

Niagara MQTT with the Azure IoT Hub

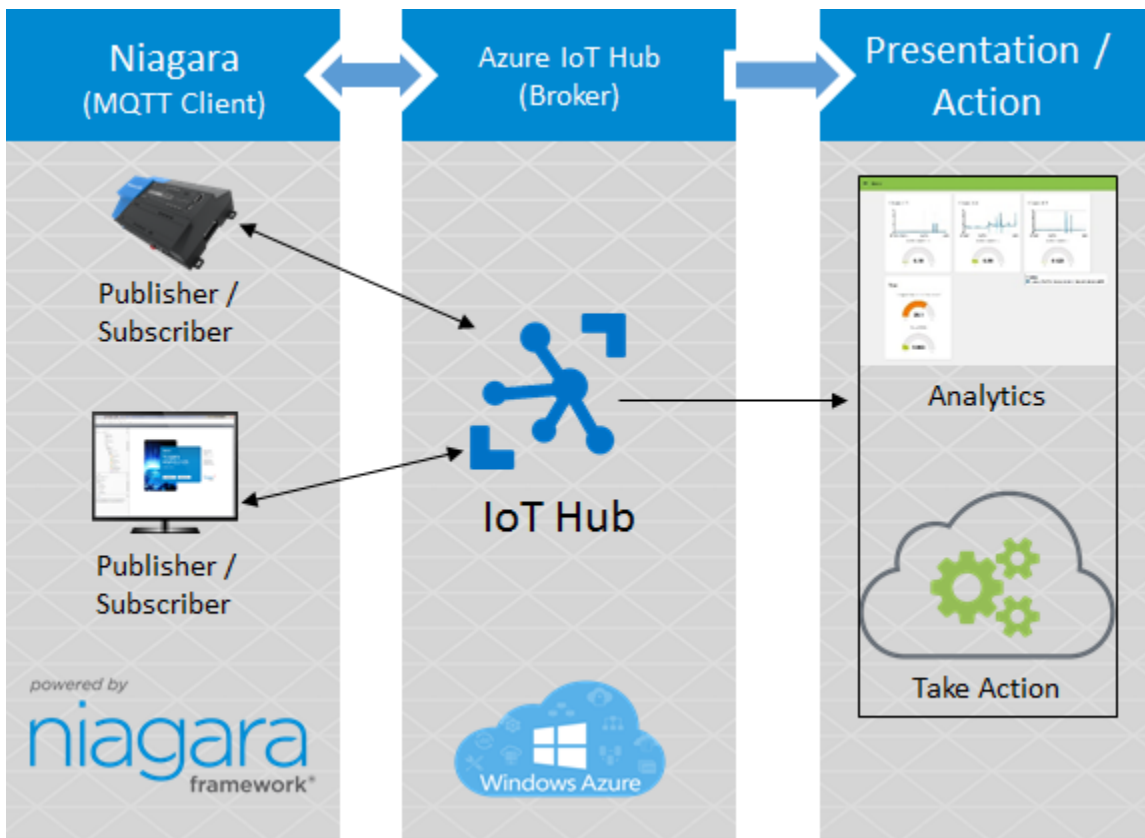
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Introduction

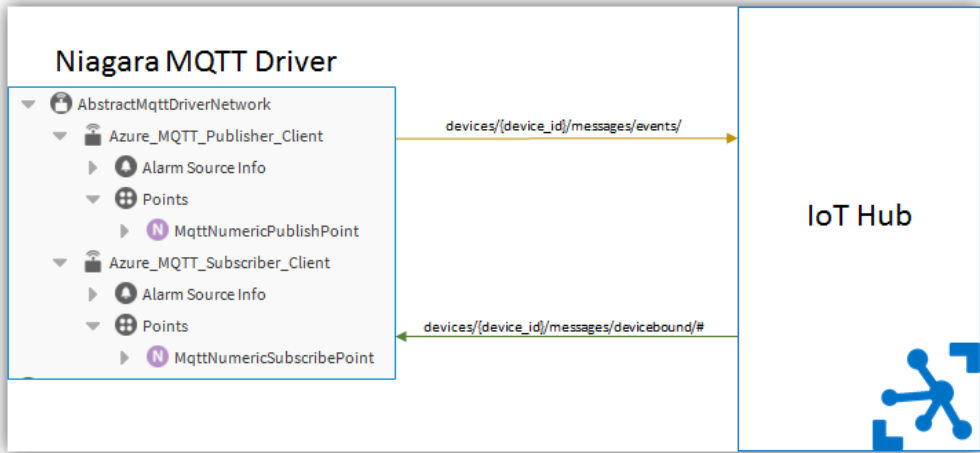
MQ Telemetry Transport (MQTT), is a lightweight messaging protocol. MQTT is designed for the constrained devices, low-bandwidth, high-latency and the unreliable networks. MQTT uses publish/subscribe (push/pull) messaging transport to help the small footprint Machine to Machine (M2M) and Internet Of Things (IoT) platforms.

