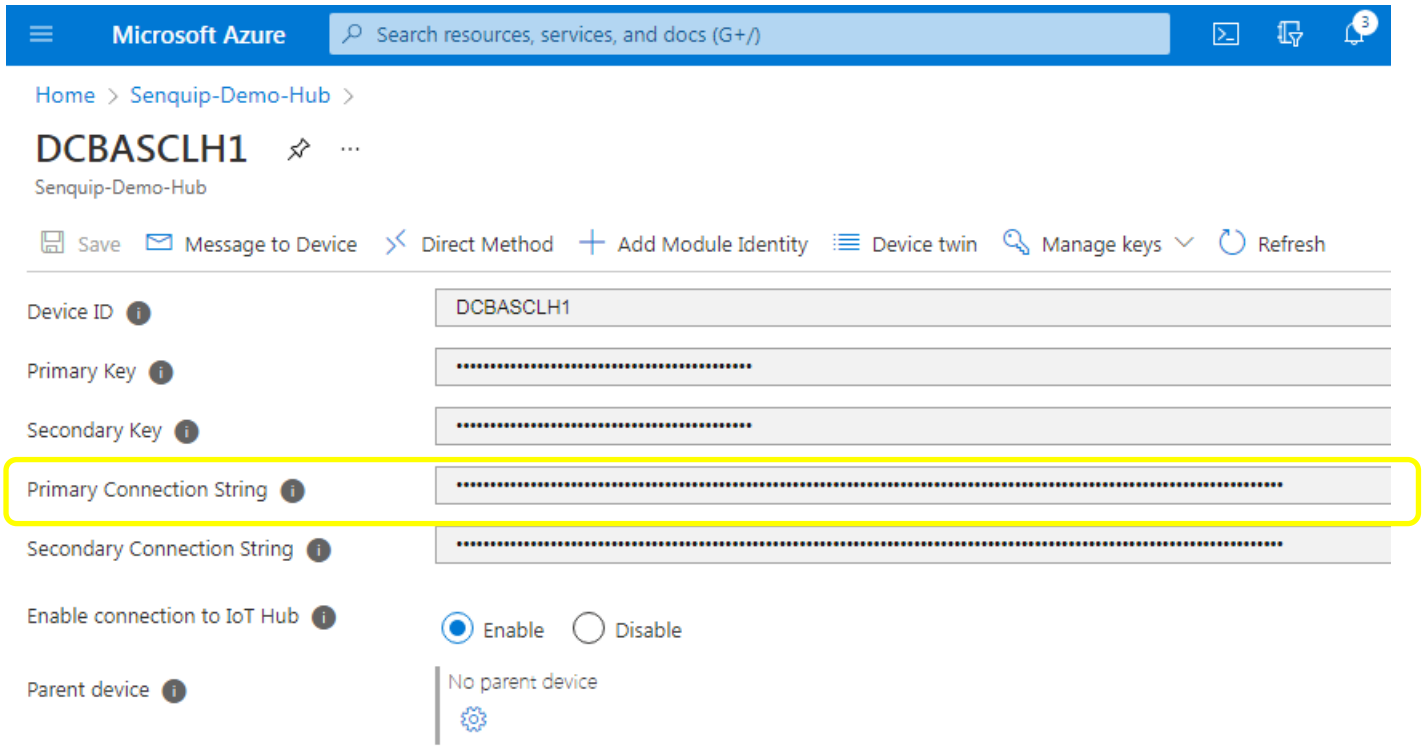

Figure 3 - Device Properties

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4. Senquip Portal Setup

On the Senquip Portal, go to the device settings and click the 'Endpoint' tab.

1. Make sure 'MQTT' is enabled.
2. Enter the 'Primary Connection String' value copied from Azure into the 'Azure Connection String' as shown in Figure 4.
3. Enter the data topic: `devices/?/messages/events/data`
   Note: The Data topic can also be customised as needed or data can be published to arbitrary topics from the device script.
4. **Leave all other fields blank.** This includes the 'Broker Address' field, this information is already present in the Azure Connection String. The 'Configure MQTTS' button is not required either – TLS security is automatically configured using a preloaded Microsoft CA Certificate.
5. Save settings.

