Oracle® Cloud

Using the IBM MQ Series JMS Adapter with Oracle Integration 3

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About This Content

This guide describes how to configure this adapter as a connection in an integration in Oracle Integration.

Audience

This guide is intended for developers who want to use this adapter in integrations in Oracle Integration.

Documentation Accessibility

For information about Oracle's commitment to accessibility, visit the Oracle Accessibility Program website at http://www.oracle.com/pls/topic/lookup?ctx=acc&id=docacc.

Access to Oracle Support

Oracle customers that have purchased support have access to electronic support through My Oracle Support. For information, visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=info or visit http://www.oracle.com/pls/topic/lookup?ctx=acc&id=trs if you are hearing impaired.

Related Resources

See these Oracle resources:

- Oracle Cloud at `http://cloud.oracle.com`
- *Using Integrations in Oracle Integration 3*
- *Using the Oracle Mapper with Oracle Integration 3*
- Oracle Integration documentation on the Oracle Help Center.

Conventions

The following text conventions are used in this document.

Convention	Meaning
boldface	Boldface type indicates graphical user interface elements associated with an action, or terms defined in text or the glossary.
italic	Italic type indicates book titles, emphasis, or placeholder variables for which you supply particular values.
`monospace`	Monospace type indicates commands within a paragraph, URLs, code in examples, text that appears on the screen, or text that you enter.

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Understand the IBM MQ Series JMS Adapter

Review the following conceptual topics to learn about the IBM MQ Series JMS Adapter and how to use it as a connection in integrations in Oracle Integration. A typical workflow of adapter and integration tasks is also provided.

Topics

IBM MQ Series JMS Adapter Capabilities

The IBM MQ Series JMS Adapter enables you to create an integration in Oracle Integration.

The IBM MQ Series JMS Adapter provides the following support:

- Allows messages to be consumed and published on queues or topics.
- Supports messages of type text or bytes.
- Provides an option to deliver the message in a persistent or nonpersistent mode over the IBM JMS Server.
- Allows you to specify the message payload structure as JSON or XML.
- Enables you to prioritize the order in which a message is published or consumed.
- Supports message selector filtering for inbound operations.
- Allows you to decide the lifetime of messages over topics or queues.
- Supports standard and custom JMS headers.
- Supports using the IBM MQ Series JMS Adapter in an IBM MQ Series SSL-enabled environment.

You can configure the IBM MQ Series JMS Adapter as a trigger or invoke connection in an integration in Oracle Integration. The IBM MQ Series JMS Adapter is one of many predefined adapters included with Oracle Integration. See the Adapters page in the Oracle Help Center.

IBM MQ Series JMS Adapter Restrictions

Note the following IBM MQ Series JMS Adapter restrictions in Oracle Integration.

- The IBM MQ Series JMS Adapter uses a connectivity agent to connect with both on-premises IBM MQ and IBM MQ on cloud.
- Only datagram message types are supported. The following are *not* supported.
  - MQSeries cluster
  - Request-reply patterns

> **Note**
>
> There are overall service limits with Oracle Integration. A service limit is the quota or allowance set on a resource. See Service Limits.

What Application Version Is Supported?

For information about which application version is supported by this adapter, see the Connectivity Certification Matrix.

Workflow to Create and Add an IBM MQ Series JMS Adapter Connection to an Integration

You follow a very simple workflow to create a connection with an adapter and include the connection in an integration in Oracle Integration.

This table lists the workflow steps for both adapter tasks and overall integration tasks, and provides links to instructions for each step.