The following article demonstrates the use of Niagara MQTT driver to publish and subscribe Niagara points to Azure IoT hub. For details, refer to the link: <https://docs.microsoft.com/en-us/azure/iot-hub/iot-hub-mqtt-support>

Architecture



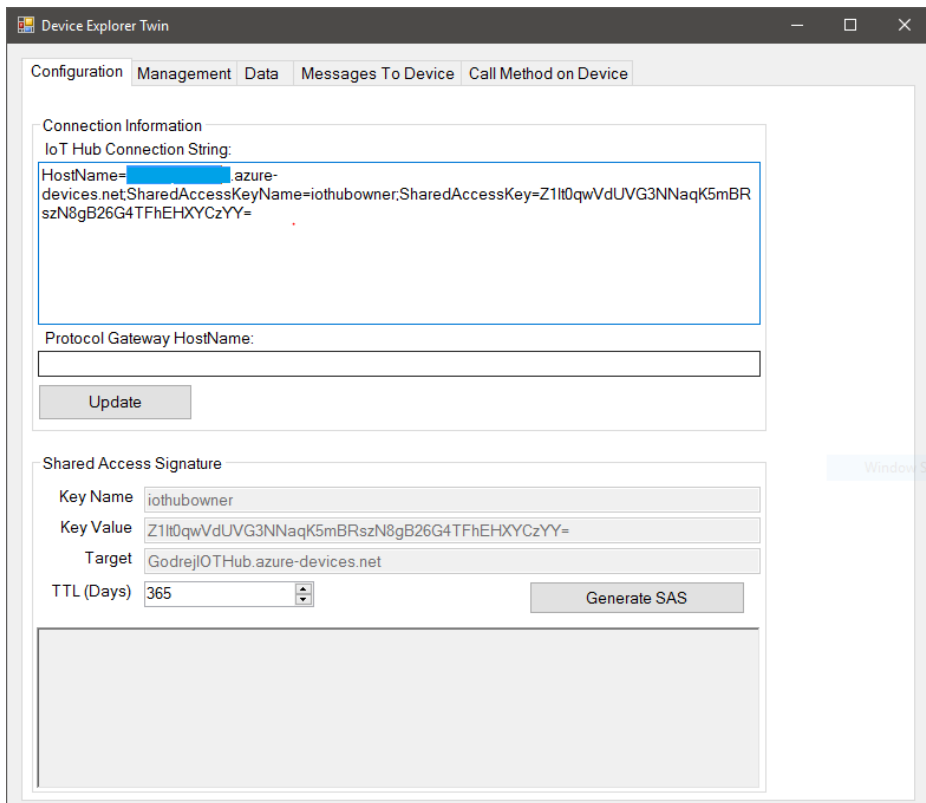
The integration of Azure IoT Hub with the Niagara MQTT Client (AbstractMqttDriverNetwork) as shown below:



