

# **Integration Objects'**

## **OPC UA to Azure IoT Hub Solution**

**Industrial IoT Gateway**  
Version 1.0 Rev.0

## **QUICK USER GUIDE**

Industrial IoT Gateway Quick User Guide Version 1.0 Rev 0  
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## ABOUT THIS USER GUIDE

This guide is a step by step guide on how to install, configure and run Industrial IoT Gateway.

## INSTALLATION PRE-REQUISITES

In order to properly run the Industrial IoT Gateway, install these software components on the target system:

- .NET Framework version 4.5.1 or higher.
- OPC Core Components version 3.00.
- The OPC UA Discovery Server.

## INSTALLING IIOT GATEWAY

To install the Industrial IoT Gateway, run the installation executable using an administrator account and the wizard will take you through the different installation steps.

## STARTING IIOT GATEWAY

Go to **Start => Programs => Integration Objects => IIoT Gateway Config Tool** to start the Industrial IoT Gateway configuration tool.

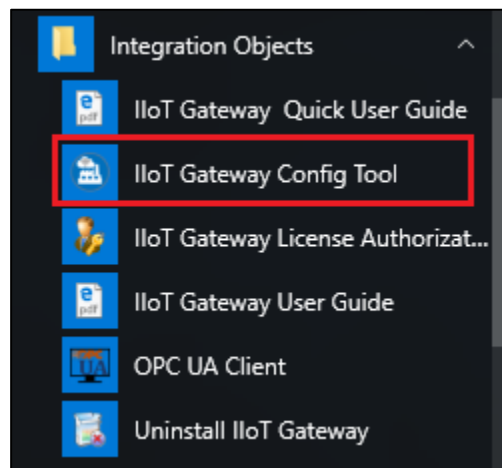


Figure 1: Industrial IoT Gateway Start Menu

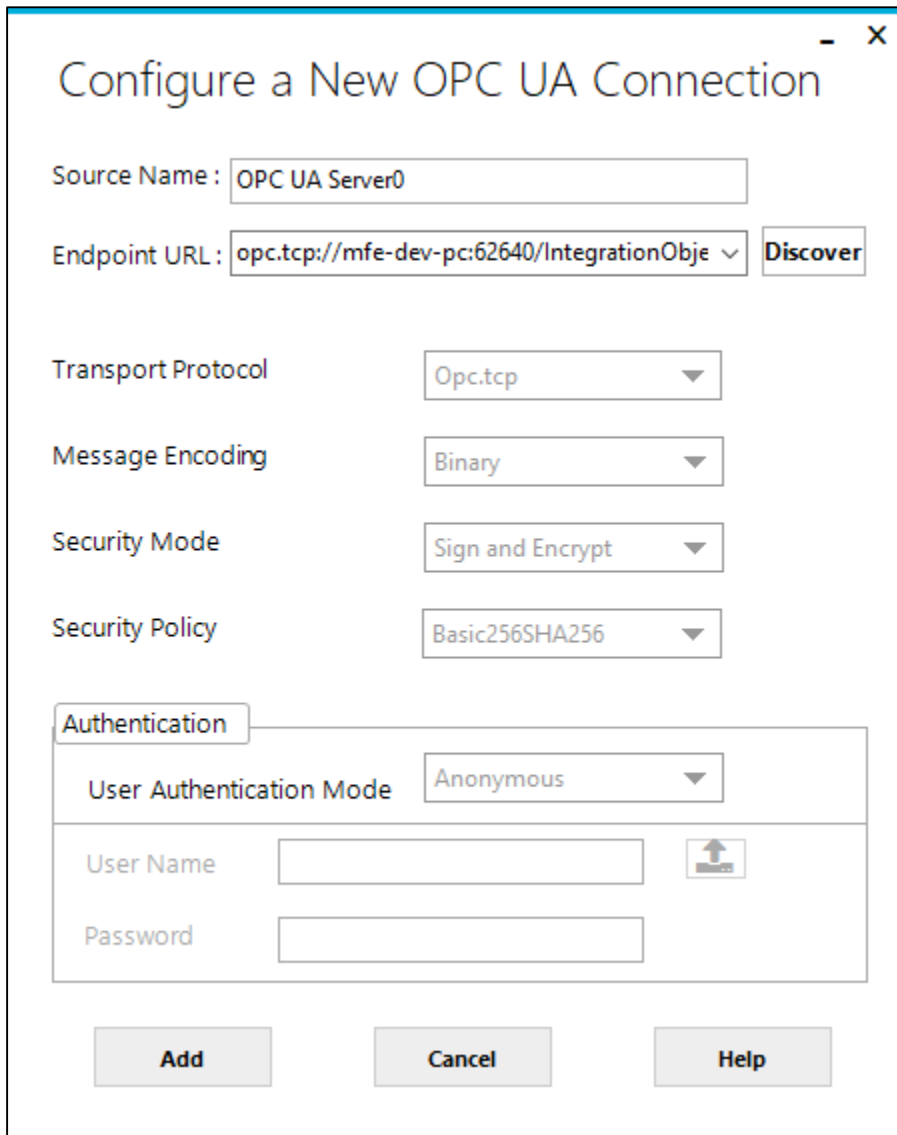
## CONFIGURING A NEW OPC UA CONNECTION

You can configure an OPC UA Connection as follows:

In the main interface, select an OPC UA server URL by:

- Double clicking on a discovered OPC UA Server available at the Sources tree view under the **Local** node.
- Or clicking the **Add New OPC UA Connection** button available at the Sources Tree View or the Sources tab and type the server URL in the endpoint URL field.

The following dialog screen will appear:



Configure a New OPC UA Connection

Source Name :

Endpoint URL :

Transport Protocol

Message Encoding

Security Mode

Security Policy

Authentication

User Authentication Mode

User Name

Password

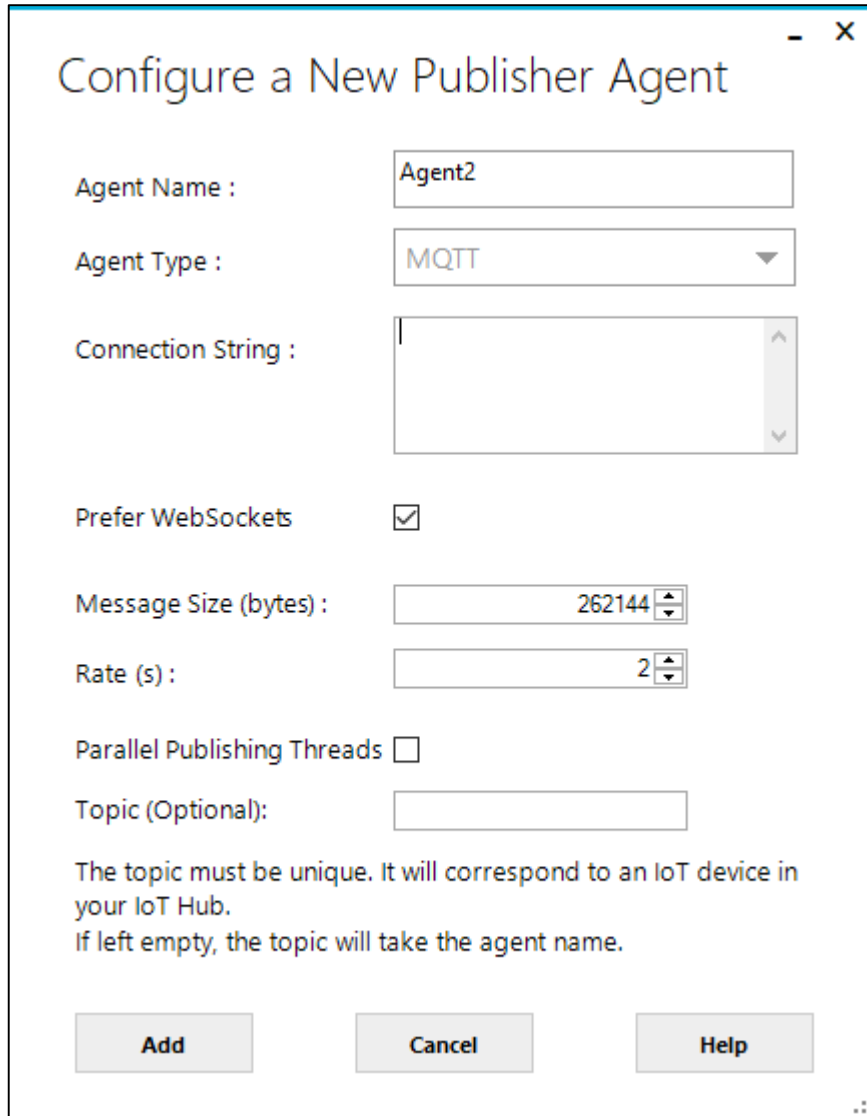
**Figure 2: Configure New OPC UA Connection**

After setting (or leaving default) the connection name, the transport and security settings and the user authentication mode, click the **Add** button.

