



# IBM MQ Adapter for SAP Integration Suite

Version 1.4.1 – November 2025

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# 1. Introduction

## 1.1 Objective

This is the official guide for the IBM MQ Adapter for SAP Integration Suite. This guide covers all relevant information for integration developers to start working with the IBM MQ adapter. Read this guide carefully before using the Adapter.

## 1.2 Coding Samples

Any software coding and/or code lines/strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules of certain coding. The correctness and completeness of the Code given herein are not guaranteed.

## 1.3 Internet Hyperlinks

The documentation may contain hyperlinks to the Internet. These hyperlinks are intended to serve as a hint about where to find related information. The availability and the correctness of this related information or the ability of this information to serve a particular purpose are not warranted.

## 1.4 Overview

IBM MQ is a secure and reliable messaging tool that helps different applications, systems, services, and files communicate with each other by sending messages through queues. It makes it easier and faster to connect various applications and share business data across different platforms.

IBM MQ Adapter is available as a sender and receiver adapter to streamline your message-based workflows. Further, IBM MQ Adapters are available as REST and JMS (Java Message Service) variants.

## 1.5 Features

### REST Variant

- Supports **multiple API versions** for connecting to the IBM MQ server.
- Supports **On-Premise** and **Internet** connectivity.
- Allows reading with the sender adapter and **reading, deleting, and writing** with the receiver adapter.
- Allows multiple **post-processing** while receiving messages.
- Provides secure authentication alternatives with **basic** and **token-based** authentication.
- Allows **dynamic value assignment** using exchange headers and properties in receiver adapter.

### JMS Variant

- Sender adapter supports synchronous message read via JMS **Poll** variant.
- Sender adapter facilitates automatic message delivery via JMS **Subscribe** variant.
- Supports **On-Premise** and **Internet** connectivity.
- Supports Transactional JMS Session for data consistency.
- Provides multiple actions for failed transaction handling: Keep the Message and Process Again or **Move Message to Another Queue**.
- Receiver adapter allows reliable publishing of messages to **Topics** and **Queues**.
- Supports **Persistent** and **Non Persistent** message delivery via JMS.
- Supports **Byte** and **Text** JMS messages.
- Supports multiple authentications: **Basic, Client Certificate, and None**.

## 2. Installation and Configuration

This section details the file(s) available as part of the installation package and the prerequisites to configure the IBM MQ adapter.

### 2.1 IBM MQ Adapter Installation on Cloud Foundry

Before the adapter can be used in the Cloud Foundry environment, it must be deployed to the SAP Integration Suite tenant.

#### 2.1.1 Prerequisites

To deploy the IBM MQ adapter, you must have access to the *SAP Integration Suite* license.

#### 2.1.2 Procedure

You can deploy the adapter using the following methods:






The following installation procedure is compatible with Apache Camel 2, Apache Camel 3, and Edge Integration Cell (EIC) platform.

##### 2.1.2.1 Adapter Installation by Creating a New Integration Flow


The IBM MQ adapter is available for selection in the sender and receiver adapter list and can be deployed in the **Design** tab directly as you use it in an Integration flow.

To use the adapter in the Integration flow, follow these steps:

1. Go to **Design** workspace and select the integration package where you want to create a new Integration flow.
2. Click **Edit** to make the package editable.
3. Go to the **Artifacts** tab. Click **Add** and select **Integration** Flow.
4. Enter **Name** and ID for your flow. Additionally, select **Runtime Profile** from the drop-down and choose Sender and Receiver systems from the list . Finally, click **Add** to create the integration flow.
5. Go to the newly created integration flow and click **Edit** to make it editable.
  - i. For the Sender, in the integration flow add a **Connector**  between the **Sender box** and the **Start**.
  - ii. For the Receiver, in the integration flow, click **End** to add a **Connector**  between the **End** and the **Receiver Box**.

6. A drop-down with the available adapters appears. The **IBMMQ** adapter should show up in the list.
7. Select the **IBMMQ** adapter from the list. The adapter is now imported which *triggers* an adapter deployment. Once the adapter is deployed, a success message is displayed.  
After the above steps are done, the IBM MQ Adapter is successfully deployed in your Design workspace of the SAP Integration Suite tenant.

### 2.1.2.2 Adapter Installation without Creating a New Integration Flow

 The following procedure explains how the IBM MQ adapter is migrated from the Discover workspace to the Design workspace of the SAP Integration tenant.

This method is useful for scenarios where integration flow packages are migrated from development to a higher environment such as Production.

The IBM MQ adapter can be imported into the Design workspace without creating an integration flow. Use the Transport Management Service (TMS) to import/transport the IBM MQ adapter to a higher environment. Alternatively, If the TMS is not available in the landscape, the adapter package can be imported to the Design workspace by copying it from the Discover workspace.

To copy the integration package from the Discover workspace and import the IBM MQ adapter to the Design workspace, follow these steps:

1. Go to **Discover** workspace.
2. In the search box, search for **IBM MQ Adapter for SAP Integration Suite** package.
3. Select the package and click **Copy**. This copies the package from the **Discover** workspace to the **Design** workspace.
4. Go to Design workspace and select the copied **IBM MQ Adapter for SAP Integration Suite** package.
5. In the **Actions** tab of the selected package, click **Deploy**. This completes the adapter deployment to the Design workspace.

## 2.2 Monitor the Deployment Status

After the adapter deployment is complete, you can check the status in the Monitor section.

To check the status of the deployed adapter:

1. Under the **Monitor tab**, click **Integrations and APIs**. This opens the **Overview** page.
2. On the **Overview** page, go to **Manage Integration Content** section and click **All**. This opens the **Integration Content** page with a list of all the deployed adapters.
3. Here, you can check and confirm the deployment status of your adapter.

The screenshot displays the 'Manage Integration Content' page. At the top, there is a breadcrumb 'Overview / Manage Integration Content' and a 'Runtime:' dropdown menu. Below this, the 'Integration Content (632)' section features a search bar with 'IBM' entered and several icons (refresh, settings, etc.). A table lists the integration content with columns for 'Name' and 'Status'. The entry 'IBMMQ' is highlighted, with 'Integration Adapter' listed below it and 'Started' in the status column. To the right of the table, the details for the 'IBMMQ' adapter are shown, including 'Deployed On: Aug 11, 2025, 12:13:13', 'Deployed By:', 'Package:', 'ID:', and 'Version: 1.3.0'. There are 'Undeploy' and 'Download' buttons. Below the details, a 'Status Details' section contains a green notification box with a checkmark: 'The Integration Adapter is deployed successfully.'

# 3. Getting Started: IBM MQ Adapter

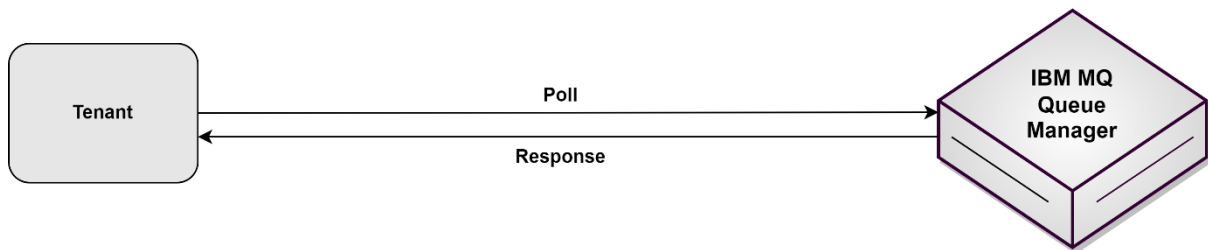
This section explains how to configure the IBM MQ adapter for SAP Integration Suite. You can find information about adapter architecture, application configuration, authentication, and supported versions for IBM MQ Adapter.

## 3.1 Architecture Overview

The IBM MQ adapter is designed to function as both a sender and receiver adapter.

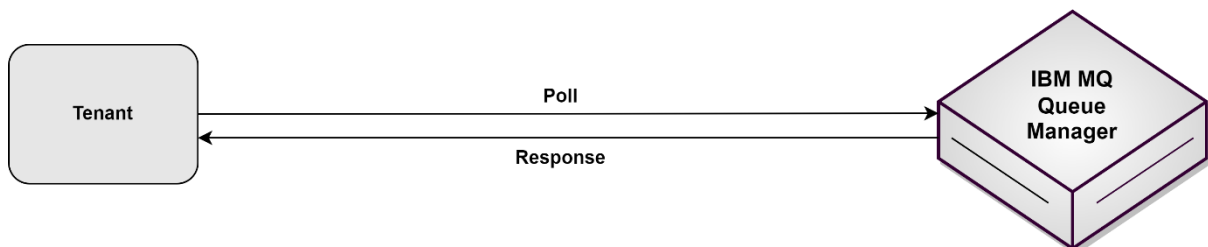
### 3.1.1 Sender Adapter (REST)

The IBM MQ Sender adapter (as the name suggests) is designed to function as a sender adapter. In such a scenario where the adapter is used as a sender adapter, IBM MQ acts as the initiator of the calls. IBM MQ sends the operation request to SAP Integration Suite tenant, IBM MQ Sender Adapter works on the request and sends the data using HTTPs protocol to SAP Integration Suite tenant.



### 3.1.2 Sender Adapter (JMS Poll)

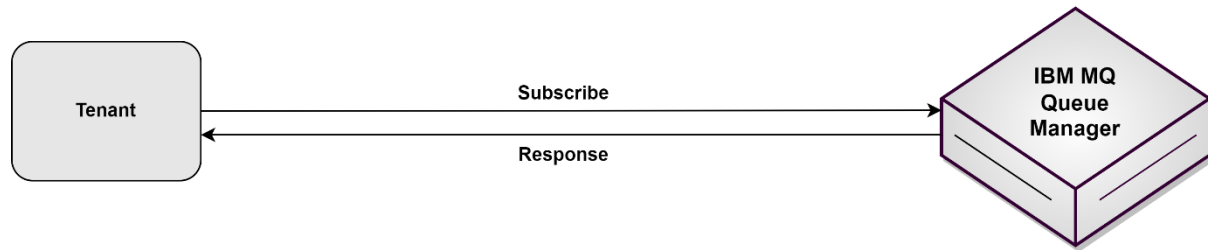
The IBM MQ Sender adapter (as the name suggests) is designed to function as a sender adapter. In such a scenario where the adapter is used as a sender adapter, IBM MQ (Poll) acts as the initiator of the calls. The JMS Poll variant actively checks for new messages at a defined interval.



### 3.1.3 Sender Adapter (JMS Subscribe)

The IBM MQ Sender adapter (as the name suggests) is designed to function as a sender adapter. In such a scenario where the adapter is used as a sender adapter, IBM MQ (Poll) acts as the initiator of the calls.