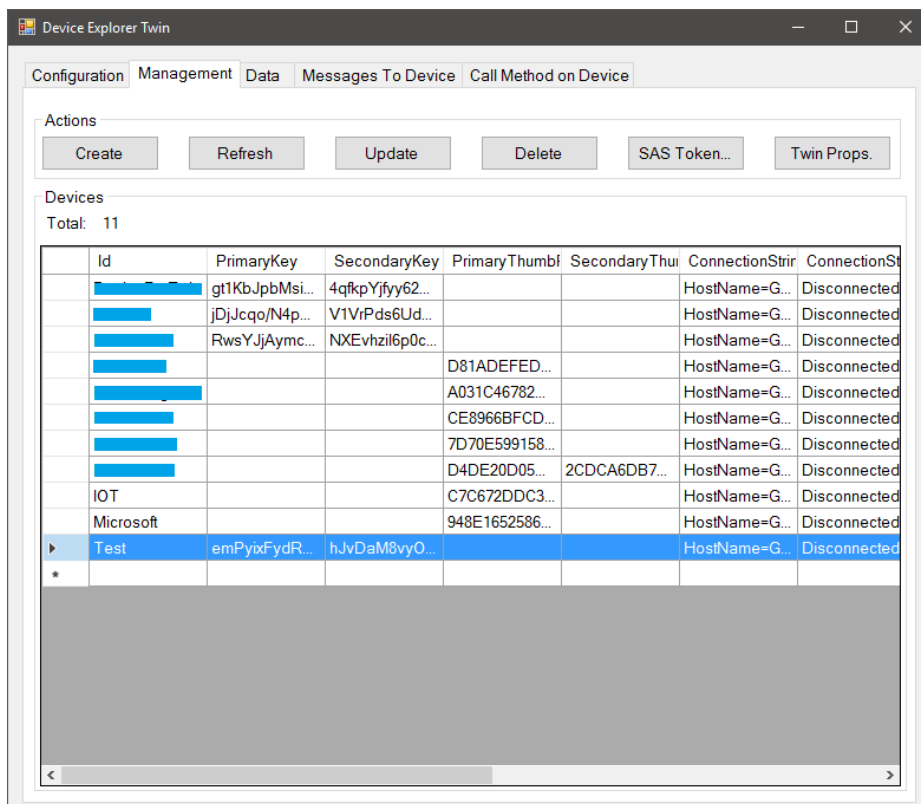
Configuration of Azure IoT Hub

Credential Setup

- To setup the credential, see [Using the MQTT protocol directly](#). However, there are few guidelines to setup the credential for Niagara MQTT client.
- As described in the [Using the MQTT protocol directly](#), you have to generate a SAS Token for the device to use it as a passphrase/password. The Token can be generated using a [DeviceExplorer](#) as described below:
 1. Connect to the Azure IoT Hub using the DeviceExplorer.
 2. Check for the **IoT Hub Connection String** field. It contains connection sting, which is a combination of Hostname and SharedAccessKeyName separated by semicolon (;).
 3. If required, update the connection sting, click on **Update** button to update the connection string.

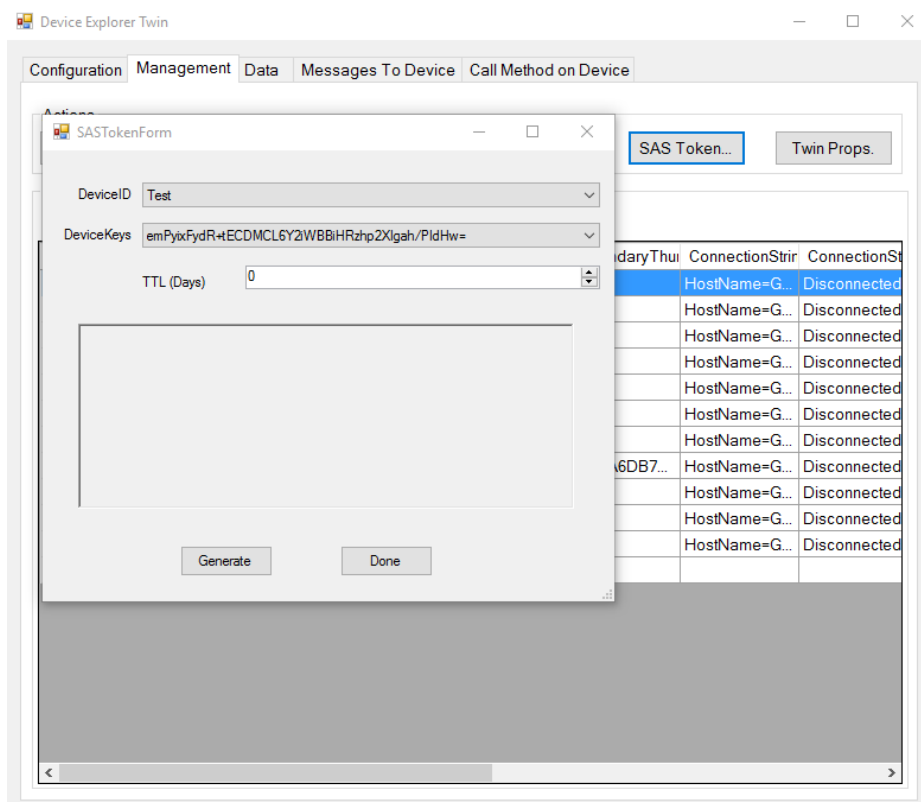


- Click on the **Management** tab, it shows the list of all the available devices from the IoT hub.