## CONFIGURING A NEW PUBLISHER AGENT

You can configure an IoT HUB agent as follows:

- In the main interface, click the Add New IoT HUB agent button available at the destinations Tree View or the destinations Tab. The following dialog screen will appear:



Configure a New Publisher Agent

Agent Name :

Agent Type :

Connection String :

Prefer WebSockets

Message Size (bytes) :

Rate (s) :

Parallel Publishing Threads

Topic (Optional):

The topic must be unique. It will correspond to an IoT device in your IoT Hub.  
If left empty, the topic will take the agent name.

**Figure 3: Add New IoT HUB Agent**

- Set (or leave default) the agent name, the rate and the message size.
- Choose the communication protocol to establish a secure channel with IoT HUB, it can be MQTT, AMQP or REST.
- Go to your **IoT HUB** page from the **Azure Portal**.
- Click the **Shared access policies** tab (In the side bar) then choose the **iothubowner** policy.

- A side panel will appear. Copy the **connection string-primary key ( Third field)** and paste it in the connection string field of your New OPC UA Connection form.
- Enter a topic (If left empty, the topic will take the agent name).
- Click the **Add** button.

## CONFIGURING A NEW MAPPING

You can configure a mapping as follows:

- Drag an OPC UA Server address space node and drop it on an IoT HUB agent node.
- Or drag an OPC UA Server address space node and drop it on the mapping grid. You will be prompted to configure the corresponding IoT HUB Agent.
- Or drag an IoT HUB Agent and drop it on the mapping grid. You will be prompted to configure the corresponding OPC UA Server.
- Or select an OPC UA address space node and an agent and click the mapping button as shown in the following figure.

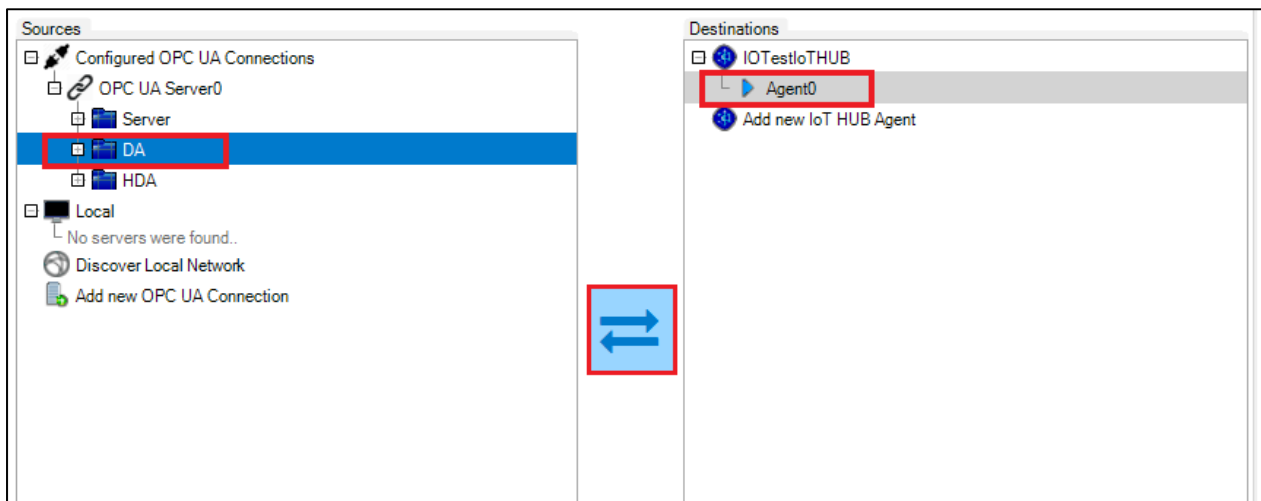
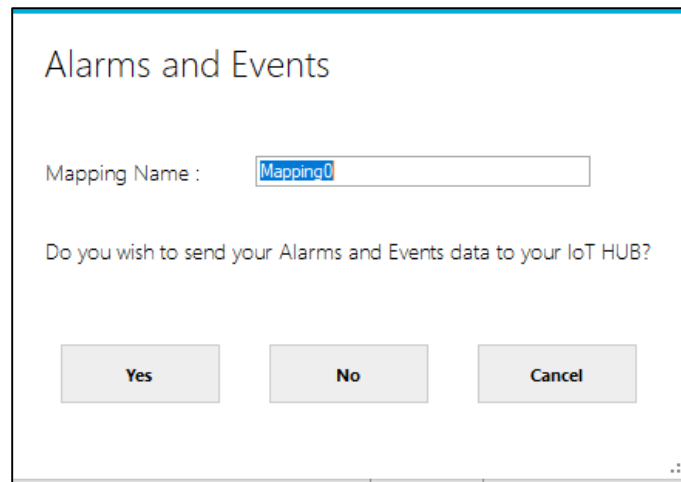