Step	Description	More Information
1	Decide where to work	• Work in a project (see why working with projects is preferred in *Using Integrations in Oracle Integration 3*). • Work outside a project.
2	Create the adapter connections for the applications you want to integrate. The connections can be reused in multiple integrations and are typically created by the administrator.	Create an IBM MQ Series JMS Adapter Connection
3	Create the integration. When you do this, you add trigger (source) and invoke (target) connections to the integration.	Create Integrations in *Using Integrations in Oracle Integration 3* and Add the IBM MQ Series JMS Adapter Connection to an Integration.
4	Map data between the trigger connection data structure and the invoke connection data structure.	Map Data in *Using Integrations in Oracle Integration 3*
5	(Optional) Create lookups that map the different values used by those applications to identify the same type of object (such as gender codes or country codes).	Manage Lookups in *Using Integrations in Oracle Integration 3*
6	Activate the integration.	Activate Integrations in *Using Integrations in Oracle Integration 3*
7	Monitor the integration on the dashboard.	Monitor Integrations in *Using Integrations in Oracle Integration 3*
8	Track payload fields in messages during runtime.	Assign Business Identifiers for Tracking Fields in Messages and Manage Business Identifiers for Tracking Fields in Messages in *Using Integrations in Oracle Integration 3*

Step	Description	More Information
9	Manage errors at the integration level, connection level, or specific integration instance level.	Manage Errors in *Using Integrations in Oracle Integration 3*

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Create an IBM MQ Series JMS Adapter Connection

A connection is based on an adapter. You define connections to the specific cloud applications that you want to integrate. The following topics describe how to define connections.

Topics

Prerequisites for Creating a Connection

You must satisfy the following prerequisites to create a connection with the IBM MQ Series JMS Adapter:

- If you want the IBM MQ Series JMS Adapter to use SSL, you must perform the following:
  - Import the respective certificate on the connectivity agent host. For example:

    ```
    keytool -importcert -keystore keystore.p12 -storepass changeit -
    storetype pkcs12 -alias cert_IBMMQ -noprompt -file
    IBM_MQ_SSL_Certificate
    ```

    Where *`IBM_MQ_SSL_Certificate`* is the complete path to the `\agenthome\agent\cert` directory of the certificate file.

    See Install a Certificate on the Agent Host in *Using Integrations in Oracle Integration 3*.
  - Pass the *`CipherValue`* and *`HOSTNAME`* as JVM arguments to the original agent call command. For example:

    ```
    java -jar -Dadapter.mq.useCipher=CipherValue -
    Dcom.ibm.mq.cfg.SSL.outboundSNI=HOSTNAME  connectivityagent.jar
    ```

    > **Note**
    >
    > You can retrieve the *`CipherValue`* from the IBM MQ Console. However, the *`HOSTNAME`* is a static value and must be passed as it is.

- Configure the MQ Series queue manager for communication in MQ Explorer:
  - Go to **Queue Manager** > **Properties** > **Communication** and set **Channel Auto Definition** to **Disabled**.
  - Go to **Channels** > **Server Connection Channel** > **Extended** and set **Sharing Conversation** to **0**.

- If you want the queue manager to be authenticated, configure support in the **Connection authentication** field under the **Extended** tab in MQ Explorer.
- If you use the IBM MQ Series JMS Adapter and do *not* want the connection to be authenticated, the (MQ Admin) user must provide a valid user ID in **Queue Manager** > **Channels** > **Server Connection Channel** > **Properties** > **MCA**. If this user is part of the `mqm` group, the following profile must be set for the two queues of that Queue Manager:

  ```
  ./setmqaut -m QM -n "SYSTEM.ADMIN.COMMAND.QUEUE" -t q -p "USERID" +inq
  ./setmqaut -m QM -n "SYSTEM.DEFAULT.MODEL.QUEUE" -t q -p "USERID" +inq
  ```

  However, if the user set in MCA does not belong to the `mqm` group, the following profile must be set for the two queues of that Queue Manager:

  ```
  ./setmqaut -m QM -n "SYSTEM.ADMIN.COMMAND.QUEUE" -t q -p "USERID" +inq +put
  ./setmqaut -m QM -n "SYSTEM.DEFAULT.MODEL.QUEUE" -t q -p "USERID" +inq
  +get +dsp
  ```