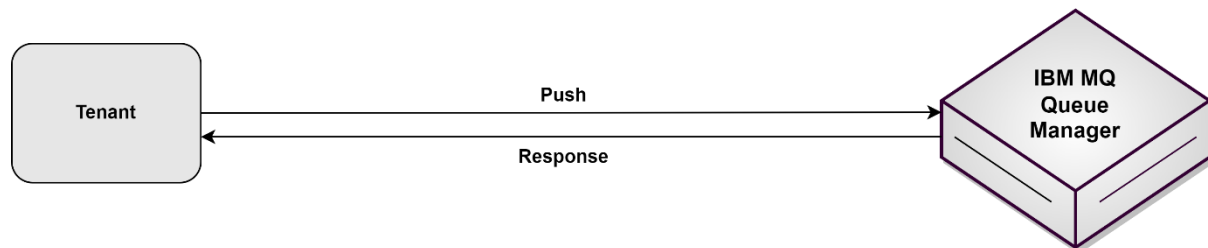
The adapter subscribes to a specific queue/topic, receiving messages as they are published.



### 3.1.4 Receiver Adapter (REST)

The IBM MQ Receiver adapter (as the name suggests) is designed to function as a receiver adapter. In such a scenario, where the IBM MQ Adapter is used as a receiver adapter, SAP Integration Suite acts as the initiator of the calls.

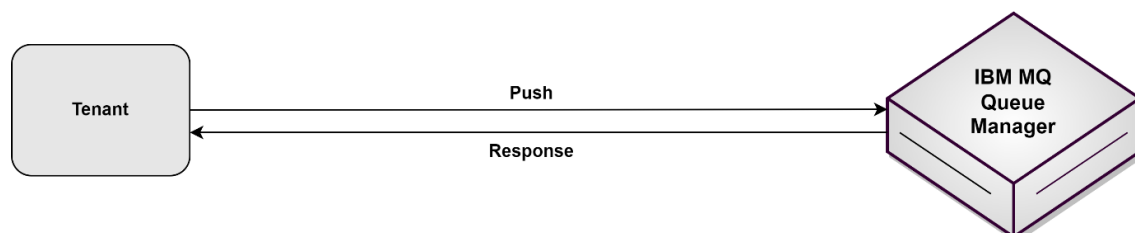
SAP Integration Suite tenant sends the operation request to IBM MQ (this is a receiver system), IBM MQ Receiver Adapter works on the request and sends the data back using HTTPS protocol to the SAP Integration Suite tenant.



### 3.1.5 Receiver Adapter (JMS)

The IBM MQ Receiver adapter (as the name suggests) is designed to function as a receiver adapter. In such a scenario, where the IBM MQ Adapter is used as a receiver adapter, SAP Integration Suite acts as the initiator of the calls.

SAP Integration Suite tenant sends the operation request to IBM MQ (this is a receiver system), IBM MQ Receiver Adapter works on the request and sends the data back using JMS protocol to the SAP Integration Suite tenant.



## 3.2 Application Configuration

### 3.2.1 IBM MQ Setup

- To set up the application configuration in IBM MQ, see the [IBM MQ Installation Overview](#) and [Configuring the user accounts for IBM MQ](#).
- For more information on configuring Client Certificate for Two-way TLS, see [Client Certificate](#). After completing the required steps, you will have a key store file, which can be used to create a Key-Pair in SAP.

### 3.2.2 On-Premise Connectivity Setup

- You must ensure at least one-way SSL is enabled on your IBM MQ server for connectivity via cloud connector.
- To learn more about Cloud Connector Connectivity, see [Cloud Connector Configuration](#).

## 3.3 Authentication

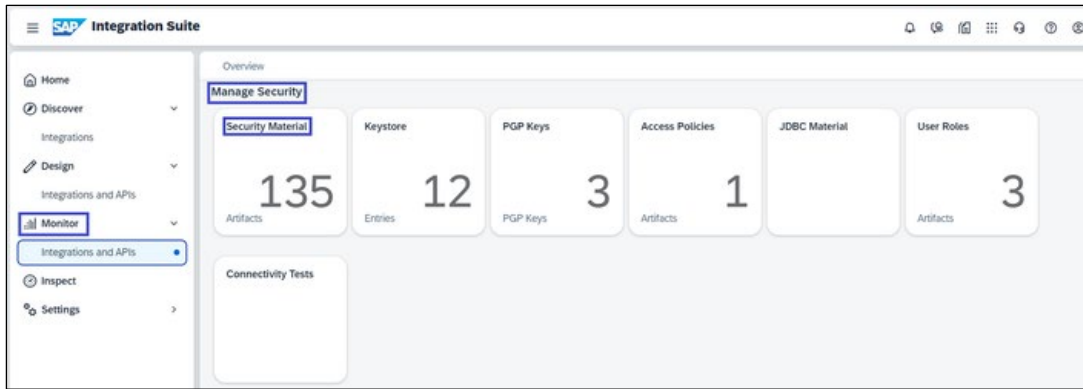
This section details the authentication mechanism supported by the IBM MQ Adapter in SAP Integration Suite.

- The IBM MQ adapter supports security artifacts like **User Credentials** used for **Basic** authentication. Before setting up the authentication, you must create the Credentials in **Security Material** in the SAP Integration Suite. For more information, see [Creating Credentials in Security Material](#).
- IBM MQ adapter also supports **Client Certificate** authentication using Key-Pair in Keystore, which uses a public and private key to securely verify identities. For more information, see [Adding Key-Pair for Client Certificate](#).
- IBM MQ adapter can also be configured using **None** authentication, which allows you to use the adapter without an authentication mechanism.

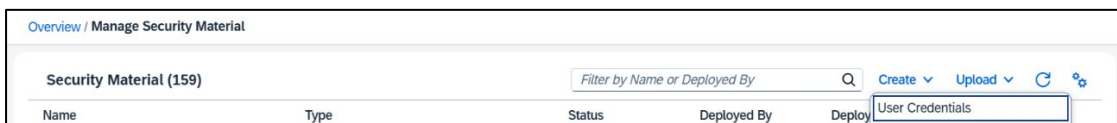
### 3.3.1 Creating Credentials for Basic Authentication

The creation of credentials to support the authentication mechanism can be done by the steps below:

1. In SAP Integration Suite, navigate to **Monitor > Integrations and APIs**. This opens the **Overview** page.
2. On the **Overview** page, go to **Manage Security** section and click **Security Material**.



- On **Manage Security Material** page, click **Create** to select **User Credentials** from the dropdown.



- In the **Create User Credentials** popup, provide the below details.

Parameter	Description
<b>Name</b>	Specify the name for the security artifact. The artifact name is used as an alias for the confidential data assigned by this parameter.
<b>Description</b>	Enter a description for the artifact (optional).
<b>Type</b>	Select <b>User Credentials</b> if creating credentials for IBM MQ. This allows you to configure a specific system to enable a connection with your integration flow artifact.
<b>User</b>	Specify the username used to invoke the receiver system.
<b>Password</b>	Specify password against which the user must be authenticated.

- Click **Deploy** to complete the process.

When you refresh the **Manage Security Material** page, the new artifact is displayed (with Type **Credentials**) in the artifact table.

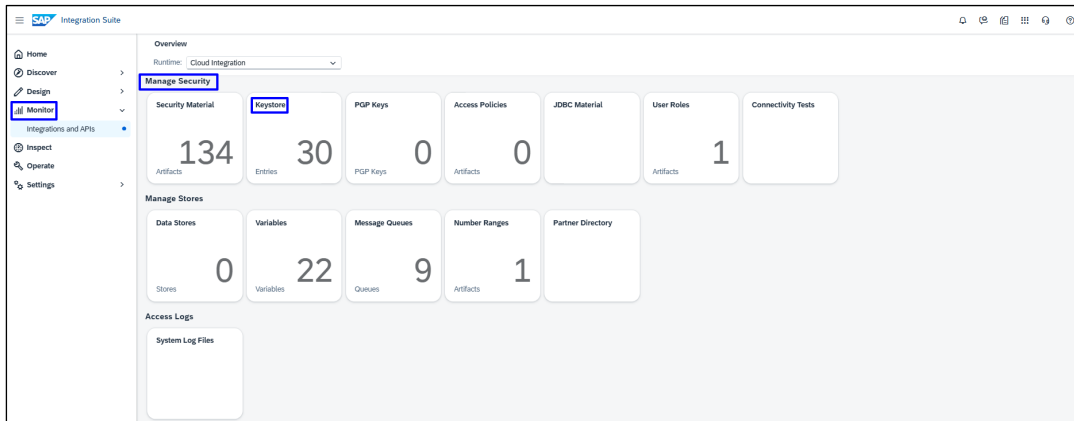
### 3.3.2 Adding Key-Pair for Client Certificate Authentication

#### Purpose

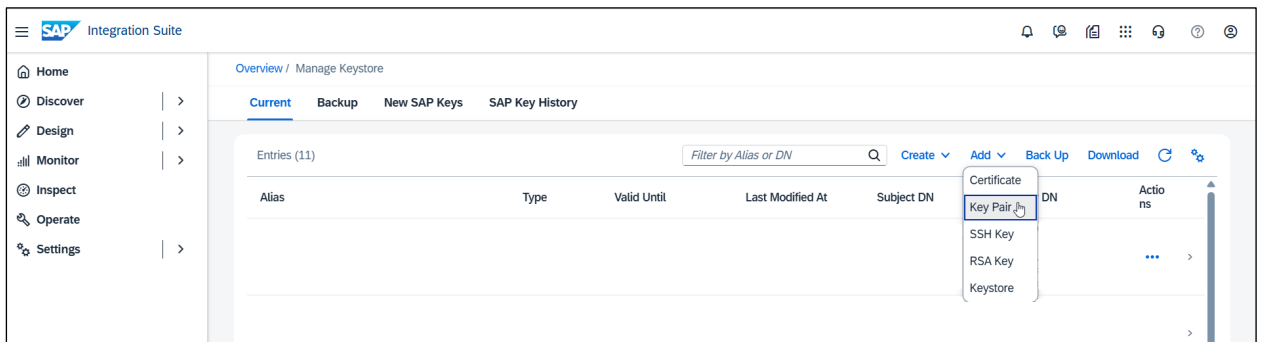
To create Key-Pair in the Keystore of SAP for Client Certificate.

## Procedure

1. In SAP Integration Suite, navigate to **Monitor** > **Integrations** and **APIs**. This opens the **Overview** page.
2. On the **Overview** page, go to **Manage Security** section and click **Keystore**.



3. On **Keystore** page, click **Add** and select **Key-Pair** from the dropdown.
4. In the **Key-Pair** popup, provide the below details.