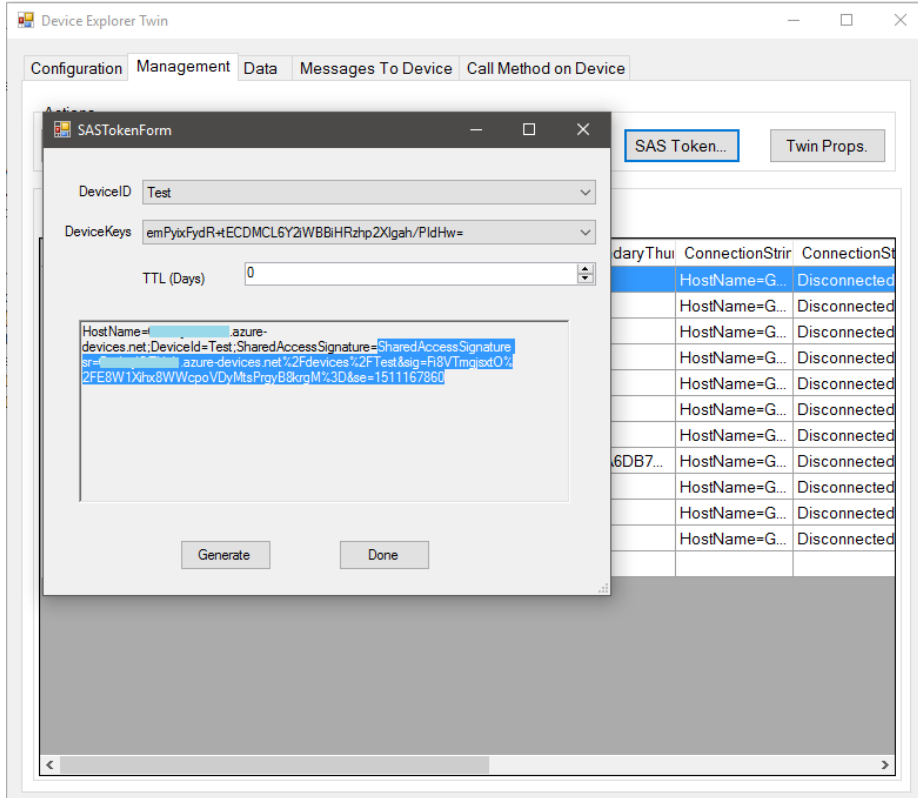


- Click on the **SAS Token** button, the **SASTokenForm** window pops up.
- In the **SASTokenForm** window, select the required device and set the TTL (Time to Live) to generate the token (password).
- In case of the Azure IoT hub, generate the Username and Password .

The URI/Client ID is the Username.(Refer to the attached email for example).



The SharedAccessSignature is the Password for the device, see the highlighted text as shown below.



Note: Make sure that you copy the highlighted text as it is. For details, see [Azure Documentation](#), page 334.

8. Configure the Niagara MQTT device/client.

Required configuration for the Bluemix Application as a MQTT client

Broker IP: xxx.azure-devices.net (This is the host name of your IoT Hub, xxx represents the name)

Client ID: Test (Client Id that is created in the IoT Hub, alternatively you can refer to the Management tab on the device explorer)

UserName (API Key): {iothubhostname}/{device_id}/api-version=2016-11-14 (The iothubhostname is same as Broker IP and the device_id is same as Client ID)

Password (Token): SharedAccessSignature=SharedAccessSignature sr=xxx.azure-devices.net%2Fdevices%2FTest&sig=Fi8VTmgjstO%2FE8W1Xihx8WWcpoVDyMtsPrgyB8krGM%3D&se=1511167860

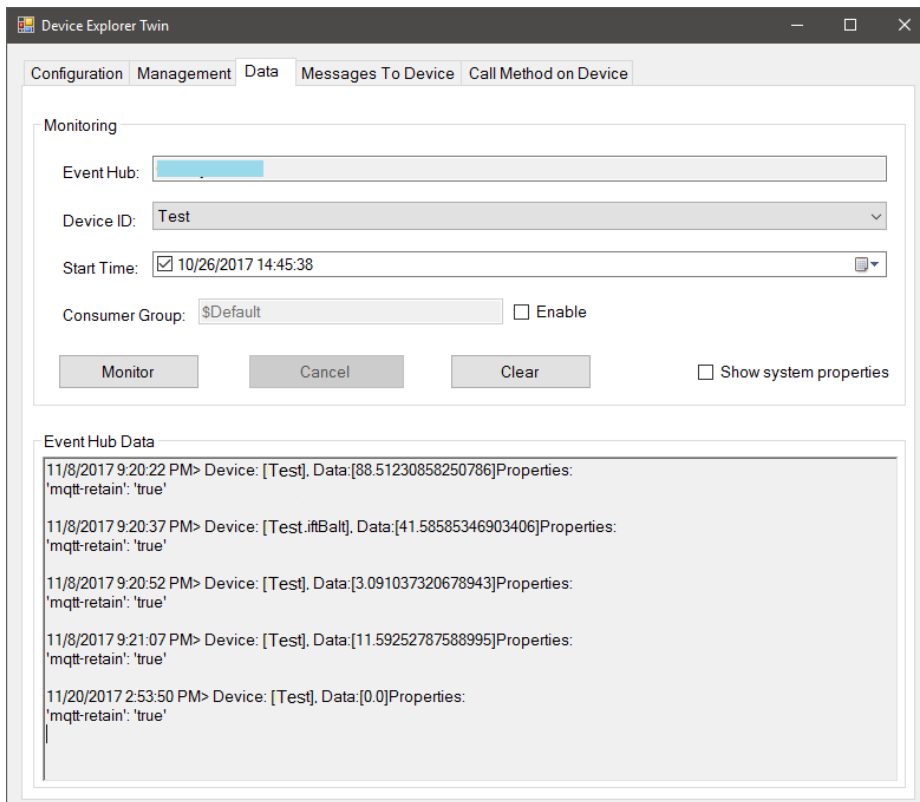
devices/{device_id}/messages/events/ - Publisher (device_id is same as Client ID))