  Replace *`USERID`* with the user ID and *`QM`* with the Queue Manager.
- Create queues and topics in MQ Explorer that you want the IBM MQ Series JMS Adapter to process.
- To use topics, you must run the following command in the *`MQ_Install`*`/bin/` directory to point to the location of the MQSC file:

  ```
  .runmqsc Queue_Manager < ../java/bin/MQJMS_PSQ.mqsc
  ```

  For example:

  ```
  cd /opt/mqm/bin
  ```

  ```
  .runmqsc ICS_QM < ../java/bin/MQJMS_PSQ.mqsc
  ```

- Install the connectivity agent in an on-premises environment. The agent enables communication between Oracle Integration and the JMS (MQ) Server. See Download and Run the Connectivity Agent Installer and About Connectivity Agents and Integrations Between On-Premises Applications and Oracle Integration in *Using Integrations in Oracle Integration 3*.
- Copy the following MQ JAR files from the *`MQ_Install_Home`*`/java/lib` directory to the *`Agent_Home`*`/thirdparty/lib` directory of the connectivity agent:
  - `com.ibm.mq.allclient.jar`
  - `jms.jar`
  - `json-20241224.jar` (or any later version of the JSON JAR file)

Create a Connection

Before you can build an integration, you must create the connections to the applications with which you want to share data.

> **Note**
>
> You can also create a connection in the integration canvas. See Define Inbound Triggers, Outbound Invokes, and Actions.

To create a connection in Oracle Integration:

1. Decide where to start:
   - Work in a project (see why working with projects is preferred).
     a. In the navigation pane, click **Projects**.
     b. Select the project name.
     c. Click **Integrations**.
     d. In the **Connections** section, click **Add** if no connections currently exist or **+** if connections already exist. The Create connection panel opens.
   - Work outside a project.
     a. In the navigation pane, click **Design**, then **Connections**.
     b. Click **Create**. The Create connection panel opens.
2. Select the adapter to use for this connection. To find the adapter, scroll through the list, or enter a partial or full name in the **Search** field.
3. Enter the information that describes this connection.

Element	Description
Name	Enter a meaningful name to help others find your connection when they begin to create their own integrations.
Identifier	Automatically displays the name in capital letters that you entered in the **Name** field. If you modify the identifier name, don't include blank spaces (for example, `SALES OPPORTUNITY`).

Element	Description
Role	Select the role (direction) in which to use this connection. **Note**: *Only* the roles supported by the adapter you selected are displayed for selection. Some adapters support all role combinations (trigger, invoke, or trigger and invoke). Other adapters support fewer role combinations. When you select a role, only the connection properties and security policies appropriate to that role are displayed on the Connections page. If you select an adapter that supports both invoke and trigger, but select only one of those roles, you'll get an error when you try to drag the adapter into the section you didn't select. For example, assume you configure a connection for the Oracle Service Cloud (RightNow) Adapter as only an **invoke**. Dragging the adapter to a **trigger** section in the integration produces an error.
Keywords	Enter optional keywords (tags). You can search on the connection keywords on the Connections page.
Description	Enter an optional description of the connection.
Share with other projects	**Note**: This field only appears if you are creating a connection in a project. Select to make this connection publicly available in other projects. Connection sharing eliminates the need to create and maintain separate connections in different projects. When you configure an adapter connection in a different project, the **Use a shared connection** field is displayed at the top of the Connections page. If the connection you are configuring matches the same type and role as the publicly available connection, you can select that connection to reference (inherit) its resources. See Add and Share a Connection Across a Project.

4. Click **Create**.

   Your connection is created. You're now ready to configure the connection properties, security policies, and (for some connections) access type.

5. Follow the steps to configure a connection.
   The connection property and connection security values are specific to each adapter. Your connection may also require configuration with an access type such as a private endpoint or an agent group.