Parameter	Description
<b>Alias</b>	Specify the name for the security artifact. The artifact name is used as an alias for the confidential data assigned by this parameter.
<b>File</b>	Select the Key-Pair file. For more information, see <a href="#">Application Configuration</a> .
<b>Password</b>	Specify the password for the artifact used while creating the key.

5. Click **Add** to complete the process.

When you refresh the Manage Security Material page, the new artifact is displayed in the artifact table.

## 3.4 Supported Versions

### 3.4.1 IBM MQ Server Versions

For both REST and JMS variants for the adapter the following IBM MQ Servers are supported.

Version
9.2.x
9.3.x
9.4.x
IBMMQ Cloud

### 3.4.2 REST API Versions

For the REST variant of the adapter, REST API versions V1, V2, and V3 are supported.

# 4. IBM MQ Adapter Configuration

This section describes the parameters to be configured for your IBM MQ adapter. You need to configure **Connection** and **Processing** tabs. A description and example usage for every field has been added.

## 4.1 Sender Adapter

In this section, you will learn how to configure the IBM MQ sender adapter. On selecting the IBM MQ adapter from the list of adapters, you must configure **Connection**, and **Processing** tabs.

### 4.1.1 REST

IBM MQ REST lets you send and get messages using web requests (HTTP).

#### 4.1.1.1 General

The General tab provides an overview of basic adapter information, including **Channel** and **Adapter** details. Only the Name and Description fields are editable.

The screenshot shows the 'General' tab of the IBM MQ configuration interface. At the top, there are three tabs: 'General', 'Connection', and 'Processing'. The 'General' tab is active. Below the tabs, there is a 'Name' field with the value 'IBMMQ'. The interface is divided into two main sections: 'CHANNEL DETAILS' and 'ADAPTER DETAILS'. Under 'CHANNEL DETAILS', there are three fields: 'Direction' with the value 'Sender', 'System' with the value 'Sender', and 'Description' which is an empty text area. Under 'ADAPTER DETAILS', there are three fields: 'Adapter Type' with the value 'IBMMQ', 'Transport Protocol' with the value 'HTTPS', and 'Message Protocol' with the value 'REST'. The interface also includes an 'Externalize' button and a help icon in the top right corner.

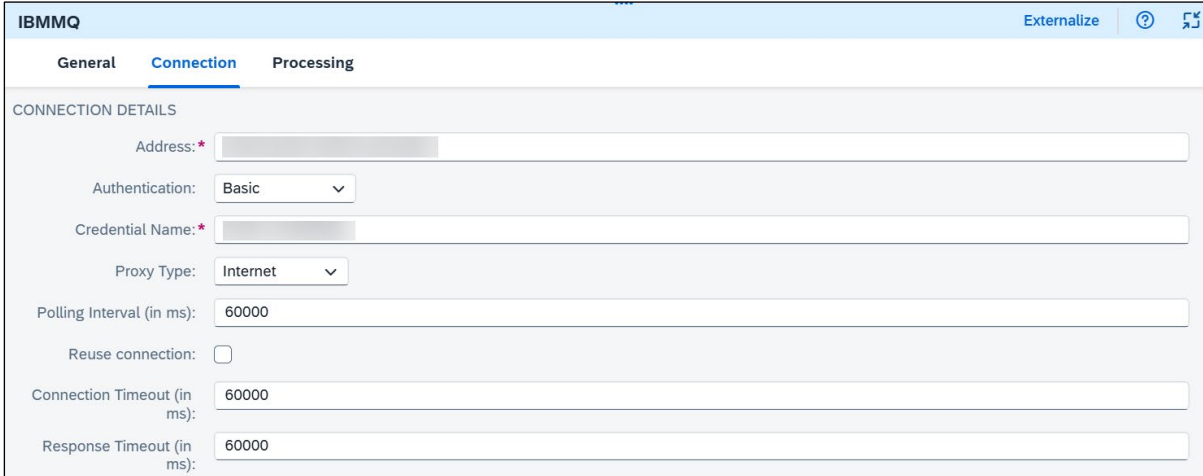
Parameter	Description
<b>Name</b>	Name of the adapter flow
<b>Description</b>	Description of the adapter

#### 4.1.1.2 Connection

The Connection tab contains connection and authentication parameters for IBM MQ.

##### Using Credentials

The Security artifact created in the previous section ([Creating Credentials in Security Material](#)) should be used in the **Connection tab** of the Adapter, as shown in the Figure below.



The screenshot shows the 'Connection' tab of the IBM MQ adapter configuration. The 'CONNECTION DETAILS' section contains the following fields:

- Address:** A text input field with a red asterisk indicating it is required.
- Authentication:** A dropdown menu currently set to 'Basic'.
- Credential Name:** A text input field with a red asterisk indicating it is required.
- Proxy Type:** A dropdown menu currently set to 'Internet'.
- Polling Interval (in ms):** A text input field containing '60000'.
- Reuse connection:** An unchecked checkbox.
- Connection Timeout (in ms):** A text input field containing '60000'.
- Response Timeout (in ms):** A text input field containing '60000'.

The connection tab contains the following fields:

Parameter	Description
<b>Address</b>	Specify the address of the IBM MQ endpoints. Example: <code>https://web-{hostname}</code>
<b>Authentication</b>	Select the type of authentication for connecting to the IBM MQ: <ul style="list-style-type: none"> <li>• <b>Basic</b></li> <li>• <b>Token-Based</b></li> </ul>
<b>Credential Name</b>	Specify the alias that refers to the user credentials (username-password pair).
<b>Proxy Type</b>	Select the proxy type: <ul style="list-style-type: none"> <li>• <b>Internet</b></li> <li>• <b>On-Premise</b></li> </ul>
<b>Polling Interval (in ms)</b>	Specify the polling interval in milliseconds to retrieve the messages.
<b>Location ID</b>	Specify the Location ID from the Cloud Connector.
<b>Reuse connection</b>	Enable this property if you want to reuse the connection.

Parameter	Description
<b>Connection Timeout (in ms)</b>	Specify the maximum waiting time (in milliseconds) for the connection to be established.
<b>Response Timeout (in ms)</b>	Specify the maximum waiting time (in milliseconds) for a response message to be received.

### 4.1.1.3 Processing

The Processing tab lists all the operations that can be performed on the database through the adapter.



The screenshot shows the 'Processing' tab in the IBM MQ interface. It includes sections for 'PROCESSING DETAILS' and 'HEADERS DETAILS'. The 'PROCESSING DETAILS' section contains:

- API Version: v3 (dropdown)
- Queue Manager Name: [input field]
- Queue Name: [input field]
- Processing Mode: Keep Message and Process Again (dropdown)
- MQ CSRF Token: [input field]

The 'HEADERS DETAILS' section contains:

- Request Headers: A table with columns 'Name' and 'Value', and buttons 'Add' and 'Delete'.
- Response Headers: A table with columns 'Name' and 'Value'.

Parameter	Description
<b>API Version</b>	Select an API Version.
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from where the message is read.

Parameter	Description
<b>Processing Mode</b>	<p>Select the action to be performed after processing the message in the queue:</p> <ul style="list-style-type: none"> <li>• <b>Delete Message after iFlow Execution</b> : Deletes the message from the queue once the iFlow is executed. In case of iFlow failure, the message may either be retained (not deleted) or moved to the dead letter queue, removing it from the main queue for further action.</li> <li>• <b>Keep Message and Process Again</b> : Retrieves the first available message from the queue but leaves it in the queue for potential reprocessing.</li> <li>• <b>Read and Delete Message</b> : Reads and deletes the message from the queue after processing, with the maximum number of messages per node specified.</li> </ul>
<b>Behavior on Failure</b>	<p>Select the behavior on iFlow failure:</p> <ul style="list-style-type: none"> <li>• <b>Move to Dead Letter Queue</b></li> <li>• <b>Do Not Delete</b></li> </ul>
<b>Max Number of Messages Per Node</b>	<p>Specify the maximum number of messages to be retrieved per node.</p> <p> The recommended values are 1-5000.</p>
<b>Max Number of Messages</b>	<p>Specify the maximum number of messages to be retrieved per poll.</p> <p> The recommended values are 1-5000.</p>
<b>Dead Letter Queue Name</b>	<p>Specify the name of the Dead Letter Queue to which the message should be moved.</p>
<b>MQ CSRF Token</b>	<p>Specify the CSRF protection header. The value can be any valid string, including a blank string.</p>
<b>HEADERS DETAILS</b>	
<b>Request Headers</b>	<p><b>Name:</b> Specify the custom header name to be passed in the request to IBM MQ.</p> <p><b>Value:</b> Specify the custom header value to be passed in the request to IBM MQ.</p>

Parameter	Description
<b>Response Headers</b>	Enter a list of headers coming from the target system's response, separated by a pipe ( ), to be received in the message. Use an asterisk(*) to receive all the headers from the target system, which is also the default value.

## 4.1.2 JMS (Poll)

Polling in JMS is the synchronous process where a message consumer repeatedly checks a queue or topic for new messages.

### 4.1.2.1 General

The General tab provides an overview of basic adapter information including **Channel** and **Adapter** details. Only the Name and Description fields are editable.

Parameter	Description
<b>Name</b>	Name of the adapter flow
<b>Description</b>	Description of the adapter

### 4.1.2.2 Connection

The Connection tab contains connection and authentication parameters for IBM MQ.

#### Using Credentials

The Security artifact created in the previous section ([Creating Credentials in Security Material](#)) should be used in the **Connection tab** of the Adapter as shown in the Figure below.

