How to Connect dataFEED OPC Suite to IBM Cloud

data**FEED**®

How to Connect *dataFEED OPC Suite* to *IBM Cloud*

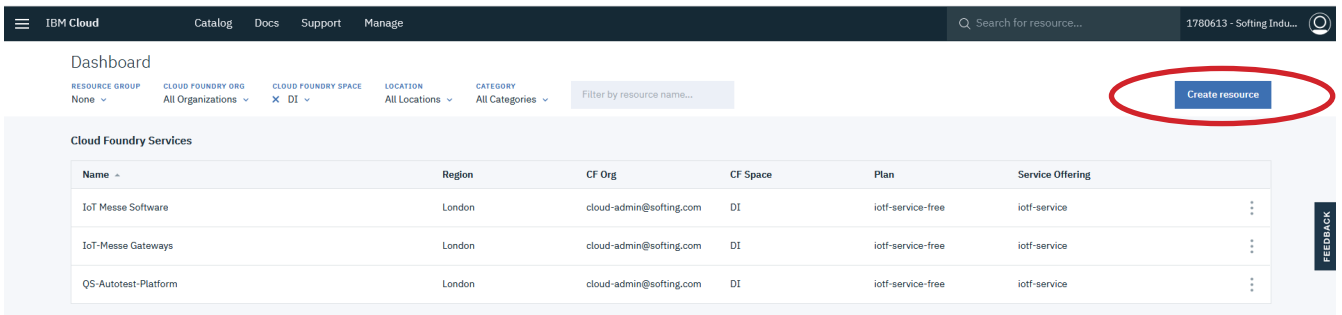## *IBM Cloud* Configuration Steps

1.   Login at *IBM Cloud*

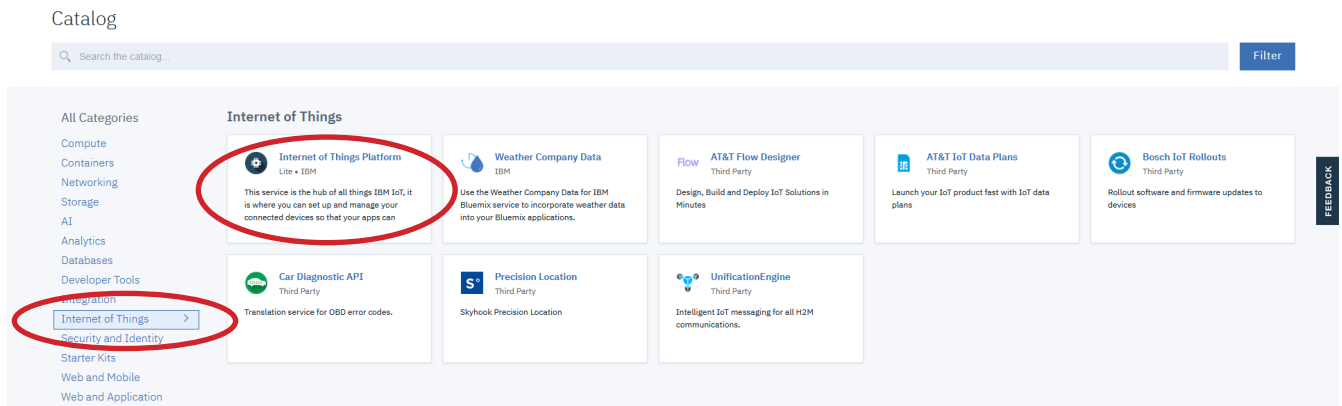At https://console.bluemix.net/ login at *IBM Cloud* using your IBMid and password

2.   Create Internet of Things Resource

An Internet of Thing resource is required for connecting dataFEED OPC Suite to IBM Cloud.
Follow the steps described in this section, if you have not created an Internet of Thing resource yet.
Otherwise proceed with section 3.

- Press *Create resource* button

- Select *Internet of Things*
- Click on *Internet of Things Platform* tile
- At *Internet of Things Platform* page:
  - Define *Service name*
  - *Choose an organization*
  - Select *Pricing Plan*
  - Press *Create* button for completing resource creation

optimize!

3. Add *dataFEED OPC Suite* as Service

- Click **IBM Cloud** for display of **Cloud Foundry Services**
- Click on service to be used for **dataFEED OPC Suite** connection
  NOTE:
  Within the scope of this manual the service "**dataFEED OPC Connection**" is used for connecting **dataFEED OPC Suite**.

Dashboard

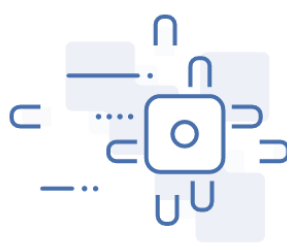|					
RESOURCE GROUP None ⌄	CLOUD FOUNDRY ORG All Organizations ⌄	CLOUD FOUNDRY SPACE ✕ DI ⌄	LOCATION All Locations ⌄	CATEGORY All Categories ⌄	Filter by resource name...

Create resource

Cloud Foundry Services

Name ▲	Region	CF Org	CF Space	Plan	Service Offering	
IoT Messe Software	London	cloud-admin@softing.com	DI	iotf-service-free	iotf-service	⋮
IoT-Messe Gateways	London	cloud-admin@softing.com	DI	iotf-service-free	iotf-service	⋮
QS-Autotest-Platform	London	cloud-admin@softing.com	DI	iotf-service-free	iotf-service	⋮
dataFEED_MQTT_Connection	London	cloud-admin@softing.com	DI	iotf-service-free	iotf-service	⋮

dataFEED MQTT Connection dashboard page is shown

Dashboard /

⊙ dataFEED_MQTT_Connection

Location: London   **Org:** cloud-admin@softing.com   **Space:** DI
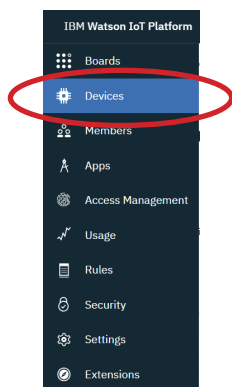
Let's get started with IBM Watson IoT Platform