6. Test the connection.

Configure Connection Properties

Enter connection information so your application can process requests.

1. Go to the **Properties** section.

2. Enter the following details:

Field	Description
MQ series hostname	Specify the host on which the MQ Series server is running.
Queue manager port	Specify the port on which the queue manager is listening.
Queue manager	Specify where destination objects are grouped. You can configure the queue manager with or without authentication when you specify the security policy. If you select a queue manager that requires authentication, you must specify those details. Otherwise, connection testing fails. See Configure Connection Security.
Server connection channel	Specify the server connection channel of the queue manager that has a listener running. This can be the default system-defined channel or the user-created channel.
Use SSL (Optional)	Select **Yes** to use the IBM MQ Series JMS Adapter in an IBM MQ Series SSL-enabled environment. You must also import the respective certificate on the connectivity agent host. See Prerequisites for Creating a Connection.
SSL Cipher Suite (Optional)	Set the cipher suite value. The cipher value is retrieved from the IBM MQ Console. You can set this value only when **Use SSL** is set to **Yes**.

Configure Connection Security

Configure security for your IBM MQ Series JMS Adapter connection by selecting the security policy.

1. Go to the **Security** section.
2. Enter the following details:

Field	Description
Security Policy	• **Username Password Token**: Select this option if the queue manager requires authentication. • **No Security Policy**: Select this option if the queue manage does not require authentication.
Username	Enter the username to connect to the MQ Server (any valid username with access to the MQ series instance). This is only required if you selected **Username Password Token** as the security policy.

Field	Description
Password	This is only required if you selected **Username Password Token** as the security policy. Enter the password value depending on the type of connection you are establishing with the adapter. • If you need to connect with on-premises IBM MQ, enter the password associated with the username. • If you need to connect with IBM MQ on cloud, enter the API key. You must generate the API key. See Configuring access for connecting an application to a queue manager.

Configure the Endpoint Access Type

Configure access to your endpoint. Depending on the capabilities of the adapter you are configuring, options may appear to configure access to the public internet, to a private endpoint, or to an on-premises service hosted behind a fire wall.

Select the Endpoint Access Type

1. Go to the **Access type** section.
2. Select the option for accessing your endpoint.

Option	This Option Appears If Your Adapter Supports ...
Connectivity agent	Connections to on-premises endpoints through the connectivity agent. a. Click **Associate agent group**. The Associate agent group panel appears. b. Select the agent group, and click **Use**. To configure an agent group, you must download and install the on-premises connectivity agent. See Download and Run the Connectivity Agent Installer and About Creating Hybrid Integrations Using Oracle Integration in *Using Integrations in Oracle Integration 3*.

Test the Connection

Test your connection to ensure that it's configured successfully.

1. In the page title bar, click **Test**. What happens next depends on whether your adapter connection uses a Web Services Description Language (WSDL) file. Only some adapter connections use WSDLs.

If Your Connection...	Then...
Doesn't use a WSDL	The test starts automatically and validates the inputs you provided for the connection.

If Your Connection...	Then...
Uses a WSDL	A dialog prompts you to select the type of connection testing to perform: • **Validate and Test**: Performs a full validation of the WSDL, including processing of the imported schemas and WSDLs. Complete validation can take several minutes depending on the number of imported schemas and WSDLs. No requests are sent to the operations exposed in the WSDL. • **Test**: Connects to the WSDL URL and performs a syntax check on the WSDL. No requests are sent to the operations exposed in the WSDL.

2. Wait for a message about the results of the connection test.
   - If the test was successful, then the connection is configured properly.
   - If the test failed, then edit the configuration details you entered. Check for typos and verify URLs and credentials. Continue to test until the connection is successful.
3. When complete, click **Save**.

3

Add the IBM MQ Series JMS Adapter Connection to an Integration

When you drag the IBM MQ Series JMS Adapter into the trigger or invoke area of an integration, the Adapter Endpoint Configuration Wizard is invoked. This wizard guides you through configuration of the IBM MQ Series JMS Adapter endpoint properties.