**IBMMQ**

General
Connection
Processing

CONNECTION DETAILS

Hostname: \*

Port: \*

Authentication:  ▼

Credential Name: \*

Proxy Type:  ▼

Location ID:

SSL Cipher Suite: \*

Queue Manager Name: \*

Channel Name: \*

Application Name:

Transport/Network Protocol:  ▼

Character Set ID (CCSID) for Non-ASCII Names:


Polling Interval (in ms): \*

Message Receive Wait Time (in ms): \*

Process Errors as an Event:

The Connection tab contains the following fields:

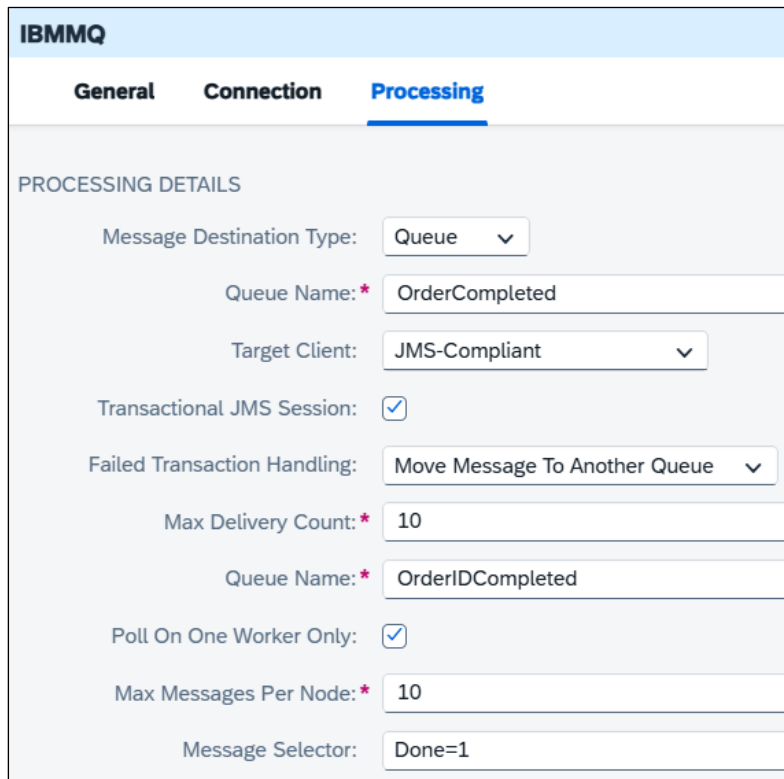
Parameter	Description
<b>Hostname</b>	Specify the hostname to connect to IBM MQ. Example: mqd-b57b.qm.eu-de.mq.appdomain.cloud
<b>Port</b>	Specify the port number to connect to IBM MQ. Example: 31636
<b>Authentication</b>	Select the type of authentication for connecting to IBM MQ. <ul style="list-style-type: none"> <li><b>Basic:</b> Provides authentication using User Credentials.</li> <li><b>Client Certificate:</b> The server authenticates the client by receiving the client's certificate during the SSL handshake and verifying the certificate is valid.</li> <li><b>None:</b> Direct connection can be made without User Credentials.</li> </ul>

Parameter	Description
<b>Private Key Alias</b> (only available when <b>Client Certificate</b> is selected)	Specify the alias that stores the private key to communicate with IBM MQ servers.  Example: <code>IBM_MQ_KeyAlias</code>  For more information, see the <a href="#">Application Configuration</a> .
<b>Credential Name</b>	Specify the User Credential artifact that stores the username-password pair.  Example: <code>IBM_MQ_54</code>
<b>Proxy Type</b>	Specify the proxy type: <ul style="list-style-type: none"> <li>• <b>Internet</b></li> <li>• <b>On-Premise</b></li> </ul> <div style="background-color: #e6f2ff; padding: 10px; margin-top: 10px;">  <ul style="list-style-type: none"> <li>• <b>Basic</b> Authentication is only supported when <b>Proxy Type</b> is set to <b>Internet</b> (includes Edge integration Cell also).</li> <li>• When using the Cloud Connector setup, only <b>Client Certificate</b> authentication is supported.</li> </ul> </div>
<b>Location ID</b> (Only available when <b>Proxy Type</b> is set to <b>On-Premise</b> ).	Specify the Location ID from Cloud Connector.  Example: <code>Zone_08</code>  For more information, see <a href="#">On Premise Connectivity Setup</a> .
<b>SSL Cipher Suite</b>	Specify the SSL Cipher Suite value.  Example: <code>*TLS12HIGHER</code>
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect for messaging.  Example: <code>MQD</code>
<b>Channel Name</b>	Specify the Channel Name in IBM MQ.  Example: <code>CLOUD.APP.SVRCONN</code>
<b>Application Name</b>	Specify the Application Name for the connection.  Example: <code>MainApp</code>

Parameter	Description
<b>Transport/Network Protocol</b>	Select the type of protocol for connecting to IBM MQ: <ul style="list-style-type: none"> <li>• <b>TCP/IP</b></li> <li>• <b>WebSphereMQ</b></li> </ul>
<b>Character Set ID (CCSID) for Non-ASCII Names</b>	Specify the Character Set ID to ensure proper encoding of non-ASCII characters when connecting to IBM MQ.  Example: 819
<b>Polling Interval (in ms)</b>	Specify the poll interval in milliseconds.  Example: 60000
<b>Message Receive Wait Time (in ms)</b>	Specify the maximum waiting time (in milliseconds) for a message to be received from IBM MQ.  Example: 100
<b>Process Errors as an Event</b>	Enable to write error events in the exchange. If disabled, issues connecting to event streams are only be written to the logs.

### 4.1.2.3 Processing

The **Processing** tab lists all the operations that can be performed.



**IBMMQ**

**General**   **Connection**   **Processing**

PROCESSING DETAILS

Message Destination Type: Queue ▾

Queue Name: \* OrderCompleted

Target Client: JMS-Compliant ▾

Transactional JMS Session:

Failed Transaction Handling: Move Message To Another Queue ▾

Max Delivery Count: \* 10



Queue Name: \* OrderIDCompleted

Poll On One Worker Only:

Max Messages Per Node: \* 10

Message Selector: Done=1

Parameter	Description
<b>Message Destination Type</b>	Select the Message Destination Type for which operation needs to be performed: <ul style="list-style-type: none"> <li>• <b>Queue</b></li> <li>• <b>Topic</b></li> </ul>
<b>Queue Name</b> (only available when <b>Message Destination Type</b> is set to <b>Queue</b> )	Specify the name of the queue from where the message is read.
<b>Topic Name/String</b> (only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the name or string of the Topic from which the message will be read.
<b>Client ID</b> (only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the Client ID for connection.

Parameter	Description
<b>Subscription ID</b> (only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the Subscription ID for connection.
<b>Target Client</b>	Select the target client type: <ul style="list-style-type: none"> <li>• <b>JMS-Compliant:</b> JMS message properties and headers are accessible.</li> <li>• <b>WebSphereMQ (Non-JMS):</b> JMS message properties and headers are excluded.</li> </ul>
<b>Transactional JMS Session</b>	Enable to utilize a transactional JMS session. Enabling is recommended to ensure data consistency.
<b>Failed Transaction Handling</b>	Select the action to be performed when a transaction fails: <ul style="list-style-type: none"> <li>• <b>Keep Message And Process Again</b></li> <li>• <b>Move Message To Another Queue</b></li> </ul>
<b>Max Delivery Count</b> (only available when <b>Failed Transaction Handling</b> set to <b>Move Message To Another Queue</b> )	Specify the count for maximum JMS message delivery. <div style="background-color: #e6f2ff; padding: 5px; margin-top: 10px;">  This value refers to JMS header JMSXDeliveryCount. Message excess of this value is moved to the Another Queue.           </div>
<b>Queue Name</b> (only available when <b>Failed Transaction Handling</b> set to <b>Move Message To Another Queue</b> )	Specify the name of the Another Queue to which the message should be moved if JMS message delivery backout threshold is reached on transaction failure.
<b>Max Message Per Node</b>	Specify the maximum number of messages to be retrieved per worker node. It is recommended to keep this value under 5000.  Example: 10
<b>Max Number of Messages</b>	Specify the maximum number of messages to be retrieved. <div style="background-color: #e6f2ff; padding: 5px; margin-top: 10px;">  The recommended values are 1-5000.           </div>

Parameter	Description
<b>Message Selector</b>	Specify a <b>string expression</b> that filters messages based on header fields and custom message properties.  Example: Department=HR



- The Adapter performs duplicate checks to suppress message processing based on JMS message ID.
- Suppressing duplicate message processing is only done within the same poll.
- If you want to suppress the processing of the same JMS message ID across different polls, you can leverage the idempotent process call.

### 4.1.3 JMS (Subscribe)

A subscription enables automatic receipt of messages when you subscribe to a specific message destination type.

#### 4.1.3.1 General

The General tab provides an overview of basic adapter information, including **Channel** and **Adapter** details. Only the Name and Description fields are editable.

Parameter	Description
<b>Name</b>	Name of the adapter flow
<b>Description</b>	Description of the adapter

### 4.1.3.2 Connection

The Connection tab contains connection and authentication parameters for IBM MQ.

#### Using Credentials

The Security artifact created in the previous section ([Creating Credentials in Security Material](#)) should be used in the **Connection tab** of the Adapter, as shown in the Figure below.

The screenshot shows the 'IBM MQ' configuration window with the 'Connection' tab active. The 'CONNECTION DETAILS' section includes the following fields:

- Hostname: \* mqfd-b57b.qm.eu-de.mq.appdomain.cloud
- Port: \* 31636
- Authentication: Client Certificate (dropdown)
- Private Key Alias: \* IBM\_MQ\_KeyAlias
- Credential Name: IBM\_MQ\_54
- Proxy Type: Internet (dropdown)
- SSL Cipher Suite: \*TLS12HIGHER
- Queue Manager Name: \* QMGR
- Channel Name: \* CLOUD.APP.SVRCOS
- Application Name: MainApp
- Transport/Network Protocol: TCP/IP (dropdown)
- Character Set ID (CCSID) for Non-ASCII Names: 819
- Connection Check Interval (in ms): \* 300000

Parameter	Description
<b>Hostname</b>	Specify the hostname to connect to IBM MQ. Example: qmqfd-b57b.qm.eu-de.mq.appdomain.cloud
<b>Port</b>	Specify the port number to connect to IBM MQ. Example: 31636
<b>Authentication</b>	Select the type of authentication for connecting to IBM MQ. <ul style="list-style-type: none"> <li>• <b>Basic:</b> Provides authentication using User Credentials.</li> </ul>

Parameter	Description
	<ul style="list-style-type: none"> <li>• <b>Client Certificate:</b> The server authenticates the client by receiving the client's certificate during the SSL handshake and verifying the certificate is valid.</li> <li>• <b>None:</b> Direct connection can be made without User Credentials.</li> </ul>
<b>Private Key Alias</b> (only available when <b>Client Certificate</b> is selected)	Specify the alias that stores the private key to communicate with IBM MQ servers.  Example: <code>IBM_MQ_KeyAlias</code>  For more information, see the <a href="#">Application Configuration</a> .
<b>Credential Name</b>	Specify the User Credential artifact that stores the username-password pair.  Example: <code>IBM_MQ_54</code>
<b>Proxy Type</b>	Specify the proxy type: <ul style="list-style-type: none"> <li>• <b>Internet</b></li> <li>• <b>On-Premise</b></li> </ul>
<b>Location ID</b> (only available when <b>Proxy Type</b> is set to <b>On-Premise</b> ).	Specify the Location ID from Cloud Connector.  Example: <code>Zone_08</code>  For more information, see <a href="#">On Premise Connectivity Setup</a> . For more information, see <a href="#">On Premise Connectivity Setup</a> .
<b>SSL Cipher Suite</b>	Specify the SSL Cipher Suite value.  Example: <code>*TLS12HIGHER</code>
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect for messaging.  Example: <code>QMGR</code>
<b>Channel Name</b>	Specify the Channel Name in IBM MQ.  Example: <code>CLOUD.APP.SVRCOS</code>
<b>Application Name</b>	Specify the Application Name for the connection.  Example: <code>MainApp</code>

Parameter	Description
<b>Transport/Network Protocol</b>	Select the type of protocol for connecting to IBM MQ: <ul style="list-style-type: none"> <li>• <b>TCP/IP</b></li> <li>• <b>WebSphereMQ</b></li> </ul>
<b>Character Set ID (CCSID) for Non-ASCII Names</b>	Specify the Character Set ID to ensure proper encoding of non-ASCII characters when connecting to IBM MQ.  Example: 819
<b>Connection Check Interval (in ms)</b>	Specify the interval in milliseconds to verify the connection validity to IBM MQ.  Example: 300000

### 4.1.3.3 Processing

The Processing tab lists all the operations that can be performed on the database through the adapter.