Securely connect, control, and manage devices. Quickly build IoT applications that analyze data from the physical world.
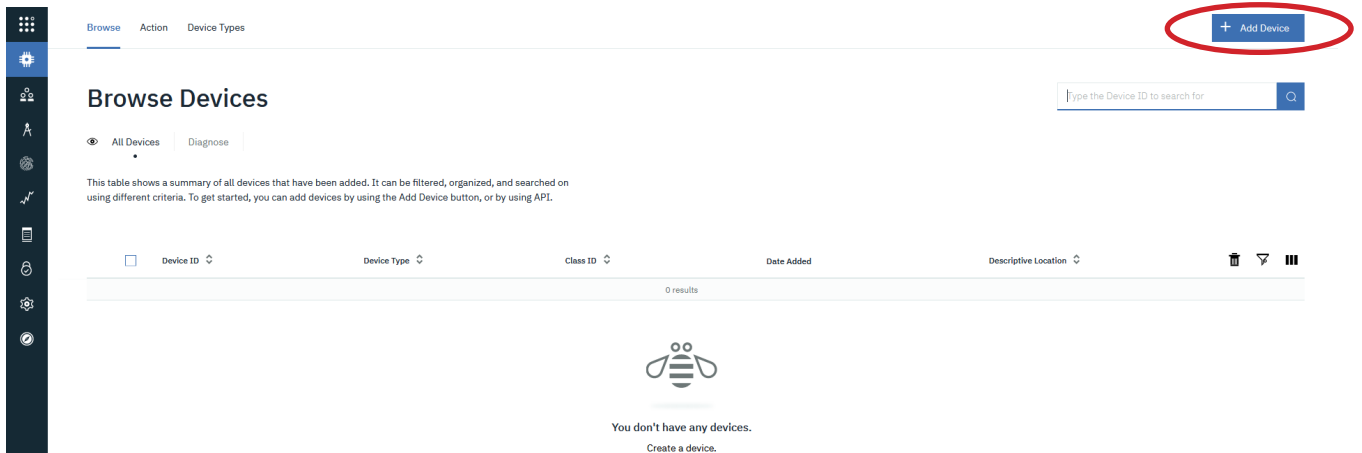
Launch   Docs

Ready for the next level?
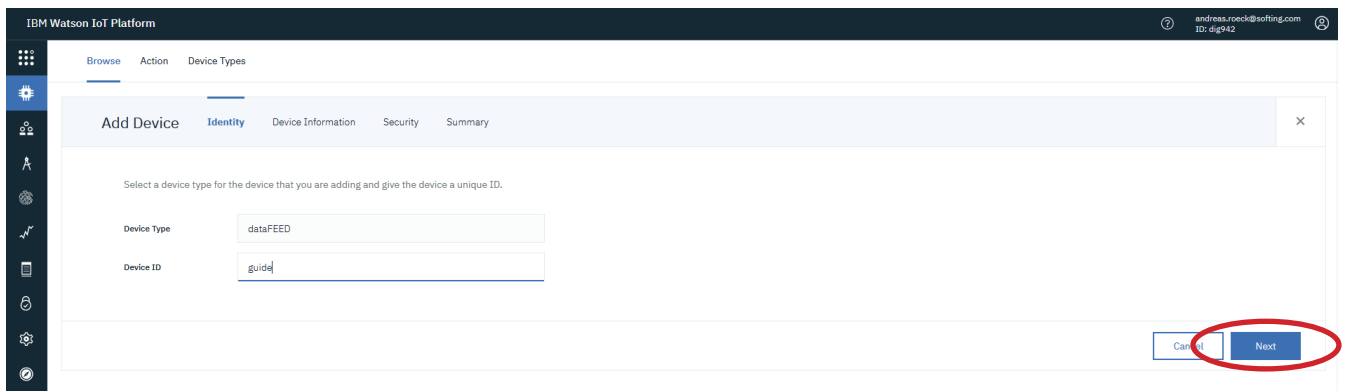
IBM Watson IoT Platform Journey

- Press **Launch** button
- Select **Devices** in menu bar on left side

IBM **Watson IoT Platform**
- Boards
- Devices
- Members
- Apps
- Access Management
- Usage
- Rules
- Security
- Settings
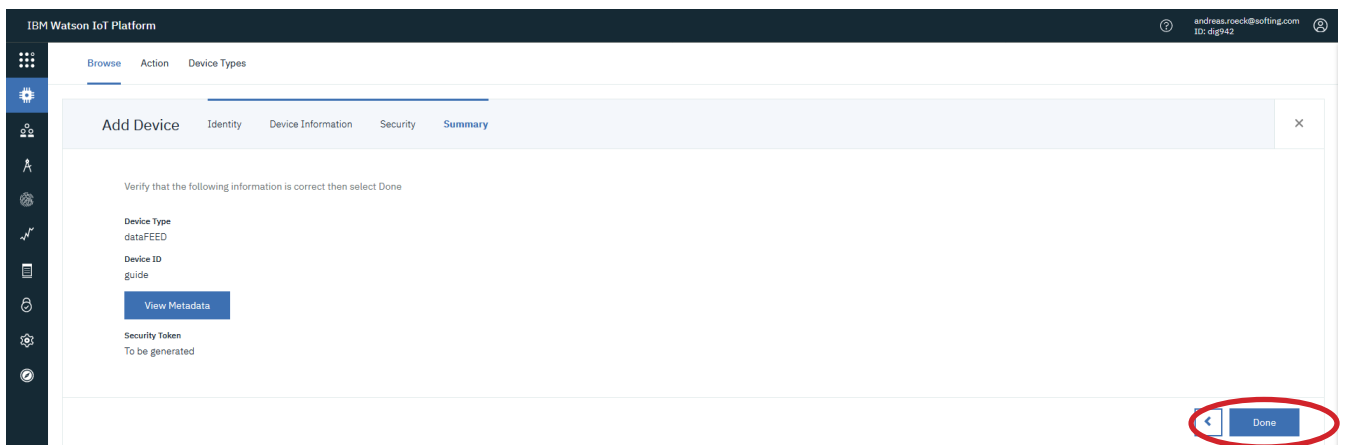- Extensions

Browse Devices page is shown

- Press **+ Add Device** button

Add Device page is shown

- Enter **Device Type** and **Device ID**

  NOTES:
  - There is no restriction to **Device Type** and **Device ID**
  - **Device ID** has to be unique
  - For **IBM Cloud** Client ID is built by "**d:**"+**<Organization ID>**+":"+**<Device Type>**+":"+**<Device ID>**
  - Client ID is limited to 23 characters

- Click **Next** button
- Add additional optional device information at following pages
- Click **Next** button until verification page is shown

- Verify entries
- Click **Done** button

Device Credentials page is shown after completion of **IBM Cloud** configuration

NOTE:

Authentication Token is created automatically.

It is only displayed once at this moment.

Thus, it is highly recommended to copy shown device details for later use during **dataFEED OPC Suite** configuration.