The following sections describe the wizard pages that guide you through configuration of the IBM MQ Series JMS Adapter as a trigger or invoke in an integration.

Topics

Basic Info Page

You can enter a name, description, and destination queue for the IBM MQ Series JMS Adapter on the Basic Info page.

Element	Description
What do you want to call your endpoint?	Provide a meaningful name so that others can understand the responsibilities of this connection. You can include English alphabetic characters, numbers, underscores, and dashes in the name. You cannot include the following: • Blank spaces (for example, `My Inbound Connection`) • Special characters (for example, `#;83&` or `righ(t)now4`) • Multibyte characters
What does this endpoint do?	Enter an optional description of the connection's responsibilities. For example: `This connection receives an inbound request to synchronize account information with the cloud application.`

Element	Description
Destination Type	Specify whether the JMS destination is a queue or a topic. A JMS destination (a queue or topic) represents the target of messages that the client produces and the source of messages that the client consumes. • **Queue**: A queue means a message goes to only one possible subscriber. • **Topic**: A topic means a message goes to every subscriber.

Configuration for Queue or Topic Page

Select and configure the queue or topic destination name for the IBM MQ Series JMS Adapter.

Element	Description
Destination Name	Select the queue or topic destination name. The values available are based on whether you selected **Queue** or **Topic** on the Basic Info page.
Message Type	Select the message body type. • **Text Message**: Sends a message containing a `java.lang.String`. This message type transports text-based messages, including those with XML/JSON content. • **Bytes Message**: Sends a message containing a stream of uninterpreted bytes. This message type is for client encoding of existing message formats.
Delivery Mode	• **Persistent**: Specifies a persistent JMS publisher; that is, a publisher that stores messages for later use by a durable subscriber. A durable subscriber is a consumed message with a durable subscriber ID. A durable subscriber downloads messages that have been stored in the persistent publisher, and does not have to remain active at all times to receive all the messages. • **Nonpersistent**: A nondurable subscriber loses any messages that are produced when the adapter is not active.
Message Priority (0-9)	You can set the order in which JMS delivers the message. You can send urgent messages first followed by the less important ones.
Time to Live	Specify the time to live (the amount of time before a message expires and is no longer available for consumption).
Message Selector	Select the pattern to use. After selecting a pattern, you can manually edit the value, if necessary. The pattern filters messages based on header and property information. The message selector rule is a Boolean expression. If the expression is true, the message is consumed. If the expression is false, the message is rejected.
Do you want to specify the structure for the payload?	Select **Yes** to provide a payload structure. Otherwise, select **No**.

Element	Description
Durable Subscriber (Is displayed if you selected **Topic** on the Basic Info page.)	This field is optional. If you are setting up a durable subscriber, a durable subscriber ID is needed. A subscriber loses messages if it becomes disconnected. However, a durable subscriber downloads stored messages when it reconnects. This ensures that consumers receive messages that were published even when the subscribers were not running. These messages are persisted by the JMS provider and are either sent to the consumer when it becomes active again or purged from storage if the message expires.
Subscription Name (Is displayed if you selected **Topic** on the Basic Info page.)	Enter the durable subscriber ID. This field is displayed if you selected **Yes** for **Durable Subscriber**.

Message Structure Page

You can specify the message structure on this page. This page appears only if you select **TextMessage** as the **Message Type**. and chose **Yes** to specify the structure for the payload on the previous configuration page.

Element	Description
How would you like to specify the message structure?	• You can either select XML Schema (XSD) or Sample JSON document as the message structure. • Drag and drop your XML/JSON file or specify the message structure inline.
Schema File	Displays the name of the sample XML/JSON file.
Schema Element	Displays the root element of the sample XML/JSON file.

Headers Page

Select the standard (predefined) headers to use for the operation with the IBM MQ Series JMS Adapter. You can also specify custom headers.