**IBMMQ**

General
Connection
Processing

PROCESSING DETAILS

Message Destination Type: Queue ▾

Queue Name: \* QMGR

Target Client: WebSphereMQ (Non-JMS) ▾

Transactional JMS Session:


Failed Transaction Handling: Move Message To Another Queue ▾


Max Delivery Count: \* 5

Queue Name: \* DeadQueue

Message Selector: Order=Completed

Parameter	Description
<b>Message Destination Type</b>	Select the Message Destination Type for reading messages: <ul style="list-style-type: none"> <li>• <b>Queue</b></li> <li>• <b>Topic</b></li> </ul>
<b>Queue Name</b>	Specify the name of the queue from which the message will be read.
<b>Topic Name/String</b> (only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the name or string of the Topic from which the message will be read.
<b>Client ID</b> (only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the Client ID for connection.
<b>Subscription ID</b> (only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the Subscription ID for connection.
<b>Target Client</b>	Select the target client type: <ul style="list-style-type: none"> <li>• <b>JMS-Compliant:</b> JMS message properties and headers are accessible.</li> <li>• <b>WebSphereMQ (Non-JMS):</b> JMS message properties and headers are excluded.</li> </ul>
<b>Transactional JMS Session</b>	Enable to utilize a transactional JMS session. Enabling is recommended to ensure data consistency.
<b>Failed Transaction Handling</b> (only available when <b>Transactional JMS Session</b> is enabled)	<ul style="list-style-type: none"> <li>• <b>Keep Message And Process Again</b></li> <li>• <b>Move Message To Another Queue</b></li> </ul>

Parameter	Description
<p><b>Max Delivery Count</b> (only available when <b>Failed Transaction Handling</b> set to <b>Move Message To Another Queue</b>)</p>	<p>Specify the count for maximum JMS message delivery.</p> <p> This value refers to JMS header JMSXDeliveryCount. Message excess of this value is moved to the Another Queue.</p>
<p><b>Queue Name</b> (only available when <b>Failed Transaction Handling</b> set to <b>Move Message To Another Queue</b>)</p>	<p>Specify the name of the Another Queue to which the message should be moved if JMS message delivery backout threshold is reached on transaction failure.</p>
<p><b>Message Selector</b></p>	<p>Specify the value for the properties to be selected.</p> <p>Example: <code>Order=Completed</code></p>

 If the same JMS Message ID is expected to be delivered multiple times to the queue and you want to prevent duplicates of that message, you can handle it using an idempotent process call.

## 4.2 Receiver Adapter

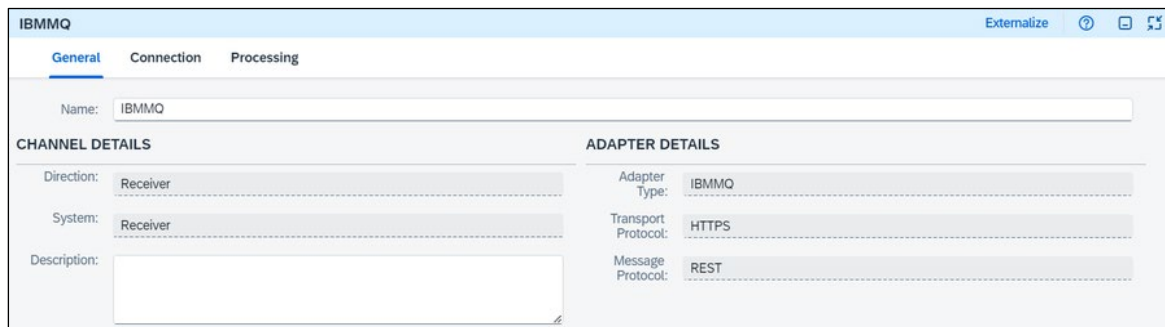
In this section, you will learn how to configure the IBM MQ receiver adapter. On selecting the IBM MQ adapter from the list of adapters, you must configure the **General**, **Connection**, and **Processing** tabs.

### 4.2.1 REST

IBM MQ REST lets you send and get messages using web requests (HTTP).

#### 4.2.1.1 General

The General tab provides an overview of basic adapter information, including **Channel** and Adapter details. Only the Name and Description fields are editable.



The screenshot shows the configuration window for an IBM MQ adapter. The title bar reads 'IBMMQ' and 'Externalize'. There are three tabs: 'General' (selected), 'Connection', and 'Processing'. Below the tabs, the 'Name' field is set to 'IBMMQ'. The interface is divided into two sections: 'CHANNEL DETAILS' and 'ADAPTER DETAILS'. Under 'CHANNEL DETAILS', 'Direction' is 'Receiver', 'System' is 'Receiver', and there is a large empty text area for 'Description'. Under 'ADAPTER DETAILS', 'Adapter Type' is 'IBMMQ', 'Transport Protocol' is 'HTTPS', and 'Message Protocol' is 'REST'.

Parameter	Description
<b>Name</b>	Name of the adapter flow
<b>Description</b>	Description of the adapter

#### 4.2.1.2 Connection

The Connection tab contains connection and authentication parameters for IBM MQ.

##### Using Credentials

The Security artifact created in the previous section ([Creating Credentials in Security Material](#)) should be used in the **Connection tab** of the Adapter, as shown in the Figure below.

The screenshot shows the 'Connection' tab of the IBM MQ configuration interface. It features a 'CONNECTION DETAILS' section with the following fields:


- Address:** A text input field with a red asterisk indicating it is required.
- Authentication:** A dropdown menu currently set to 'Token-Based'.
- Credential Name:** A text input field with a red asterisk indicating it is required.
- Proxy Type:** A dropdown menu currently set to 'On-Premise'.
- Location ID:** A text input field.
- Reuse connection:** An unchecked checkbox.
- Connection Timeout (in ms):** A text input field containing the value '60000'.
- Response Timeout (in ms):** A text input field containing the value '60000'.

The connection tab contains the following fields:

Parameter	Description
<b>Address</b>	Specify the address of the IBM MQ endpoints. Example: <code>https://web-{hostname}</code>
<b>Authentication</b>	Select the type of authentication for connecting to the IBM MQ: <ul style="list-style-type: none"> <li>• <b>Basic</b></li> <li>• <b>Token-Based</b></li> </ul>
<b>Credential Name</b>	Specify the alias that refers to the user credentials (username-password pair).
<b>Proxy Type</b>	Select the proxy type: <ul style="list-style-type: none"> <li>• <b>Internet</b></li> <li>• <b>On-Premise</b></li> </ul>
<b>Location ID</b>	Specify the Location ID from the Cloud Connector.
<b>Reuse connection</b>	Enable this property if you want to reuse the connection.
<b>Connection Timeout (in ms)</b>	Specify the maximum waiting time (in milliseconds) for the connection to be established.
<b>Response Timeout (in ms)</b>	Specify the maximum waiting time (in milliseconds) for a response message to be received.

## 4.2.1.3 Processing

The Processing tab lists all the operations that can be performed on the database through the adapter.

Parameter	Description
<b>Operation</b>	Select the Operation to be performed.
<b>API Version</b>	Select an API Version.
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from where message is read.
<b>Content Type</b>	<p>Select the Parameter Content Type.</p> <ul style="list-style-type: none"> <li>• <b>Application/JSON</b></li> <li>• <b>Application/XML</b></li> <li>• <b>Text/HTML</b></li> <li>• <b>Text/Plain</b></li> <li>• <b>Text/XML</b></li> </ul> <p> This field is editable and can be used for any other content types supported by IBM MQ.</p>
<b>MQ CSRF Token</b>	Specify the CSRF protection header. The value can be any valid string, including a blank string.

Parameter	Description
<b>MQ Correlation ID</b>	<p>Specify the correlation ID which is a 48 character hexadecimal encoded string, representing 24 bytes.</p> <p>Example:  "414d5120514d4144455620202020202067d8bf5923582e02".  In case of API Version V3, prefix hex-string with "ID:", for example  "ID:414d5120514d4144455620202020202067d8bf5923582e02"  or application-specific value can also be specified, for example  "My-Custom-CorrelId". This sets the correlation ID of the created message.</p>
<b>Message ID</b>	<p>Specify the message ID which is a 48 character hexadecimal encoded string, representing 24 bytes.</p>
<b>Message Expiry</b>	<p>Specify the maximum time to keep the message on the queue, in milliseconds (Limited to the range 0-99999999900). The default value is 'unlimited' which specifies that the message does not expire.</p>
<b>Message Persistence</b>	<p>Select the message persistence. The default value is 'nonPersistent' which specifies that the message does not survive system failures or queue manager restarts.</p>
<b>Reply Queue</b>	<p>Specify the reply-to destination for the created message. The format of the header uses the standard notation of supplying the reply-to queue and an optional queue manager:  replyQueue[@replyQmgr].</p>
<b>Message Priority</b>	<p>Specify the message priority between the range 0-9. The default value is 'asDestination' which specifies that the message uses the priority specified in the DEFPRTY attribute of the underlying IBM MQ queue object.</p>
<b>User Properties</b>	<p>Specify the user defined properties for the message in the format property_name; user_value; user_type. For multiple user properties use comma separator.</p> <p>Example: myA;5;byte,myB;-10;integer.</p>
<b>HEADERS DETAILS</b>	

Parameter	Description
<b>Request Headers</b>	Enter a list of custom headers, separated by a pipe ( ), to send to the target system. By default, no custom headers are sent. Use an asterisk(*) to send all custom headers to the target system. Alternatively, you can dynamically pass on the values by defining a property that includes a list of headers.
<b>Response Headers</b>	Enter a list of headers coming from the target system's response, separated by a pipe ( ), to be received in the message. Use an asterisk(*) to receive all the headers from the target system, which is also the default value.

## 4.2.2 JMS

IBM MQ JMS Receiver Adapter provides the ability to publish messages seamlessly from IBM MQ using Java Message Service.