Figure 4: Configuring A New Mapping

Once the source and destination are configured, the following dialog will be shown.



**Figure 5: Alarms & Events Screen**

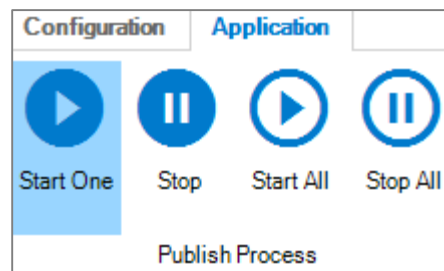
In this interface, you can choose to publish alarms & events data along with real time data.

## STARTING THE PUBLISHING SERVICE

You can start a publishing service as follows:

- Select a mapping in the mappings grid.
- Click the Start One button in the Application menu bar.

You can also start all your configured mappings by clicking the **Start All** button.

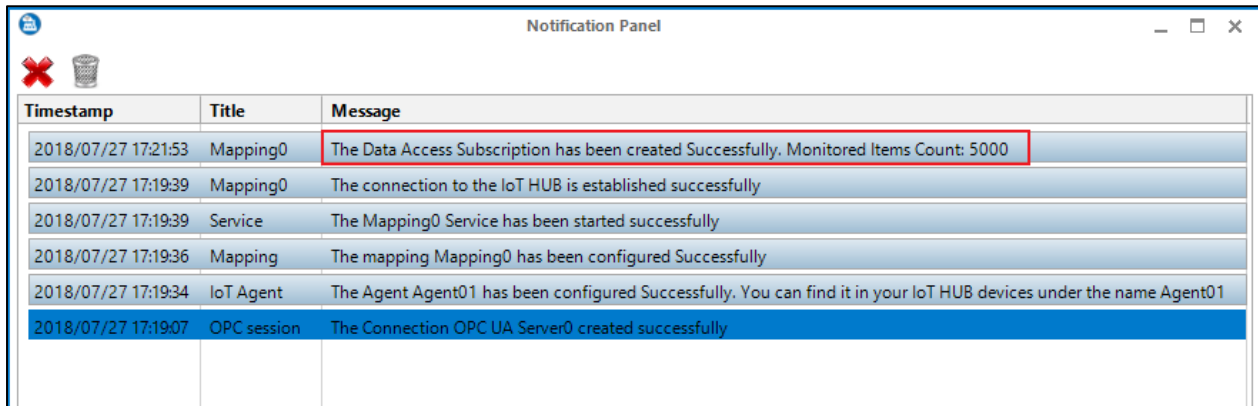


**Figure 6: Start Publishing Service**

Once a service is started, the mapping status in the mappings grid will be updated from “Stopped” to “Started”.

If the publishing process started correctly, a log message affirming that the subscription to the server has been created will be added to the log messages as shown in the figure 8. The subscription establishment may take several minutes in case of a big number of monitored items

You can check the log messages by clicking the **notification** button available at the Application menu bar.



The screenshot shows a 'Notification Panel' window with a table of notifications. The table has three columns: 'Timestamp', 'Title', and 'Message'. The first row is highlighted with a red border, indicating the successful creation of a Data Access Subscription.

Timestamp	Title	Message
2018/07/27 17:21:53	Mapping0	The Data Access Subscription has been created Successfully. Monitored Items Count: 5000
2018/07/27 17:19:39	Mapping0	The connection to the IoT HUB is established successfully
2018/07/27 17:19:39	Service	The Mapping0 Service has been started successfully
2018/07/27 17:19:36	Mapping	The mapping Mapping0 has been configured Successfully
2018/07/27 17:19:34	IoT Agent	The Agent Agent01 has been configured Successfully. You can find it in your IoT HUB devices under the name Agent01
2018/07/27 17:19:07	OPC session	The Connection OPC UA Server0 created successfully

**Figure 7: Subscription Establishment Notification Management**

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