Element	Description
JMS Standard Headers	Begin typing the name to filter the display of standard headers.
Select Headers	Begin typing the name to filter the display of standard headers.
Available Headers	Select the headers to use.
Selected Headers	Displays the selected headers.
Custom JMS Header Name	Add custom headers, if required.

Summary Page

You can review the specified adapter configuration values on the Summary page.

Element	Description
Summary	Displays a summary of the configuration values you defined on previous pages of the wizard. The information that is displayed can vary by adapter. For some adapters, the selected business objects and operation name are displayed. For adapters for which a generated XSD file is provided, click the XSD link to view a read-only version of the file. To return to a previous page to update any values, click the appropriate tab in the left panel or click **Go back**. To cancel your configuration details, click **Cancel**.

4

Implement Common Patterns Using the IBM MQ Series JMS Adapter

You can use the IBM MQ Series JMS Adapter to implement the following common patterns.

Topics:

Put a Message in an Inbound Queue

This use case describes how to create an integration that uses the IBM MQ Series JMS Adapter to put a message in an inbound queue (for this example, named **INQ**). From the inbound queue, the message is consumed as a text message and published to an outbound topic (for this example, named **TOPIN**).

1. Configure the IBM MQ Series JMS Adapter on the Connections page.
2. Create the an application integration. This is the first of two integrations you create. The second is described in the second use case. See Use a Topic to Subscribe to a Message.
3. Add the IBM MQ Series JMS Adapter as a trigger connection in the integration.

   The Adapter Endpoint Configuration Wizard is displayed.
4. On the Basic Info page, **Queue** for the **Destination Type** is selected.
5. On the Configuration page, the following details are specified for this use case. Your selections can vary.
   - A queue of your choice for the **Destination Name** (for this example, **INQ** is selected).
   - **TextMessage** for the **Message Type** value.
   - **JMSPriority=8** for the **Message Selector** value. This means that only messages with a priority of 8 are consumed.
   - **Yes** for the **Do you want to specify the structure for the payload** value.
   - A schema of your choice for the **Schema File** value (for this example, **singleString.xsd** is selected).
6. On the Headers page, **JMSType** for the standard header and **department** for the custom header are selected.
7. Add the IBM MQ Series JMS Adapter as an invoke connection in the integration.
8. On the Basic Info page, **Topic** for the **Destination Type** value is selected.
9. On the Configuration page, the following details are specified for this use case:
   - **TOPIN** for the **Destination Name** value.
   - **TextMessage** for the **Message Type** value.
   - **Priority [0 - 9]** for the **Message Selector** value.

- **Yes** for the **Do you want to specify the structure for the payload** value.
- **singleString.xsd** for the **Schema File** value.

10. On the Headers page, **JMSPriority** and **JMSType** for the standard headers and **department** for the custom header are selected. These headers are captured from the inbound queue and assigned to the outbound topic.
11. In the mapper, the following mappings are specified:
    - Source **JMSType** element is mapped to the target **JMSType** element.
    - Source **JMSProperty department** element is mapped to the target **JMSProperty department** element.
    - Target **JMSPriority** element is manually set to **4**. When the message is received in the inbound queue, a check is made to see if the **JMSPriority** is **8**. If it is, it is set to a **JMSPriority** of **4** to show the setting of the JMS headers for the outbound topic.

Use a Topic to Subscribe to a Message

This use case describes how to create an integration that uses the same topic (for this example, named **TOPIN**) used in the first integration to subscribe to a message that was published from that integration. Once the message has been subscribed, the same message is consumed and delivered to the outbound queue (for this example, named **OUTQ**).

1. Configure the IBM MQ Series JMS Adapter on the Connections page. See Create a Connection.
2. Create an application integration. This is the second of two integrations that you create. The first is described in the first use case. See Put a Message in an Inbound Queue.
3. Add the IBM MQ Series JMS Adapter as a trigger connection in the integration.