devices/{device_id}/messages/devicebound/# - Subscriber

Testing the device (publisher configuration)

Once the device configuration is done, you can test the publisher with the help of Device Explorer.

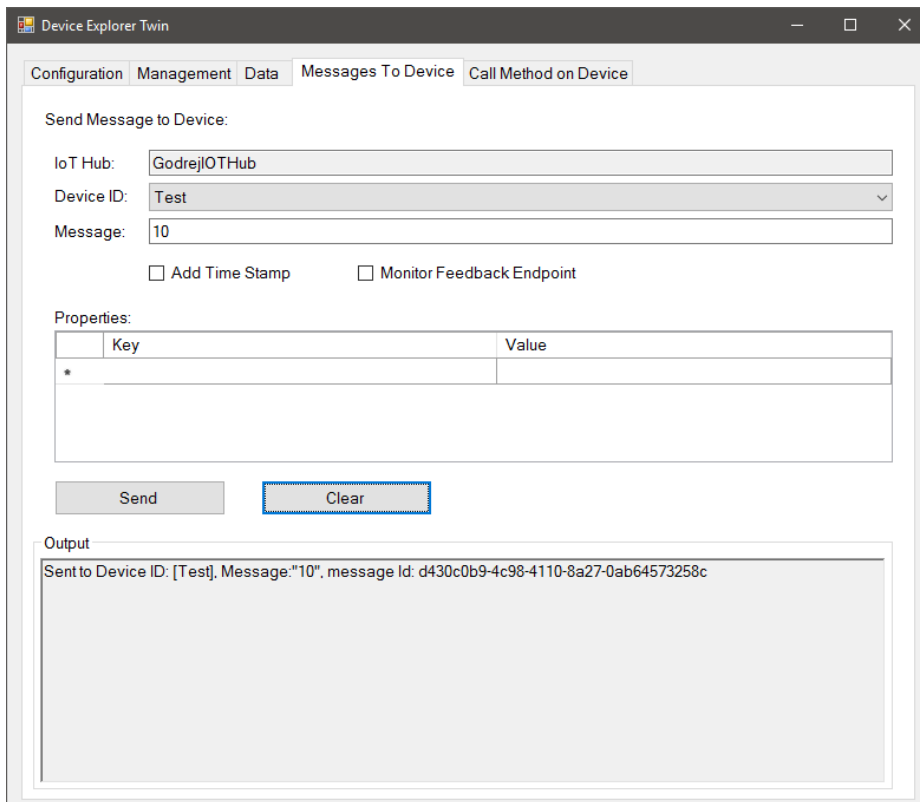
1. Click on the **Data** tab in the Device Explorer, Monitoring section appears.
2. In the Monitoring section, select the required device the Device ID field to publish the messages.
Note: The Event Hub details will be prepopulated with the Hub name.
3. When you click on the **Monitor** button, the Even Hub Data section shows the messages received by the IoT Hub that is published from the configured device.



Testing the device (subscription configuration)

Once the device configuration is done, you can test the subscription with the help of Device Explorer.

1. Click on the **Messages To Device** tab in the Device Explorer, Send Message to Device section appears.
Note: The IoT Hub details will be prepopulated with the IoT Hub name.
2. In the Send Message to Device section, select the required device in the Device ID field to send the message.
3. Key the messages you want to send and click on the **Send** button.



4. Verify the subscription part from the Niagara after configuration of the device:

- Setup a subscription point in the Niagara MQTT device. See Abstract MQTT Driver Guide to create the subscription point.
- Verify the point value and make sure that you receive the message from device explorer after subscribing.