### 4.2.2.1 General

The General tab provides an overview of basic adapter information including **Channel** and **Adapter** details. Only the Name and Description fields are editable.

Parameter	Description
<b>Name</b>	Name of the adapter flow
<b>Description</b>	Description of the adapter

### 4.2.2.2 Connection

The Connection tab contains connection and authentication parameters for IBM MQ.

#### Using Credentials

The Security artifact created in the previous section ([Creating Credentials in Security Material](#)) should be used in the **Connection tab** of the Adapter as shown in the Figure below.

The screenshot shows the 'Connection' tab of the IBM MQ configuration interface. The fields are as follows:

- Hostname: \* mqd-b57b.qm.eu-de.mq.appdomain.cloud
- Port: \* 31636
- Authentication: Basic (dropdown)
- Credential Name: \* IBM\_MQ\_54
- Proxy Type: On-Premise (dropdown)
- Location ID: Zone\_08
- SSL Cipher Suite: \* \*TLS12HIGHER
- Queue Manager Name: \* MQD
- Channel Name: \* CLOUD.APP.SVRCONN
- Application Name: MainApplication
- Transport/Network Protocol: TCP/IP (dropdown)
- Character Set ID (CCSID) for Non-ASCII Names: 819

The connection tab contains the following fields:

Parameter	Description
<b>Hostname</b>	Specify the hostname to connect to IBM MQ. Example: mqd-b57b.qm.eu-de.mq.appdomain.cloud
<b>Port</b>	Specify the port number to connect to IBM MQ. Example: 31636
<b>Authentication</b>	Select the type of authentication for connecting to IBM MQ. <ul style="list-style-type: none"> <li>• <b>Basic:</b> Provides authentication using User Credentials.</li> <li>• <b>Client Certificate:</b> The server authenticates the client by receiving the client's certificate during the SSL handshake and verifying the certificate is valid.</li> </ul>

Parameter	Description
	<ul style="list-style-type: none"> <li>• <b>None:</b> Direct connection can be made without User Credentials.</li> </ul>
<b>Private Key Alias</b> (Only available when <b>Client Certificate</b> is selected)	Specify the alias to identify the private key to communicate to servers. Example: <code>IBM_MQ_KeyAlias</code> For more information, see the <a href="#">Application Configuration</a> .
<b>Credential Name</b>	Specify the User Credential artifact that stores the username-password pair. Example: <code>IBM_MQ_54</code>
<b>Proxy Type</b>	Specify the proxy type: <ul style="list-style-type: none"> <li>• <b>Internet</b></li> <li>• <b>On-Premise</b></li> </ul>
<b>Location ID</b> (Only available when <b>Proxy Type</b> is set to <b>On-Premise</b> ).	Specify the Location ID from Cloud Connector. Example: <code>Zone_08</code> For more information, see <a href="#">On Premise Connectivity Setup</a> .
<b>SSL Cipher Suite</b>	Specify the SSL Cipher Suite value. Example: <code>*TLS12HIGHER</code>
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect for messaging. Example: <code>MQD</code>
<b>Channel Name</b>	Specify the Channel Name in IBM MQ Example: <code>CLOUD.APP.SVRCONN</code>
<b>Application Name</b>	Specify the Application Name for the connection. Example: <code>MainApplication</code>
<b>Transport/Network Protocol</b>	Select the type of protocol for connecting to IBM MQ: <ul style="list-style-type: none"> <li>• <b>TCP/IP</b></li> <li>• <b>WebSphereMQ</b></li> </ul>

Parameter	Description
<b>Character Set ID (CCSID) for Non-ASCII Names</b>	Specify the Character Set ID to ensure proper encoding of non-ASCII characters when JMS connection to IBM MQ.  Example: 819

### 4.2.2.3 Processing

The Processing tab lists all the operations that can be performed through the adapter.

**IBMMQ**

General
Connection
Processing
Advanced

PROCESSING DETAILS

Message Destination Type:

Queue Name: \*

Target Client:

Transactional JMS Session:

Parameter	Description
<b>Message Destination Type</b>	Select the Message Destination Type for which operation needs to be performed. <ul style="list-style-type: none"> <li>• Queue</li> <li>• Topic</li> </ul>
<b>Queue Name</b> (Only available when <b>Message Destination Type</b> is set to <b>Queue</b> )	Specify the name of the Queue to which the message will be written.
<b>Topic Name/String</b> (Only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the name or string of the Topic where the message will be written.


Parameter	Description
<b>Client ID</b> (Only available when <b>Message Destination Type</b> is set to <b>Topic</b> )	Specify the Client ID for the connection.
<b>Target Client</b>	Select the target client type for messages sent to IBM MQ. <ul style="list-style-type: none"> <li>• <b>JMS-Compliant:</b> JMS message properties and headers will be accessible.</li> <li>• <b>WebSphereMQ (Non-JMS):</b> JMS message properties and headers will be excluded.</li> </ul>
<b>Transactional JMS Session</b>	Enable to utilize a transactional JMS session. Enabling is recommended to ensure data consistency.

#### 4.2.2.4 Advanced

The Advanced tab is used to specify additional properties and headers for the message.

The screenshot shows the 'Advanced' tab in the IBM MQ console. Under 'JMS MESSAGE DETAILS', the following fields are visible: Message Type (Byte), Correlation ID (414d5120514d41444556202020202067d8bf5923582e02), Delivery Mode (Persistent), ReplyTo Destination (QMGR5), Expiry (60000), Priority (8), and Time Stamp (60000). Below this, the 'JMS Message Properties' section contains a table with columns for Name, Value, and Data Type. One property is listed: Department HR with a value of Salary=100000 and a data type of String.

Parameter	Description
<b>Message Type</b>	Select the Message Type: <ul style="list-style-type: none"> <li>• <b>Text</b></li> <li>• <b>Byte</b></li> </ul>

Parameter	Description
<b>Correlation ID</b>	<p>Specify the correlation ID which is a 48 character hexadecimal encoded string, representing 24 bytes.</p> <p>Example: "414d5120514d414445562020202020202067d8bf5923582e02".</p> <p> You can also specify an application-specific values, as <code>My Custom CorelID</code>. This sets the correlation ID of the created message.</p>
<b>Delivery Mode</b>	<p>Select the message delivery mode for the message producer:</p> <ul style="list-style-type: none"> <li>• <b>Non Persistent</b></li> <li>• <b>Persistent</b></li> </ul>
<b>ReplyTo Destination</b>	Specify the destination to which the current message should be sent.
<b>Expiry</b>	<p>Specify the message expiration time in milliseconds.</p> <p>Example: 60000</p>
<b>Priority</b>	<p>Specify the priority of message. Range should be (0-9).</p> <p>Example: 5</p>
<b>Time Stamp</b>	<p>Specify the message time stamp in milliseconds.</p> <p>Example: 60000</p>
<b>JMS Message Properties</b>	Specify JMS Message Properties using <b>Name</b> , <b>Value</b> , and <b>Data Type</b> .

# 5. IBM MQ Supported Operations

This section lists and describes some of the operations supported by the IBM MQ adapter.

## 5.1 Sender Adapter (REST)


You can perform read operations with the sender adapter in IBM MQ.

The response header **Status** provides information about the operation, for example:

- **204 status code:** No messages are available in the queue; hence no content is retrieved.

The screenshot shows the 'Processing' tab in the IBM MQ console. It contains the following fields:

- API Version: v3 (dropdown)
- Queue Manager Name: [Redacted]
- Queue Name: [Redacted]
- Processing Mode: Read and Delete Message (dropdown)
- Max Number of Messages Per Node: 10
- MQ CSRF Token: [Redacted]

Parameter	Description
<b>API Version</b>	Select an API Version as v3.
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from where the message is read.
<b>Processing Mode</b>	Select the action to be performed after processing the message in the queue: Read and Delete Message
<b>Max Number of Messages Per Node</b>	Specify the maximum number of messages to be retrieved per node. <div style="background-color: #e6f2ff; padding: 5px;"> The recommended values ranging from 1 to 5000.</div>
<b>MQ CSRF Token</b>	Specify the CSRF protection header. The value can be any valid string, including a blank string.

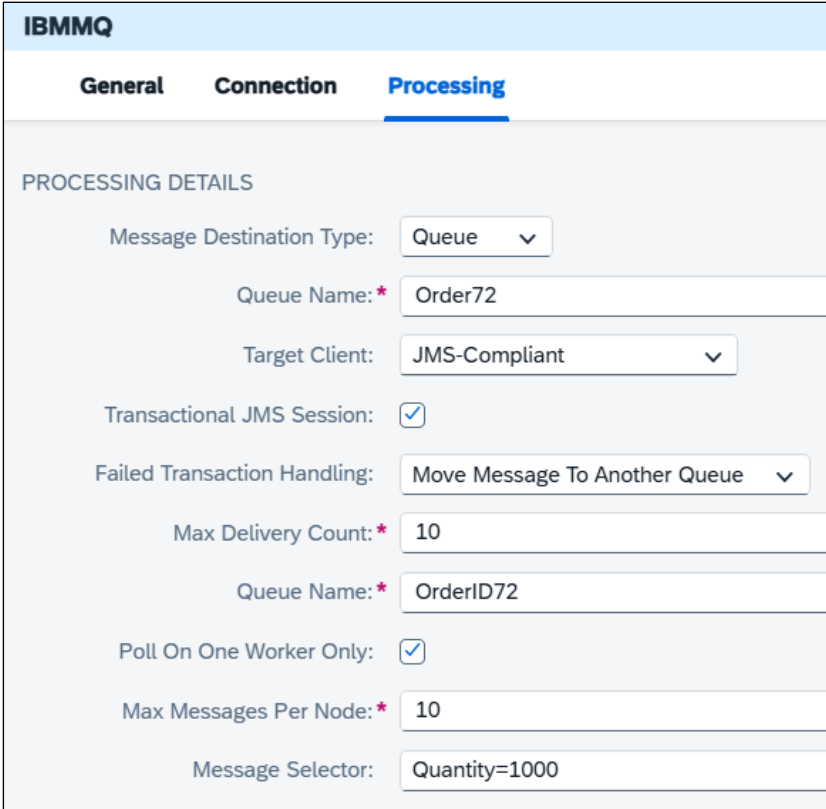
## 5.2 Sender Adapter (JMS - Poll)

The following are operations supported by IBM MQ Sender (Poll) adapter.

Polling is used in messaging systems where a consumer checks for new messages in specific time interval from a source.

### 5.2.1 Queue

You can perform read operations with the sender adapter in IBM MQ.