   The Adapter Endpoint Configuration Wizard is displayed.
4. On the Basic Info page, **Topic** for the **Destination Type** value is selected.
5. On the Configuration page, the following details are specified for this use case. Your selections can vary.
   - A topic of your choice for the **Destination Name** value (for this example, **TOPIN** is selected).
   - **TextMessage** for the **Message Type** value.
   - **No** for the **Durable Subscriber** value.
   - No value is set for the **Message Selector** value.
   - **Yes** for the **Do you want to specify the structure for the payload** value.
   - A schema of your choice for the **Schema File** value (for this example, **singleString.xsd** is selected).
6. On the Headers page, **JMSPriority** and **JMSType** for the standard headers and **department** for the custom header are selected. These headers are sent to the outbound queue.
7. Add the IBM MQ Series JMS Adapter as an invoke connection in the integration.
8. On the Basic Info page, **Queue** for the **Destination Type** value is selected.
9. On the Configuration page, the following details are specified for this use case:
   - **OUTQ** for the **Destination Name** value.

- **TextMessage** for the **Message Type** value.
- **Persistent** for the **Delivery Mode** value.
- **Priority=[0 - 9]** for the **Message Selector** value.
- **Seconds** for the **Time to Live** value.
- **Yes** for the **Do you want to specify the structure for the payload** value.
- A schema of your choice for the **Schema File** value (for this example, **singleString.xsd** is selected).

10. On the Headers page, **JMSPriority** and **JMSType** for the standard headers and **department** for the custom header are selected. These headers are captured from the inbound topic and assigned to the outbound queue.
11. In the mapper, the messages coming from the inbound topic are mapped to the outbound queue.
    - Source **JMSType** element is mapped to the target **JMSType** element.
    - Source **JMSProperty department** element is mapped to the target **JMSProperty department** element.
    - Target **JMSPriority** element is mapped to the target **JMSPriority**.
12. Activate both integrations.
13. Put an XML/JSON message in the inbound queue (**INQ**) to be consumed by this integration.

    In the first integration, the message is dequeued and published to the outbound topic (**TOPIN**).

    In the second integration, the TOPIN topic is subscribed to any message that arrives on it. **TOPIN** consumes the message and delivers it to the **OUTQ** queue.
14. Check for the message and the headers such as **JMSType** and **JMSPriority** in the **OUTQ** queue.

5

Troubleshoot the IBM MQ Series JMS Adapter

Review the following topics to learn about troubleshooting issues with the IBM MQ Series JMS Adapter.

Topics:

Additional integration troubleshooting information is provided. See Troubleshoot Oracle Integration in *Using Integrations in Oracle Integration 3* and the Oracle Integration Troubleshooting page on the Oracle Help Center.

Troubleshoot Connection Errors

Note the following errors and troubleshooting actions when using the IBM MQ Series JMS Adapter.

Error	Error Occurrence Scenario	Verification Steps

`The connection test failed. Check your connection and credential properties.`
 	
`GLOBAL] Error accessing Feature Flag Service[[com.sun.jersey.api.client .ClientHandlerException: javax.net.ssl.SSLHandshakeException: sun.security.validator.ValidatorException: PKIX path building failed: sun.security.provider.certpath.SunCertPathBuilderException: unable to find valid certification path to requested target at com.sun.jersey.client.urlconnection.URLConnectionClientHandler.handle(URLConnectionClientHandler.java:155) at com.sun.jersey.api.client.filter.HTTPBasicAuthFilter.handle(HTTPBasicAuthFilter.java:105)`
	When testing the IBM MQ Series JMS Adapter connection on the Connections page.	For the queue manager, where authentication is required and the username/password were not provided.

`The connection test failed. Check your connection and use agent from agent group. A connector specific exception was raised by the application., Error Cause: java.lang.Exception: Test connection failed.`	When testing the IBM MQ Series JMS Adapter connection on the Connections page.	Verify that the connectivity agent is up and running.

