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

**IBM Cloud Configuration Steps**

1. **Login at IBM Cloud**
   
   At [https://console.bluemix.net/](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
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](image)

**dataFEED MQTT Connection** dashboard page is shown

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

**Add Device** page is shown

**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 
  
  &quot;d:&quot;+<Organization ID>&quot;:&quot;+Device Type&quot;:&quot;+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

   ![Configuration New](image)

   - Enter *Configuration* name
   - Click *New* button
5. **Define MQTT Broker Connection**

- Navigate to *Data Connection/MQTT Broker* page

- Click *Add New Connection* button
• 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
• 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.