

Reliable Messaging

Objectives

After completing this lesson, you should be able to:

- Describe reliable messaging
- Describe OSB Quality of Service configurable settings and default behaviors
- Describe the configuration options of using JMS transport for reliable communication



Reliable Communication

Three aspects of reliable communication:

- Distributed Transactions (XA)
- Quality of Service (QoS)
- Persistence

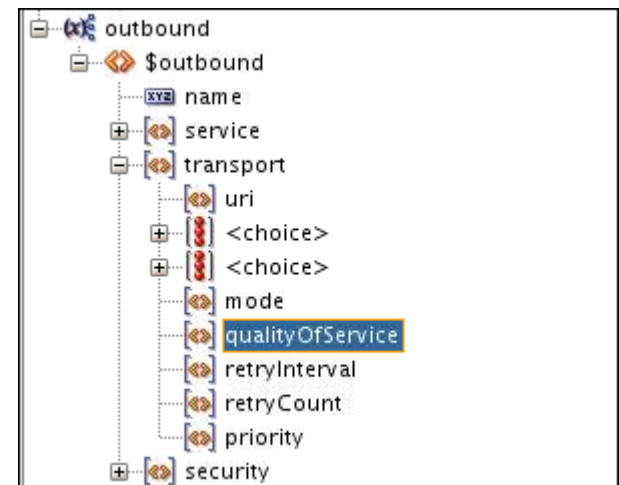
Quality of Service

- Quality of service (QoS) is set in the `qualityOfService` element in the `$inbound` and `$outbound` context variable.

`$inbound/ctx:transport/ctx:qualityOfService`

`$outbound/ctx:transport/ctx:qualityOfService`

- Service Bus provides:
 - Two QoS settings:
 - Exactly-once
 - Best-effort
 - Three delivery behaviors:
 - Exactly-once
 - At-least-once
 - Best-effort



Default Value of `qualityOfService`

exactly-once	Best-effort
Proxy configured to be transactional	<ul style="list-style-type: none">• Service callout action• Publish action
Route node with following inbound transport: <ul style="list-style-type: none">• email• FTP• SFTP• File• JMS (transactional)• Tuxedo (transactional)• MQ (with Backout Threshold set to zero)• WS	Route node with following inbound transport: <ul style="list-style-type: none">• HTTP• JMS (non-transactional)• Tuxedo (non-transactional)• MQ

Overriding the Default Value of QoS in Routing Options Action

The screenshot displays the Oracle JMS Demo1PP pipeline editor. The main canvas shows a flow starting from 'RouteNode1' to a 'Routing' action, which then branches into 'Request Action' and 'Response Action'. The 'Request Action' is highlighted with a blue box and a green arrow, and the 'Routing Options' label is visible below it. The bottom panel shows the 'Routing Options - Properties' configuration window. The 'QoS' dropdown is set to 'Exactly Once', and the 'Retry Interval' dropdown is also set to 'Exactly Once'. The 'Mode' dropdown is set to '<Autoselected>'. The 'Retry Count' is set to 1. The 'Priority' is set to '<Expression>'. The 'General' tab is selected.