dataFEED OPC Suite Configuration Steps

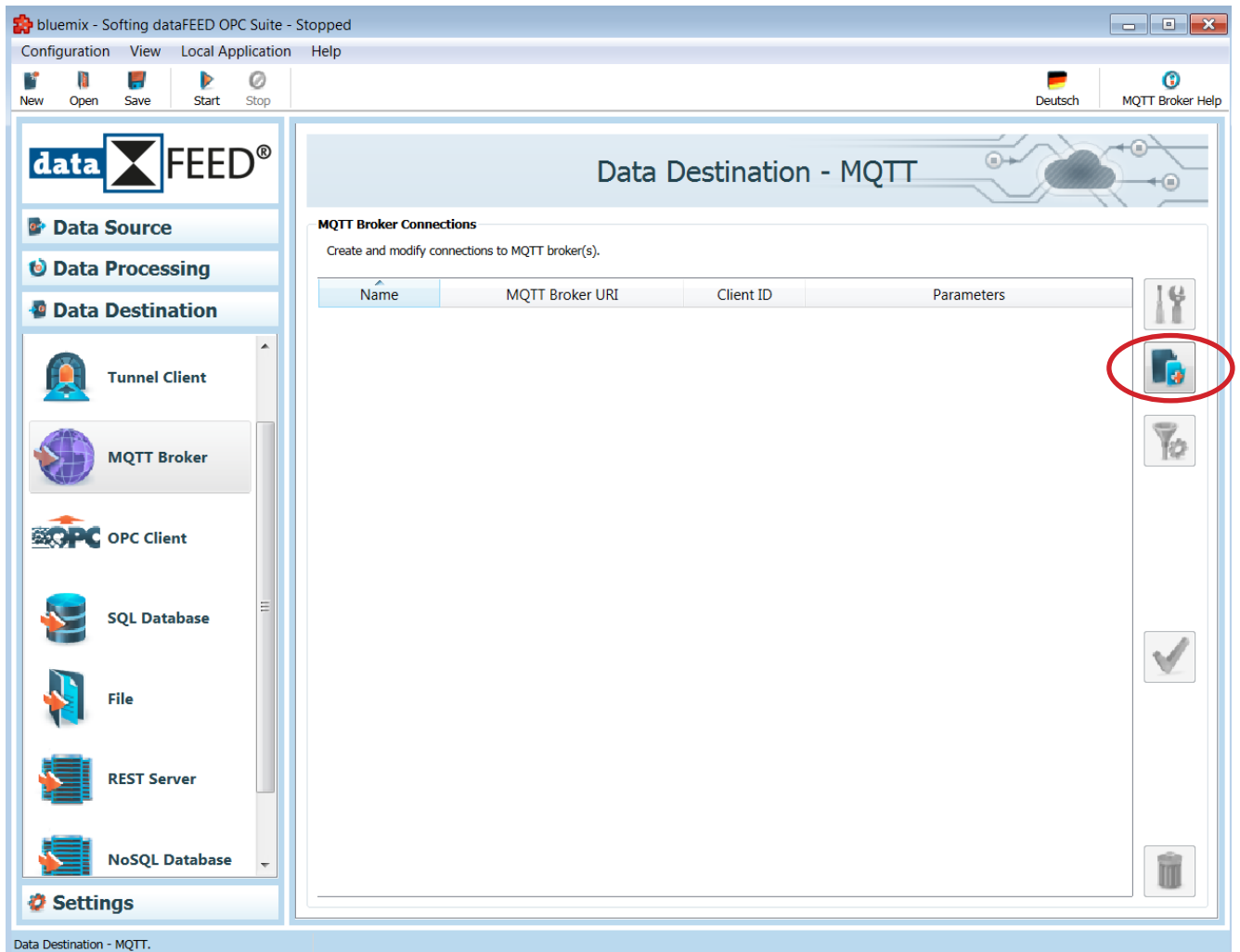### 4. Create new *dataFEED OPC Suite* configuration

- Start **dataFEED OPC Suite Configurator**,
  e.g. by clicking on **dataFEED OPC Suite Configurator** icon in Desktop
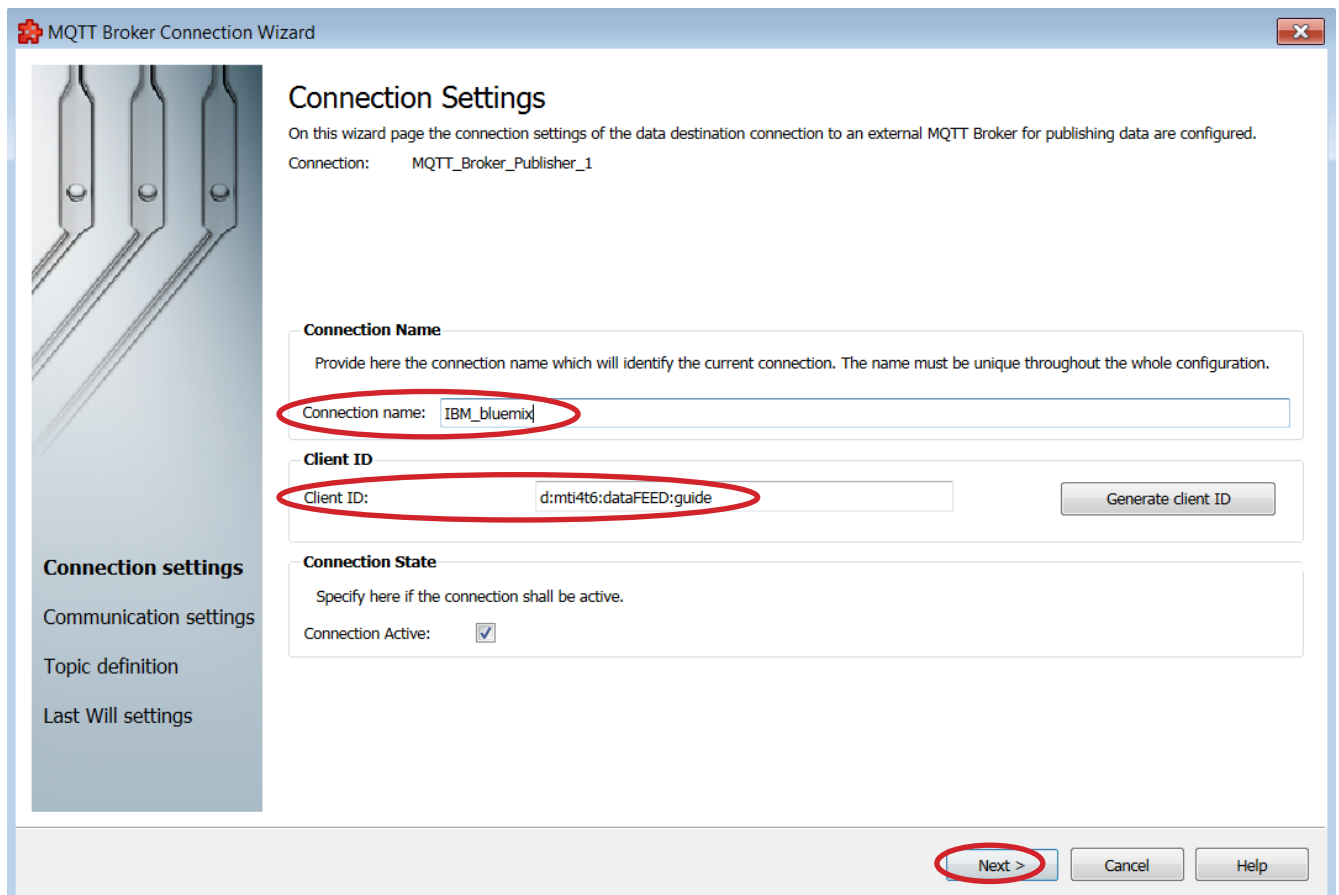- Navigate to **Configuration/New** page
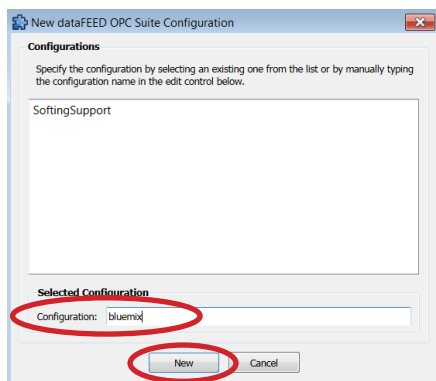
- Enter **Configuration** name
- Click **New** button