The screenshot shows the 'Processing' tab in the IBM MQ configuration interface. Under the 'PROCESSING DETAILS' section, the following settings are visible:

- Message Destination Type: Queue
- Queue Name: Order72
- Target Client: JMS-Compliant
- Transactional JMS Session:
- Failed Transaction Handling: Move Message To Another Queue
- Max Delivery Count: 10
- Queue Name: OrderID72
- Poll On One Worker Only:
- Max Messages Per Node: 10
- Message Selector: Quantity=1000

Parameter	Values
<b>Message Destination Type</b>	Select a message destination type as <b>Queue</b> .
<b>Queue Name</b>	Specify the name of the queue name as <code>Order72</code> .
<b>Target Client</b>	Select as <b>JMS-Compliant</b> .
<b>Transactional JMS Session</b>	Enable this for transactional JMS session.
<b>Failed Transaction Handling</b>	Select <b>Move Message To Another Queue</b> .
<b>Max Delivery Count</b>	Set as 10.
<b>Queue Name</b>	Specify as <code>OrderID72</code> .

Parameter	Values
<b>Poll On One Worker Only</b>	Enable poll on single worker only.
<b>Max Message Per Node</b>	Set as 10.
<b>Message Selector</b>	Specify as <code>Quantity=100000</code> .

## 5.2.2 Topic

You can perform read operations with the sender adapter in IBM MQ.

**IBMMQ**

**General**   **Connection**   **Processing**

PROCESSING DETAILS

Message Destination Type: Topic

Topic Name/String\*: OrderCompleted

Target Client: JMS-Compliant

Client ID:

Subscription ID:

Transactional JMS Session:

Failed Transaction Handling: Move Message To Another Queue

Max Delivery Count\*: 10

Queue Name\*: OrderIDCompleted

Max Number of Messages\*: 10

Message Selector: Completed

Parameter	Values
<b>Message Destination Type</b>	Select a message destination type as <b>Topic</b> .
<b>Topic Name/String</b>	Specify as <code>OrderCompleted</code> .
<b>Target Client</b>	Select as <b>JMS-Complaint</b> .
<b>Client ID</b>	Specify the Client ID for connection.
<b>Subscription ID</b>	Specify the Subscription ID for connection.
<b>Transactional JMS Session</b>	Enable the transactional JMS session.
<b>Failed Transaction Handling</b>	Select as <b>Move Message To Another Queue</b> .

Parameter	Values
Queue Name	Specify as OrderIDCompleted
Max Number of Messages	Specify as 10
Message Selector	Specify as Completed

## 5.3 Sender Adapter (JMS - Subscribe)

A subscription in messaging systems allows a consumer to automatically receive messages from a specific destination.

### 5.3.1 Queue

You can perform read operations with the sender adapter in IBM MQ.

**IBMMQ**

General
Connection
Processing

PROCESSING DETAILS

Message Destination Type: Queue ▾

Queue Name: \* QueueOrder

Target Client: JMS-Compliant ▾

Transactional JMS Session:

Failed Transaction Handling: Move Message To Another Queue ▾

Max Delivery Count: \* 5

Queue Name: \* QueueList

Message Selector: Order=Completed

Parameter	Values
Message Destination Type	Select a message destination type as <b>Queue</b>
Queue Name	Specify the name of the queue name as QueueOrder
Target Client	Select as <b>JMS-Compliant</b> .
Transactional JMS Session	Enable the transactional JMS session.

Parameter	Values
<b>Failed Transaction Handling</b>	Select as <b>Move Message to Another Queue</b>
<b>Max Delivery Count</b>	Specify as 5
<b>Queue Name</b>	Specify as <code>QueueList</code>
<b>Message Selector</b>	Specify as <code>Order=Complete</code>

## 5.3.2 Topic

You can perform read operations with the sender adapter in IBM MQ.

**IBMMQ**

General
Connection
Processing

PROCESSING DETAILS

Message Destination Type: Topic ▼

Topic Name/String: \* TopicOrder

Target Client: JMS-Compliant ▼

Client ID:

Subscription ID:

Transactional JMS Session:

Failed Transaction Handling: Move Message To Another Queue ▼

Max Delivery Count: \* 5

Queue Name: \* QueueList

Message Selector: Order=100

Parameter	Values
<b>Message Destination Type</b>	Select a message destination type as <b>Topic</b>
<b>Topic Name/String</b>	Specify the name of the queue name as <code>TopicOrder</code>
<b>Client ID</b>	Specify the Client ID for connection.
<b>Subscription ID</b>	Specify the Subscription ID for connection.

Parameter	Values
<b>Target Client</b>	Select as <b>JMS-Compliant</b> .
<b>Transactional JMS Session</b>	Enable the transactional JMS session.
<b>Failed Transaction Handling</b>	Select as <b>Move Message to Another Queue</b>
<b>Max Delivery Count</b>	Specify as 5
<b>Queue Name</b>	Specify as <code>QueueList</code>
<b>Message Selector</b>	Specify as <code>Order=100</code>

## 5.4 Receiver Adapter (REST)

The following are operations supported by IBM MQ Receiver adapter.

The response header **Status** provides information about the operation, for example:

- **204 status code:** No messages are available in the queue; hence no content is retrieved.
- **201 status code:** The message is successfully created.

### 5.4.1 Read

The Read operation allows a message to be retrieved from a queue without removing it. This means that the message remains in the queue and is still available to read.

IBMMQ Externalize ?

General Connection **Processing**

PROCESSING DETAILS

Operation: Read

API Version: v3

Queue Manager Name: \*

Queue Name: \*

MQ CSRF Token:

MQ Correlation ID: 414d5120514d41444556202020202067d8bf5923582e02

Message ID: 414d5120514d41444556202020202067d8ce5923582f07

Parameter	Description
<b>Operation</b>	Select the Operation as Read.
<b>API Version</b>	Select an API Version as v3.

Parameter	Description
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from which the message will be read.
<b>MQ CSRF Token</b>	Specify the CSRF protection header. The value can be any value, including a blank string.
<b>MQ Correlation ID</b>	<p>Specify the correlation ID which is a 48-character hexadecimal encoded string, representing 24 bytes.</p> <p>Example "414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>In the case of API Version V3, prefix hex-string with "ID:". Example: "ID: 414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>Or application-specific value can also be specified. Example: "My-Custom-CorrelId". This sets the correlation ID of the created message.</p>
<b>Message ID</b>	Specify the message ID which is a 48 character hexadecimal encoded string, representing 24 bytes.

## 5.4.2 Write

This operation involves sending a message to a queue. The message is added to the end of the queue, making it available for subsequent retrieval.

IBMMQ Externalize

General Connection **Processing**

PROCESSING DETAILS

Operation: Write

API Version: v3

Queue Manager Name: \* kcnacianknaasas

Queue Name: \* cknacnkckc

Content Type: Application/Json

MQ CSRF Token:

MQ Correlation ID: 414d5120514d4144455620202020202067d8bf5923582e02

Message Expiry: 30000

Message Persistence: Non Persistent

Reply Queue:

Message Priority: asDestination

User Properties:

Parameter	Description
<b>Operation</b>	Select the Operation as Write.
<b>API Version</b>	Select an API Version as v3.
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from which the message will be read.
<b>Content Type</b>	Select the Parameter content type.
<b>MQ CSRF Token</b>	Specify the CSRF protection header. The value can be any valid string, including a blank string.
<b>MQ Correlation ID</b>	<p>Specify the correlation ID which is a 48-character hexadecimal encoded string, representing 24 bytes.</p> <p>Example "414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>In the case of API Version V3, prefix hex-string with "ID:". Example "ID:414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>Or application-specific value can also be specified. Example "My-Custom-CorrelId". This sets the correlation ID of the created message.</p>

Parameter	Description
<b>Message Expiry</b>	Specify the maximum time to keep the message on the queue, in milliseconds (Limited to the range 0-99999999900).  Default value is 'unlimited' which specifies that message does not expire.
<b>Message Persistence</b>	Select the message persistence. Default value is 'nonPersistent' which specifies that message does not survive system failures or queue manager restarts.
<b>Reply Queue</b>	Specify the reply-to destination for the created message. The format of the header uses the standard notation of supplying the reply-to queue and an optional queue manager: replyQueue[@replyQmgr].
<b>Message Priority</b>	Specify the message priority between the range 0-9. Default value is 'asDestination' which specifies that the message uses the priority specified in the DEFPRTY attribute of the underlying IBM MQ queue object.
<b>User Properties</b>	Specify the user defined properties for the message in the format property_name; user_value; user_type.  For multiple user properties use comma separator e.g. myA;5;byte,myB;-10;integer.

### 5.4.3 Delete

The Delete operation removes a message from the queue. Once deleted, the message is permanently removed from the queue and cannot be retrieved further.

The screenshot shows the IBM MQ console interface. At the top, there are tabs for 'General', 'Connection', and 'Processing', with 'Processing' selected. Below the tabs, there are icons for 'Externalize', a help icon, and window management icons. The main area is titled 'PROCESSING DETAILS' and contains the following fields:

- Operation: A dropdown menu set to 'Delete'.
- API Version: A dropdown menu set to 'v3'.
- Queue Manager Name: A text input field with a red asterisk indicating it is required.
- Queue Name: A text input field with a red asterisk indicating it is required.
- MQ CSRF Token: A text input field.
- MQ Correlation ID: A text input field containing the value '414d5120514d4144455620202020202067d8bf5923582e02'.
- Message ID: A text input field containing the value '414d5120514d4144455620202020202067d8ce5923582f07'.

Parameter	Description
<b>Operation</b>	Select the Operation as Delete.

Parameter	Description
<b>API Version</b>	Select an API Version as v3.
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from which the message will be read.
<b>MQ CSRF Token</b>	Specify the CSRF protection header. The value can be any valid string, including a blank string.
<b>MQ Correlation ID</b>	<p>Specify the correlation ID which is a 48 character hexadecimal encoded string, representing 24 bytes.</p> <p>Example "414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>In case of API Version V3, prefix hex-string with "ID:". Example "ID:414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>Or application-specific value can also be specified. Example "My-Custom-CorrelId". This sets the correlation ID of the created message.</p>
<b>Message ID</b>	Specify the message ID which is a 48 character hexadecimal encoded string, representing 24 bytes.

## 5.4.4 Read and Delete

The Read and Delete operation combines both retrieving and removing a message from the queue in one single operation. The message is fetched from the queue and then immediately deleted, ensuring that it cannot be read or consumed further.

The screenshot shows the IBM MQ console interface. At the top, there are tabs for 'General', 'Connection', and 'Processing'. The 'Processing' tab is active. Below the tabs, there is a section titled 'PROCESSING DETAILS'. It contains several fields: 'Operation' (a dropdown menu set to 'Read and Delete'), 'API Version' (a dropdown menu set to 'v3'), 'Queue Manager Name' (a text input field), 'Queue Name' (a text input field), 'MQ CSRF Token' (a text input field), 'MQ Correlation ID' (a text input field containing the value '414d5120514d4144455620202020202067d8bf5923582e02'), and 'Message ID' (a text input field containing the same value).