Error	Error Occurrence Scenario	Verification Steps
`Unable to test connection "MQCON". [Cause: CASDK-0005] CASDK-0005 : A connector specific exception was raised by the application. Test connection failed. Please ensure you are providing correct Weblogic JMS Admin host and port. Error Details : com.ibm.msg.client.jms.DetailedIllegalStateException: JMSWMQ0018: Failed to connect to queue manager '<QUEUE_MANAGER>' with connection mode 'Client' and host name '<MQ_HOST>(<QueueManager_Port>)'.`	When testing the IBM MQ Series JMS Adapter connection on the Connections page.	Check the following: • Whether the queue manager is up • Whether the server connection channel used for the connection is up • Whether the queue manager name supplied is correct • Whether the server connection channel name supplied is correct • Whether the hostname is correct • Whether the port number of the queue manager is correct • Whether the username and password supplied are correct

`The application has encountered an unexpected error.`	When selecting **Topic** on the Basic Info page and clicking **Next** to go to the Configuration page in the Adapter Endpoint Configuration Wizard.	Verify that you ran the following commands as the authorized `mqm` user (to point to the location of the MQSC file):
		`MQSeries_Install``/bin/.runmqsc` *`Queue_Manager`* `../java/bin/MQJMS_PSQ.mqsc`
		`cd /opt/mqm/bin`
		For example:
		`./runmqsc QM_DEMO ../java/bin/MQJMS_PSQ.mqsc`

Error	Error Occurrence Scenario	Verification Steps
`Unable to test connection "<QUEUE_MANAGER>". [Cause: CASDK-0005] CASDK-0005 : A connector specific exception was raised by the application. java.lang.NoClassDefFound Error: com/ibm/mq/jms/ MQConnectionFactory com.ibm.mq.jms.MQConnectionFactory`	When testing the IBM MQ Series JMS Adapter connection on the Connections page.	Verify that the MQ client JAR file `com.ibm.mq.allclient.jar` is present in *`AGENT_INSTALL_HOME`*`/agenthome/thirdparty/lib`. You can find this JAR file in the *`MQSeries_Install`*`/java/lib` folder.
`Unable to test connection "<QUEUE_MANAGER>". [Cause: CASDK-0005] CASDK-0005 : A connector specific exception was raised by the application. java.lang.NoClassDefFound Error: javax/jms/ ConnectionFactory javax.jms.ConnectionFactory`	When testing the IBM MQ Series JMS Adapter connection on the Connections page.	Verify that the `jms.jar` file is present in *`AGENT_INSTALL_HOME`*`/agenthome/thirdparty/lib`. You can find this JAR file in the *`MQSeries_Install`*`/java/lib` folder.
`Error while fetching JNDI destination details null Root cause of the Exception : null`	When selecting **Topic** or **Queue** on the Basic Info page and clicking **Next** to go to the Configuration page in the Adapter Endpoint Configuration Wizard.	Verify that the connectivity agent is up and running.
`Destination Name blank in View/Edit mode`	When selecting **Topic** or **Queue** on the Basic Info page and clicking **Next**, the list of available topics or queues is blank on the Configuration page in the Adapter Endpoint Configuration Wizard.	Verify that the server connection channel is up or the queue manager is up. Verify also that the connectivity agent is up.

Error	Error Occurrence Scenario	Verification Steps
`CASDK-0005 : A connector specific exception was raised by the application. Test connection failed. Please ensure you are providing correct Weblogic JMS Admin host and port. Error Details : com.ibm.msg.client.jms.DetailedJMSSecurityException: JMSWMQ2013`	When testing the IBM MQ Series JMS Adapter connection on the Connection page without authentication.	Verify that the message channel agent (MCA) property in the server connection channel for that queue manager has a valid value. See Prerequisites for Creating a Connection.