5. Define MQTT Broker Connection

- Navigate to *Data Connection/MQTT Broker* page

- Click *Add New Connection* button

dataFEED®

- Define MQTT Broker **Connection Name**
  NOTE:
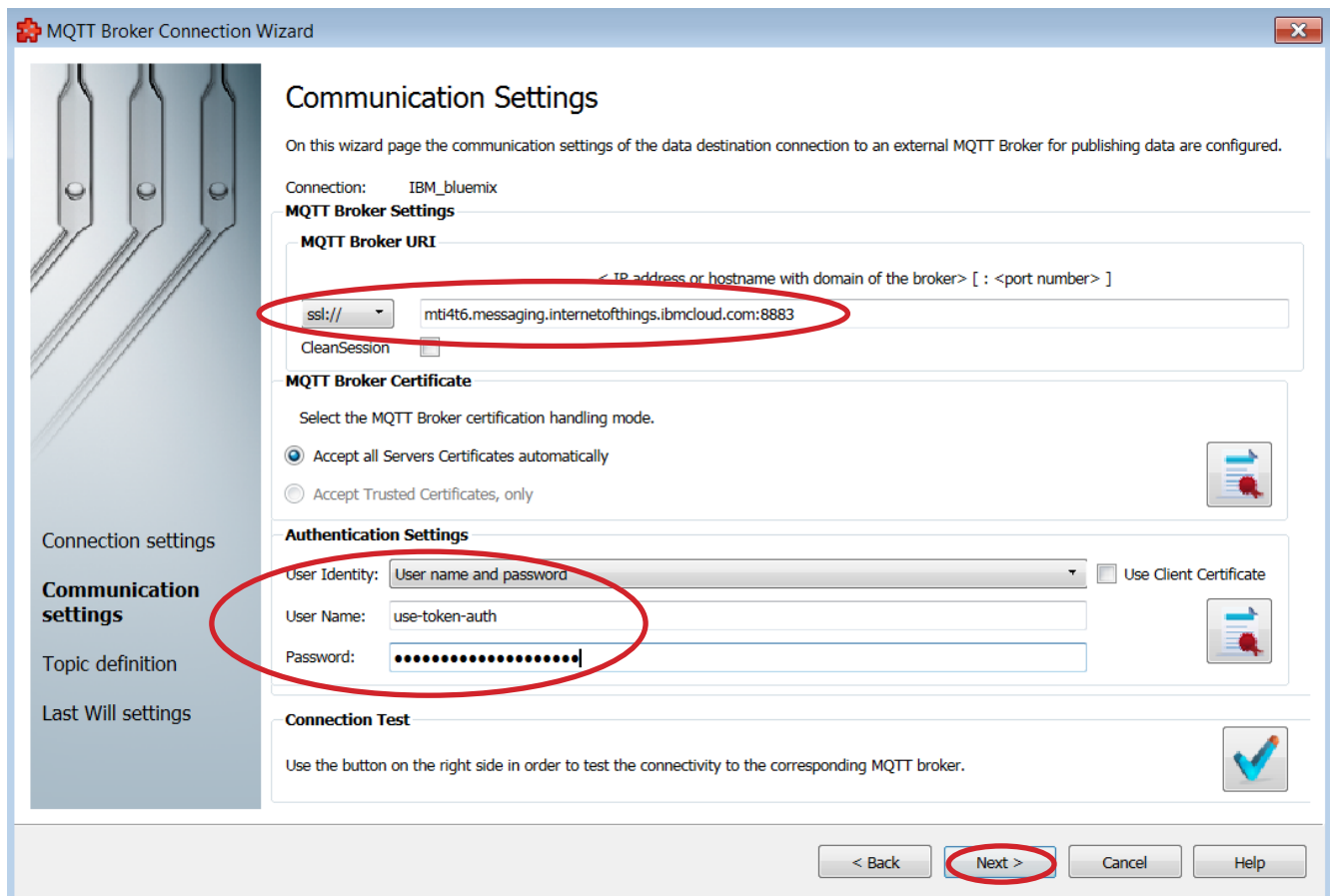 - There is no restriction to Connection Name
- Enter **Client ID**
  NOTES:
  - For Client ID use information shown at final page of **IBM Cloud** configuration
    (see section „Device Credentials page is shown after completion of IBM Cloud configuration")
  - For **IBM Cloud** Client ID is built by "**d:**"+<**Organization ID**>+":"+<**Device Type**>+":"+<**Device ID**>
- Click **Next >** button

- Enter **MQTT Broker URI** of **IBM Cloud**
  NOTES:
  - For TCP MQTT Broker URI, choose option **tcp://**
    and enter IP address <**Organization ID**>+"messaging.internetofthings.ibmcloud.com:1883"
  - For SSL/TLS MQTT Broker URI, choose option **ssl://**
    and enter IP address <**Organization ID**>+"messaging.internetofthings.ibmcloud.com:8883"
- Define **Authentication Settings**
  NOTES:
  - Select **User name and password** as **User Identity**
  - Enter "use-token-auth" as **User Name**
  - Enter authentication token shown at final page of **IBM Cloud** configuration as **Password**
    (see section „Device Credentials page is shown after completion of IBM Cloud configuration")
- Click **Connection Test** button
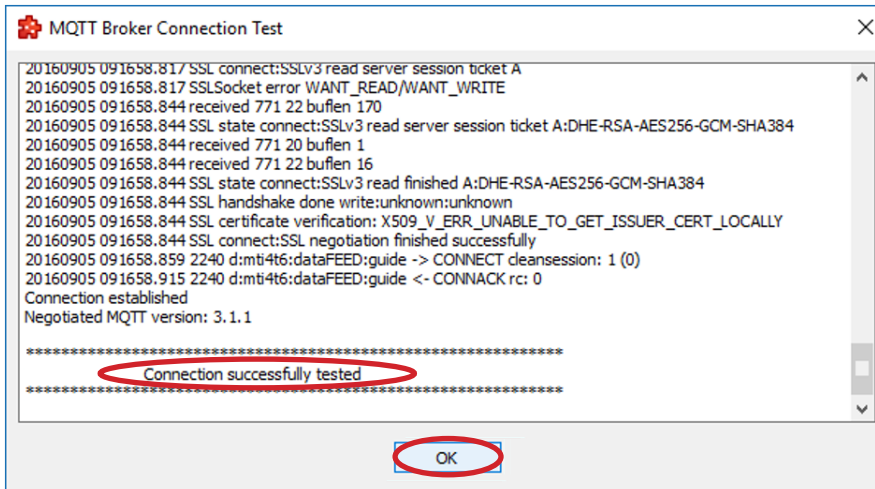
- Click **OK** button
- Click **Next >** button, if connection has been tested successfully

6. Define MQTT Topic

NOTES:

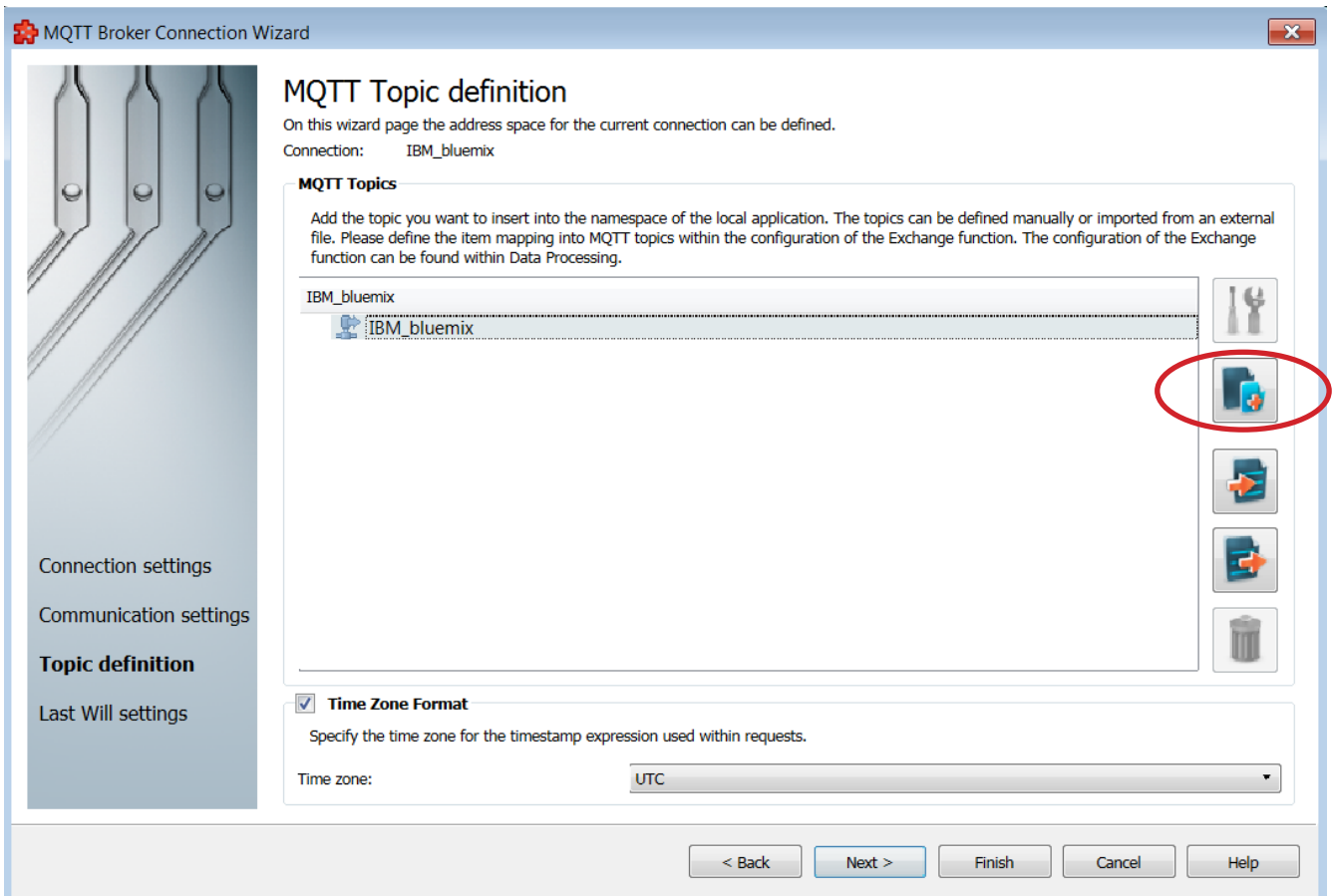Within the scope of this manual the hierarchical MQTT topic
"iot-2/evt/"+**<Event ID>**+"/fmt/"+**<Format>** is used by **dataFEED OPC Suite** for publishing values.
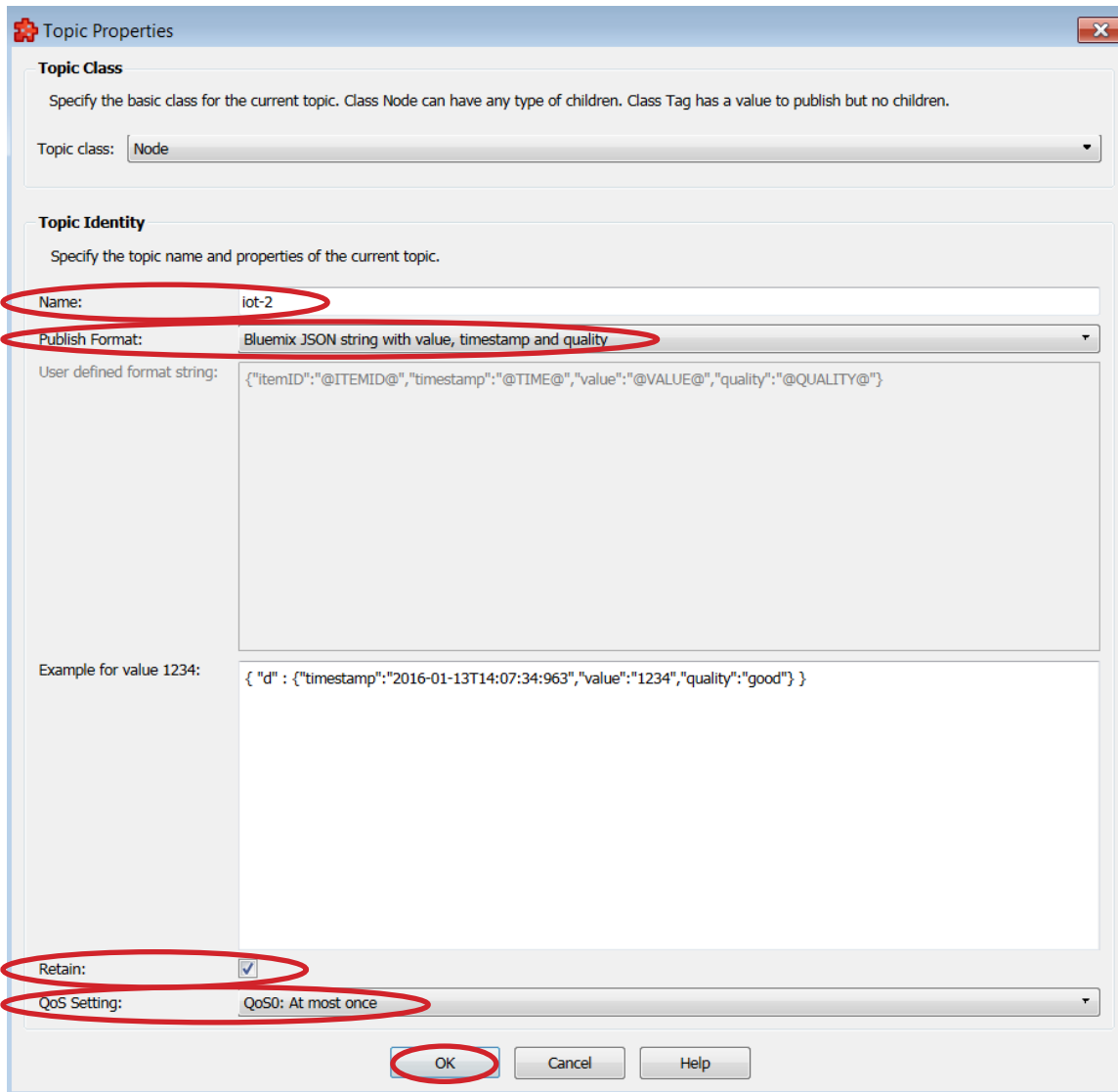Each level of the hierarchical MQTT topic has to be defined separately.
There is no restriction to **<Event ID>**
<Format> has to be set to "json"

- Select **Topic definition** page

- Click **Add Item** button

dataFEED®

Topic Properties ✕

Topic Class

Specify the basic class for the current topic. Class Node can have any type of children. Class Tag has a value to publish but no children.