Parameter	Description
<b>Operation</b>	Select the Operation as <code>Read and Delete</code> .
<b>API Version</b>	Select an API Version as <code>v3</code> .
<b>Queue Manager Name</b>	Specify the name of the queue manager to connect to for messaging.
<b>Queue Name</b>	Specify the name of the queue from which the message will be read.
<b>MQ CSRF Token</b>	Specify the CSRF protection header. The value can be any valid string, including a blank string.
<b>MQ Correlation ID</b>	<p>Specify the correlation ID which is a 48 character hexadecimal encoded string, representing 24 bytes.</p> <p>Example "414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>In case of API Version V3, prefix hex-string with "ID:". Example "ID:414d5120514d4144455620202020202067d8bf5923582e02".</p> <p>Or application-specific value can also be specified. Example "My-Custom-CorrelId". This sets the correlation ID of the created message.</p>
<b>Message ID</b>	Specify the message ID which is a 48 character hexadecimal encoded string, representing 24 bytes.

## 5.5 Receiver Adapter (JMS)

The following Message Destination Types are supported by IBM MQ Receiver adapter JMS variant.

### 5.5.1 Queue

In the IBM MQ Receiver Adapter, select the **Message Destination Type** as Queue. Specify the **Queue Name** where the message will be sent on the IBM MQ server and select Target Client to controls whether messages use JMS or native MQ format for compatibility. The **Queue** allows a message to be sent to a single point of source and can used by polling.

Sample Payload:

```
{
  "messageId": "ORD123456",
  "timestamp": "2023-11-15T14:30:00Z",
  "type": "OrderRequest",
  "payload": {
    "customerId": "CUST789",
    "items": [
      { "productId": "P100", "quantity": 2 },
      { "productId": "P200", "quantity": 1 }
    ],
    "totalAmount": 150.99
  },
  "status": "PENDING"
}
```

The screenshot shows the configuration interface for the IBM MQ Receiver Adapter, specifically the 'Processing' tab. The interface is titled 'IBMMQ' and has four tabs: 'General', 'Connection', 'Processing', and 'Advanced'. The 'Processing' tab is selected and highlighted. Under the 'PROCESSING DETAILS' section, there are four configuration items: 'Message Destination Type' is set to 'Queue' (dropdown menu), 'Queue Name' is 'QueueDemo' (text input), 'Target Client' is 'JMS-Compliant' (dropdown menu), and 'Transactional JMS Session' is checked (checkbox).

Parameter	Values
<b>Message Destination Type</b>	Select as <b>Queue</b> .

Parameter	Values
Queue Name	Specify as QueueDemo.
Target Client	Select as <b>JMS-Compliant</b> .
Transactional JMS Session	Enable the transactional JMS session.

## 5.5.2 Topic

In the IBM MQ Receiver Adapter, select the **Message Destination Type** as Topic and specify the **Topic Name/String** where the message will be sent on the IBM MQ server and **Client ID** for interacting with the IBM MQ server. Select **Target Client** to controls whether messages use JMS or native MQ format for compatibility.

### Sample Payload:

```
{
  "messageId": "TOPIC_MSG_123",
  "timestamp": "2024-02-20T14:35:00Z",
  "eventType": "OrderCreated",
  "data": {
    "orderId": "ORD500",
    "customerId": "CUST789",
    "amount": 99.99
  }
}
```

**IBMMQ**

General
Connection
Processing
Advanced

**PROCESSING DETAILS**

Message Destination Type: Topic v

Topic Name/String: \* TopicTest

Target Client: JMS-Compliant v

Client ID:  

Transactional JMS Session:

Parameter	Values
<b>Message Destination Type</b>	Specify as <b>Topic</b> .
<b>Topic Name/String</b>	Specify as <code>TopicTest</code> .
<b>Target Client</b>	Specify as <b>JMS-Compliant</b> .
<b>Client ID</b>	Specify the Client ID.
<b>Transactional JMS Session</b>	Enable the transactional JMS session.

## 5.5.3 Advanced (JMS)

### 5.5.3.1 Text

**Text** message used in IBM MQ that contains a single text string. This text can be plain text, XML, JSON, or any other textual data format.

IBMMQ			
General	Connection	Processing	Advanced
JMS MESSAGE DETAILS			
Message Type:	Text <input type="button" value="v"/>		
Correlation ID:	414d5120514d4144455620202020202067d8bf5923582e03		
Delivery Mode:	Persistent <input type="button" value="v"/>		
ReplyTo Destination:	QMGR1		
Expiry:	60000		
Priority:	5		
Time Stamp:	60000		

Parameter	Values
<b>Message Type</b>	Select as <b>Text</b>
<b>Correlation ID</b>	Specify as 414d5120514d4144455620202020202067d8bf5923582e03
<b>Delivery Mode</b>	Select as <b>Persistent</b>
<b>ReplyTo Destination</b>	Specify as QMGR1
<b>Expiry</b>	Specify as 60000.
<b>Priority</b>	Specify as 5.
<b>Time Stamp</b>	Specify as 60000.

### 5.5.3.2 Byte

**Byte** messages contain a stream of uninterpreted bytes used for binary data, such as images, files.

The screenshot shows the 'Advanced' tab of the IBM MQ console. Under 'JMS MESSAGE DETAILS', the following fields are visible:

- Message Type: Byte (dropdown menu)
- Correlation ID: 414d5120514d4144455620202020202067d8bf5923582e03
- Delivery Mode: Persistent (dropdown menu)
- ReplyTo Destination: QMGR1
- Expiry: 60000
- Priority: 5
- Time Stamp: 60000

Parameter	Values
<b>Message Type</b>	Select as <b>Byte</b> .
<b>Correlation ID</b>	Specify as 414d5120514d4144455620202020202067d8bf5923582e03
<b>Delivery Mode</b>	Select as <b>Persistent</b> .
<b>ReplyTo Destination</b>	Specify as QMGR1.
<b>Expiry</b>	Specify as 60000.
<b>Priority</b>	Specify as 5.
<b>Time Stamp</b>	Specify as 60000.


# 6. Support

## 6.1 Tips


You can monitor, debug, and analyze errors or issues by changing the Log level of your integration flow to Traces. For more information, see [Tracing](#).


### 6.1.1 Troubleshooting

A few issues that you might encounter and possible solutions for them have been documented below.

 Refer to Queue Manager error logs to get more specific details for an error.

Error Message	Error Reason	Possible Solution
<code>org.apache.camel.CamelException: Error message: An error occurred while receiving the JMS message. Reason: JMSCMQ0001: IBM MQ call failed with compcode '2' ( 'MQCC_FAILED' ) reason '2025' ( 'MQRC_MAX_CONNS_LIMIT_REACHED' ) ..</code>	While deploying an IFlow, if any worker node fails to create connection and other worker nodes successfully create connection to the IBM MQ server, the IFlow enters in an error state due to the failed connection by one worker node. However, the connected worker nodes are still able to receive messages from the IBM MQ server.	If all worker nodes are successfully able to create a connection with the IBM MQ server during the next connection check interval, the iFlow will transition to Started state.
<code>org.apache.camel.CamelException: Error message: An error occurred while receiving the JMS message. Reason: JMSCMQ0001: IBM MQ call failed with compcode '2' ( 'MQCC_FAILED' ) reason '2273' ( 'MQRC_CONNECTION_ERROR' ) ..</code>	While deploying an IFlow if any worker node fails to create connection and other worker nodes successfully create connection to the IBM MQ server, the IFlow enters in an error state due to the failed connection by one worker node. However, the connected worker	If all worker nodes are successfully able to create a connection with the IBM MQ server during the next connection check interval, the iFlow will

Error Message	Error Reason	Possible Solution
	nodes are still able to receive messages from the IBM MQ server.	transition to Started state.
<pre>org.apache.camel.CamelException: Error message: An error occurred while starting or stopping JMS Connection. Reason: JMSCMQ0001: IBM MQ call failed with compcode '2' ('MQCC_FAILED') reason '2035' ('MQRC_NOT_AUTHORIZED')</pre>	<p>In general, this error means that the credentials provided are not accepted by the IBM MQ server. Here are some possible reasons:</p> <p><b>Option 1:</b> The adapter is configured with Basic Authentication, whereas the MQ server expects Certificate-based authentication.</p> <p><b>Option 2:</b> The adapter is configured with Certificate-based Authentication, whereas the MQ server expects Basic Authentication.</p> <p><b>Option 3:</b> The configured user in the adapter does not have the needed permissions to interact with the Queue Manager or Queue.</p> <div data-bbox="836 1375 1171 1850" style="background-color: #e6f2ff; padding: 10px; border: 1px solid #add8e6;"> <p> Note that the above list does not represent a complete list of possibilities, but rather a subset. Refer to the IBM MQ official documentation for further details about this error code.</p> </div>	Change the authentication type in the adapter configuration or change the permission on the IBM MQ side depending on the most applicable option to your situation.
<pre>org.apache.camel.CamelException: Error message: An error occurred while starting or stopping JMS Connection. Reason: JMSCMQ0001: IBM MQ call failed with compcode '2' ('MQCC_FAILED') reason '2059' ('MQRC_Q_MGR_NOT_AVAILABLE')</pre>	<p>This error might occur due to various reasons. Here are some of the possible reasons:</p> <p><b>Option 1:</b> The public key used in Cloud Integration</p>	Use the correct public key or ensure that the queue manager is up

Error Message	Error Reason	Possible Solution
	<p>does not match the key in IBM. Or simply does not exist in IBM MQ server. It needs to be imported. Check and compare the Subject of the public key in CPI and the one in IBM MQ.</p> <p><b>Option 2:</b> The MQ manager is not available.</p> <div data-bbox="837 705 1171 1178" style="background-color: #e6f2ff; padding: 10px; border: 1px solid #add8e6;"> <p> Note that the above list does not represent a complete list of possibilities, but rather a subset. Refer to the IBM MQ official documentation for further details about this error code.</p> </div>	<p>and running on IBM MQ side.</p>
<pre>org.apache.camel.CamelException: Error message: An error occurred while starting or stopping JMS Connection. Reason: JMSCMQ0001: IBM MQ call failed with compcode '2' ('MQCC_FAILED') reason '2397' ('MQRC_JSSE_ERROR')</pre>	<p>This error might occur due to SSL/TLS layer failure during MQ Connection setup. Here are some of the possible reasons:</p> <p><b>Option 1:</b> Truststore or Keystore misconfiguration</p> <p><b>Option 2:</b> Cipher Spec mismatch</p>	<p>Validate your SSL specific configuration.</p>