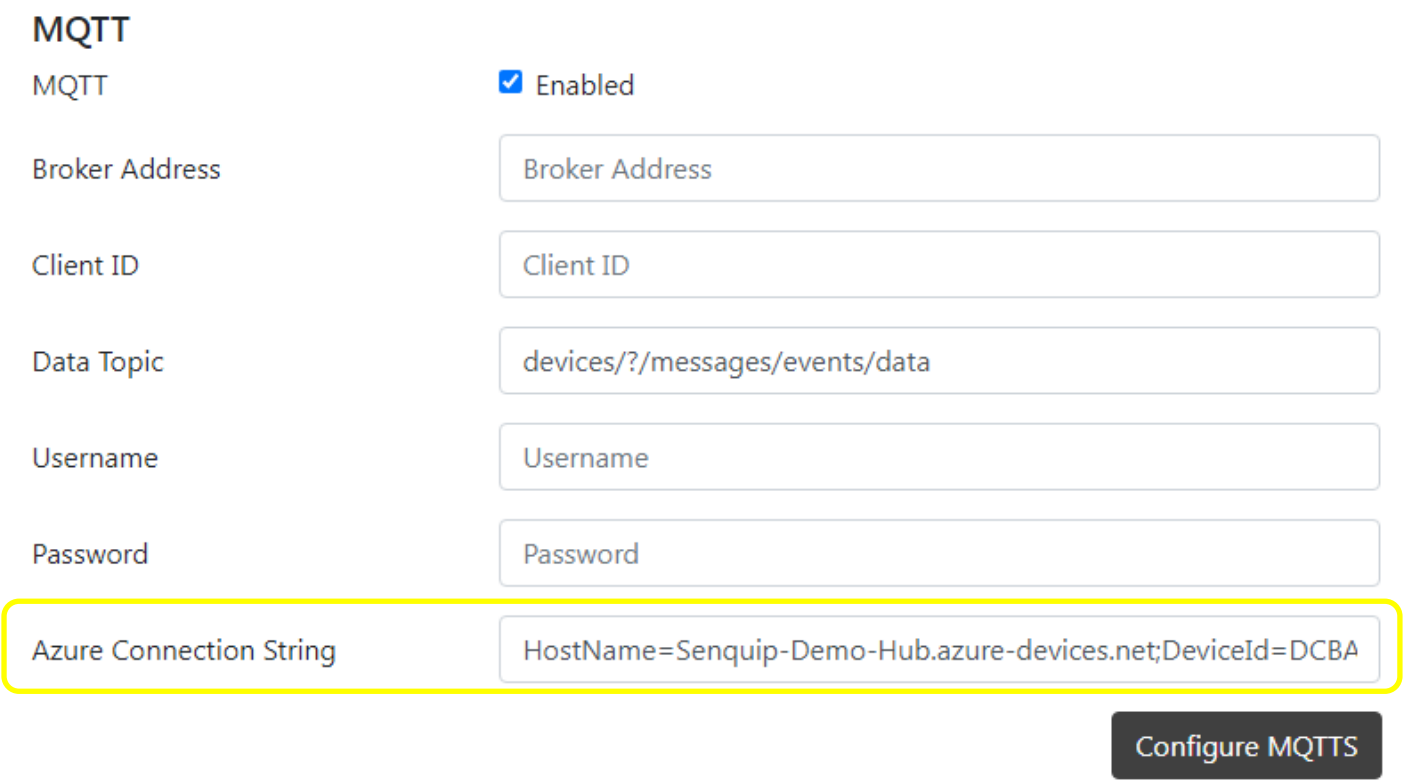

Figure 4 - Portal Endpoint Setup

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5. Conclusion

Configuring a Senquip ORB to send data to Azure is simple using the built-in support for SAS tokens.

Senquip devices can maintain connection with a third-party endpoint and the Senquip Portal at the same time. This allows for configuration changes and firmware updates from the Senquip Portal whilst sending data to a third-party server.

Senquip also offers hosting of your data, and data visualisation dashboards as shown in Figure 5. For further information on Senquip hosting and dashboards, please contact Senquip at support@senquip.com.

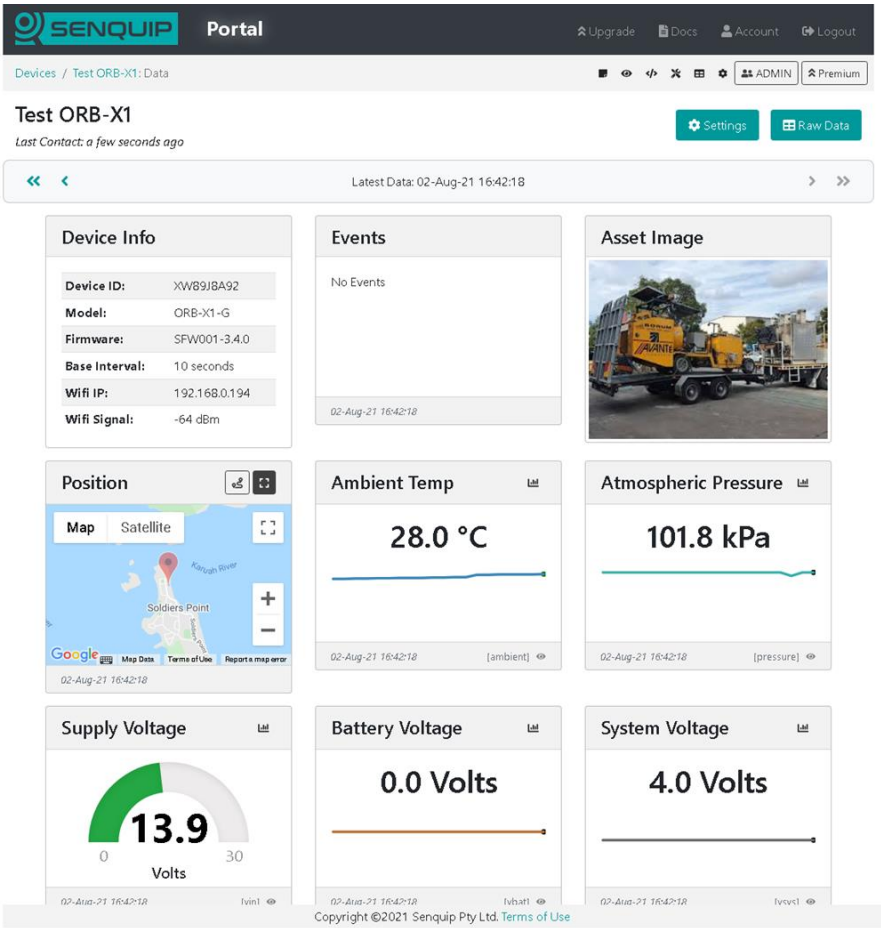

Figure 5 - Example Senquip Portal Dashboard

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