Topic class: Node ▾

Topic Identity

Specify the topic name and properties of the current topic.

Name: iot-2

Publish Format: Bluemix JSON string with value, timestamp and quality ▾

User defined format string: {"itemID":"@ITEMID@","timestamp":"@TIME@","value":"@VALUE@","quality":"@QUALITY@"}

Example for value 1234: { "d" : {"timestamp":"2016-01-13T14:07:34:963","value":"1234","quality":"good"} }

Retain: ☑

QoS Setting: QoS0: At most once ▾

OK   Cancel   Help

- Enter "iot-2" as top level **Name** of hierarchical MQTT topic
- Select **Bluemix JSON string with value, timestamp and quality** as **Publish Format**
- Define **Retain** setting as required
- Select **QoS Setting** as required
- Click **OK** button
- Click **Add Item** button and repeat step above for definition of each additional level of hierarchical MQTT topic:
  - "evt"
  - **<Event ID>**
    NOTE:
    Within the scope of this manual "heartbeat" is used as **<Event ID>**
  - "fmt"
  - Define "json" as **<Format>**
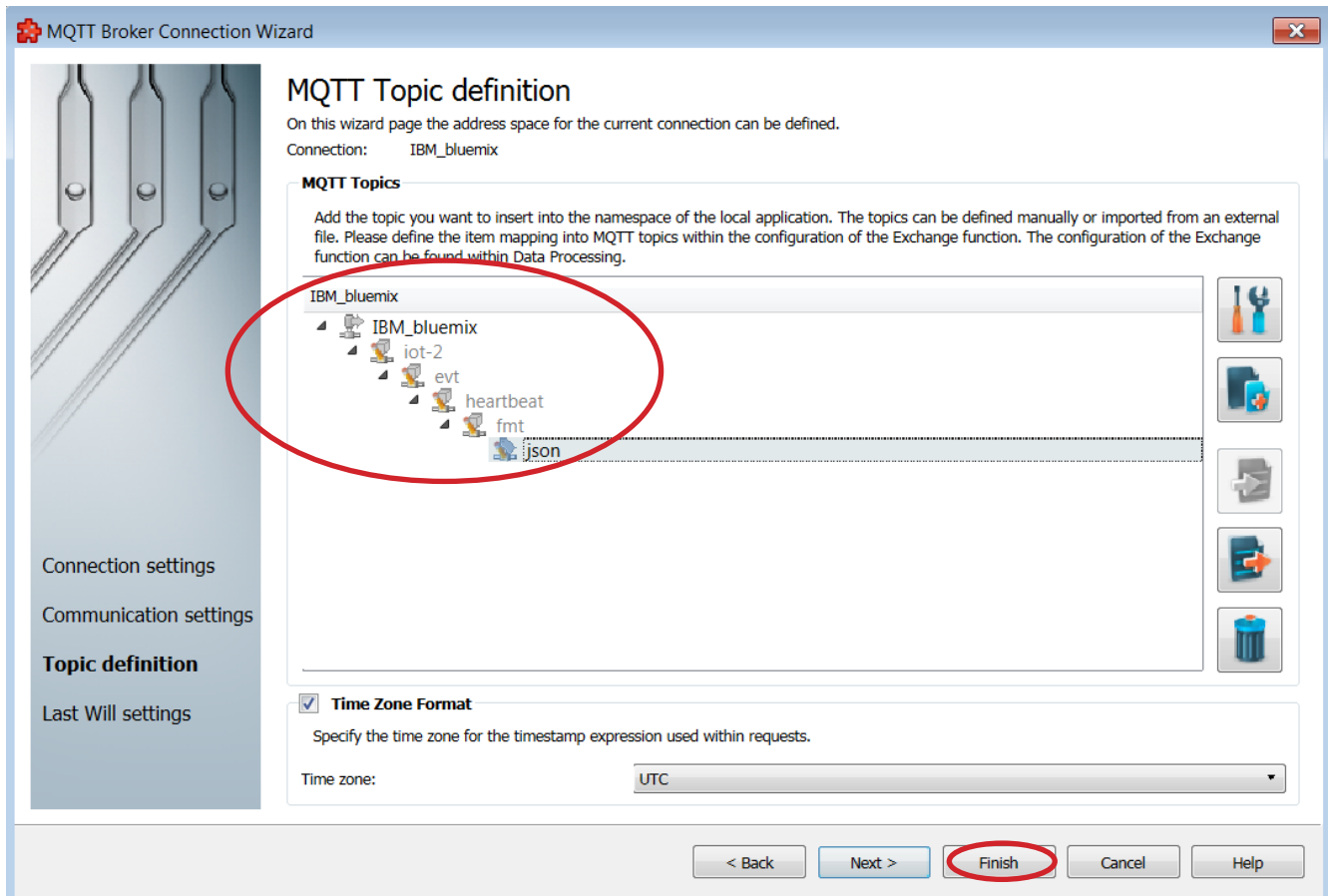
- Click **Finish** button

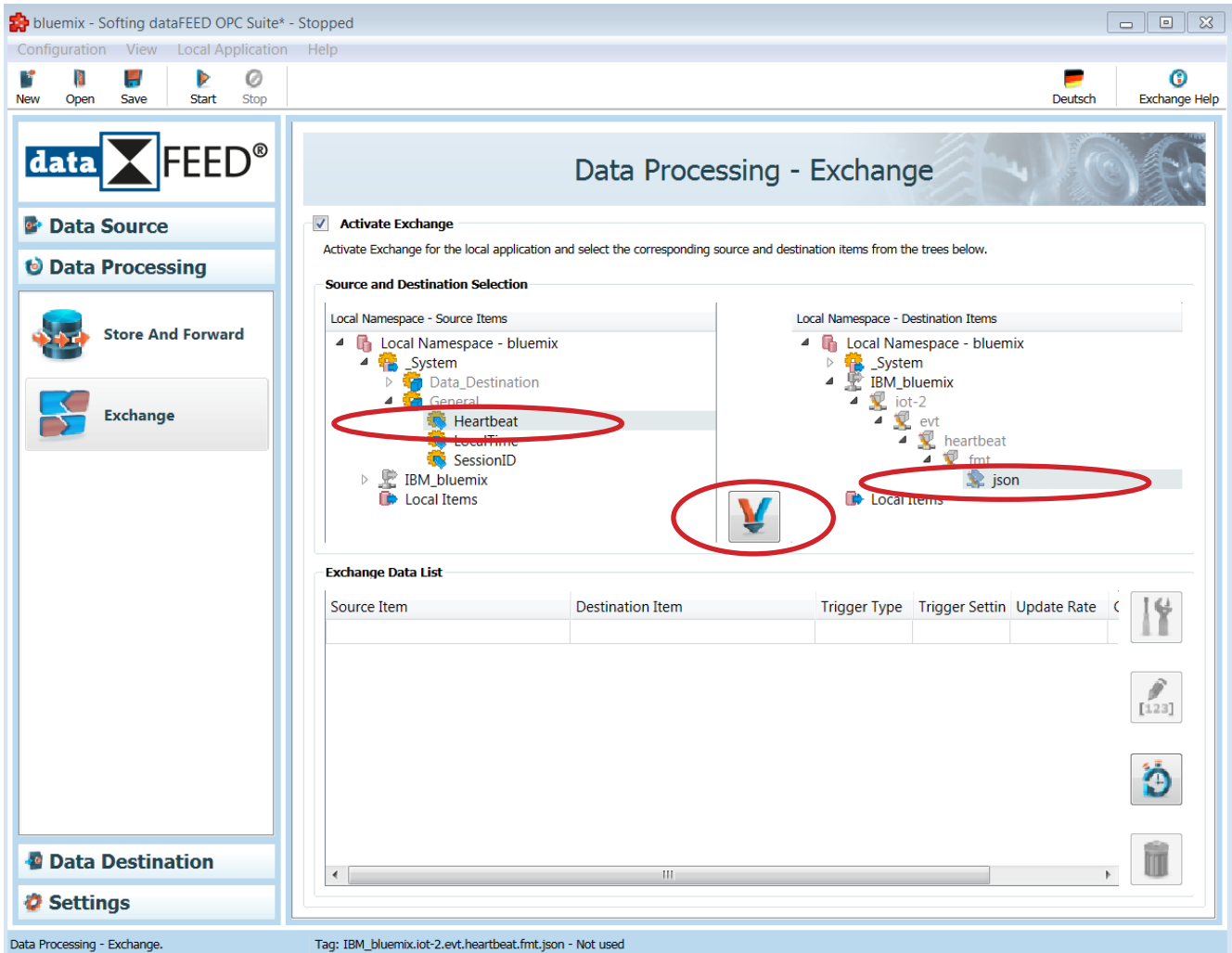- Updated *MQTT Broker Connections* page is shown
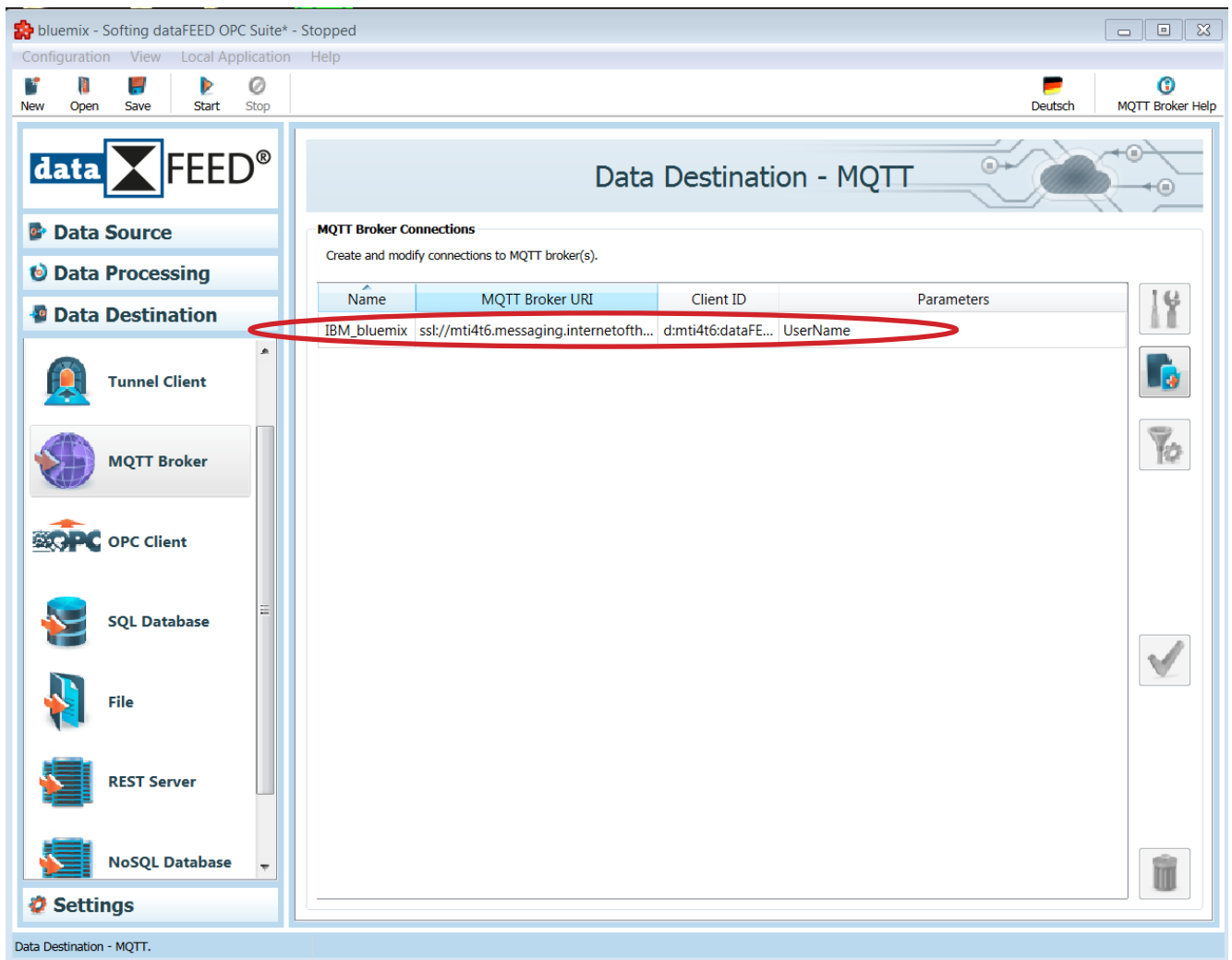
7. Define Data Exchange Between *dataFEED OPC Suite* and *IBM Cloud*

NOTE:

For an easy demonstration of the data exchange a ***dataFEED OPC Suite*** system data item with a constantly changing value is used as data source.

• Navigate to ***Data Processing/Exchange*** page

• Select ***System.General.Heartbeat*** item as data source
• Select ***json*** level of hierarchical ***IBM Cloud*** MQTT topic as data destination
• Click ***Connect*** button to create exchange action by connecting data source with data destination

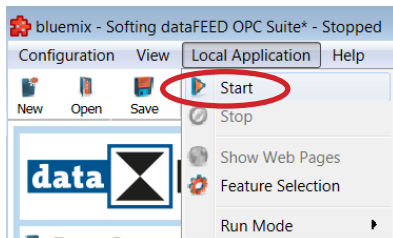- Generated connection is displayed in *Exchange Data List*
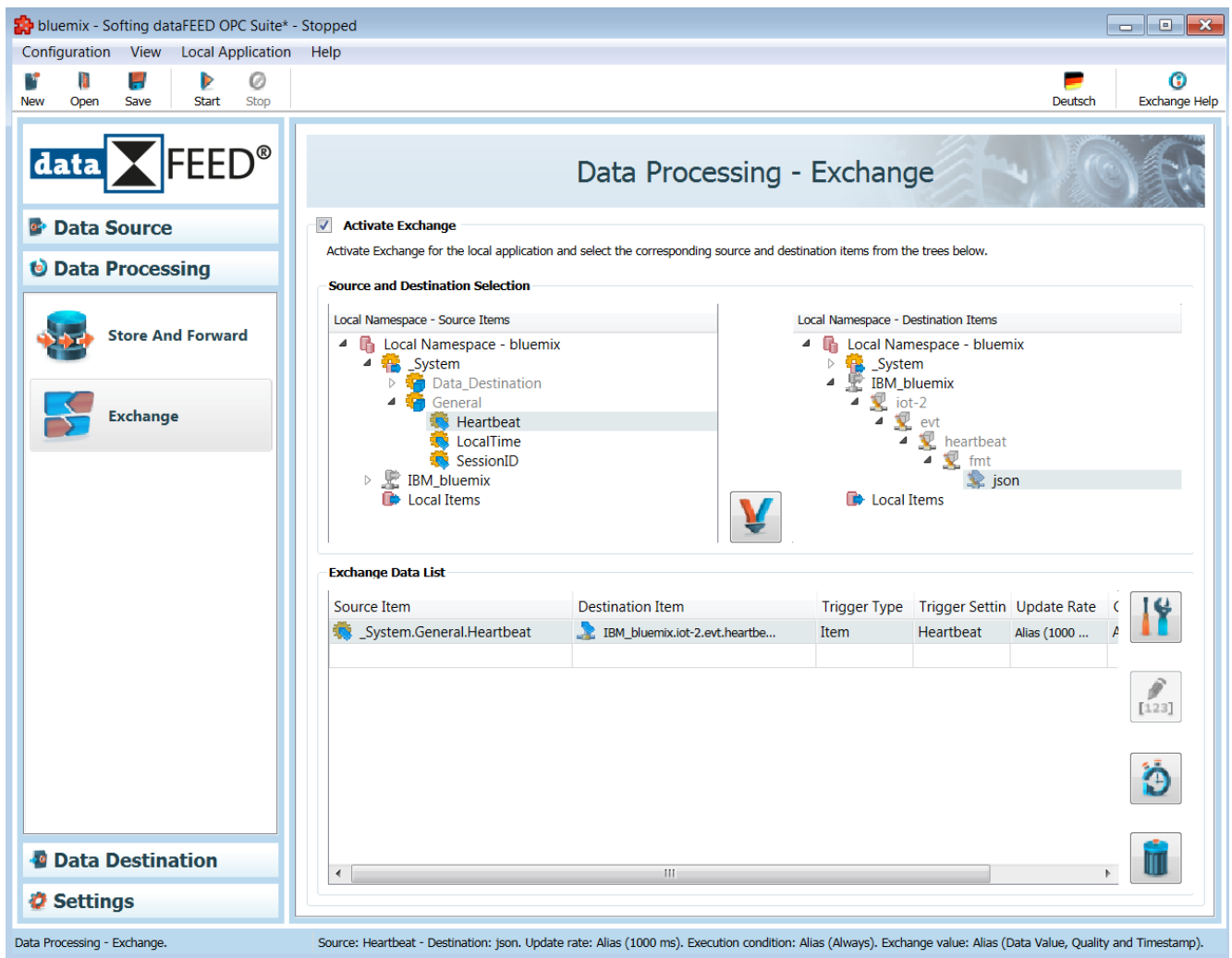
- This step completes *dataFEED OPC Suite* configuration within scope of this manual.
- Select *Configuration/Save* menu item to save configuration
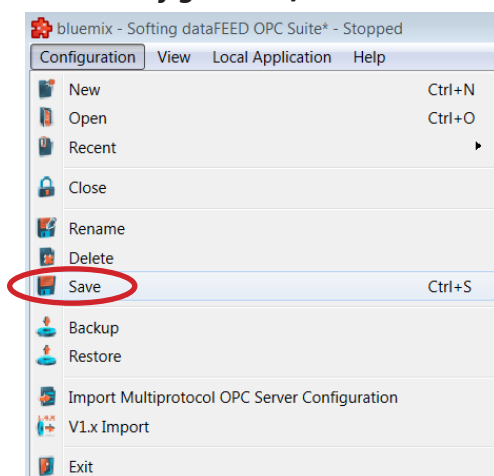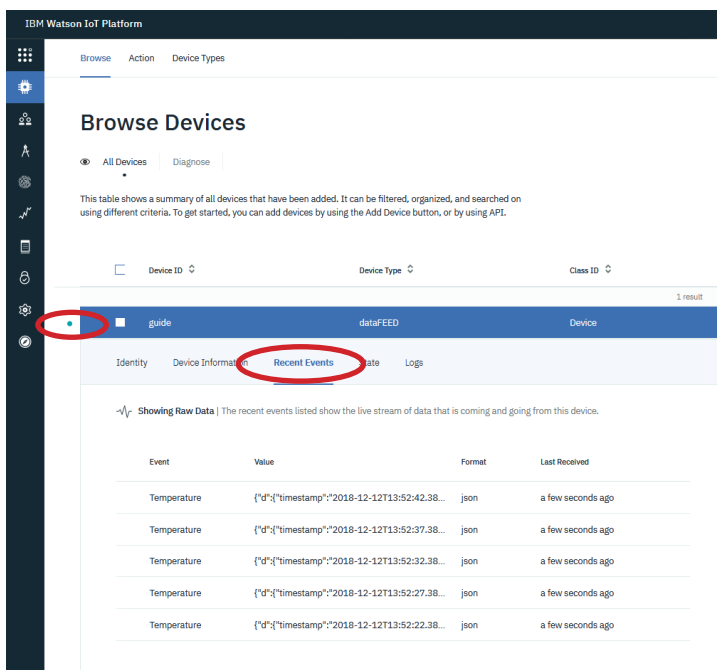
Data Exchange Verification

8.   Activate *dataFEED OPC Suite* Run Mode

- In *dataFEED OPC Suite* select *Local Application/Start* menu item

9.   Monitor Data in *IBM Cloud*

- Restart *IBM Cloud* dashboard and select *Devices* in menu bar on left side

Green dot near *guide* Device ID indicates active data source
- Select *Recent Events* for seeing live stream of data coming from dataFEED OPC Suite

  NOTE:
  For data visualization select *Boards* in menu bar on left side.
  Afterwards connect data items with cards created for an individual board.

optimize!

soft**ing**

Softing Industrial Automation GmbH
Richard-Reitzner-Allee 6
85540 Haar / Germany
Phone: +49 89 456 56 -340
Fax: +49 89 456 56 -488
info.idi@softing.com
https://data-intelligence.softing.com