RouteNode1

Routing

Request Action Response Action

Routing Options

Zoom: 100 Reset

Design Configuration

Live Issues: JMSDemo1PP.pipeline - Issues Routing Options - Properties

Find

Routing Options

URI: <Expression>

QoS: Exactly Once

Mode: <Autoselected>
Best Effort

Retry Interval: Exactly Once

Retry Count: 1

Priority: <Expression>

General

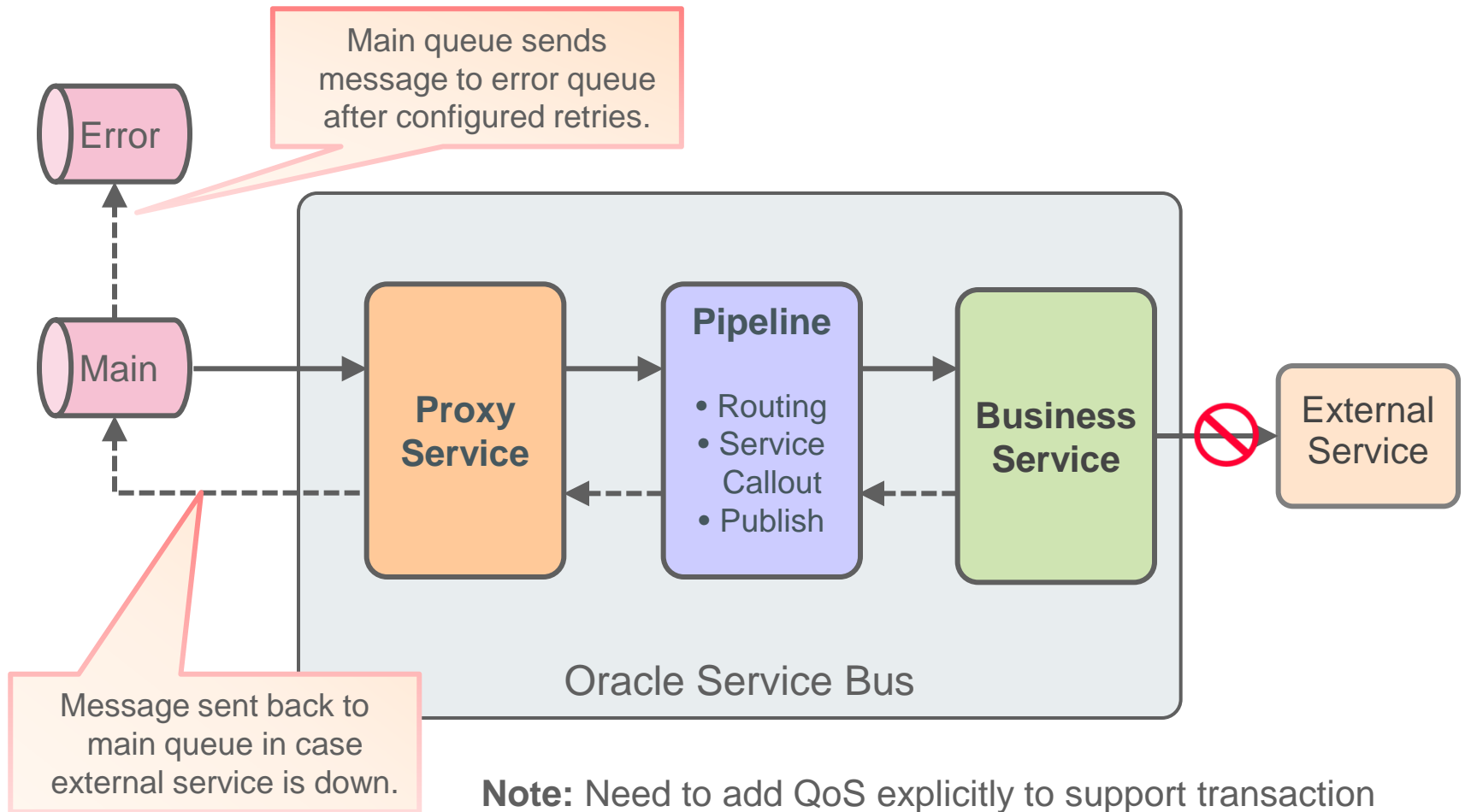
Configurations for Reliable Communication

- Enabling JMS message persistence
- Configuring retry handling in JMS queue
- Using global transactions and quality of service

The screenshot shows the 'JMS Transport Configuration' dialog box. On the left, a sidebar contains tabs: 'General', 'Transport', 'Transport Details' (selected), 'Message Handling', and 'Performance'. The main area is titled 'JMS Transport Configuration' with a subtitle 'Use this page to configure the transport information for this service}'. It contains several configuration options:

- Destination Type:** Radio buttons for 'Queue' (selected) and 'Topic'.
- Message Type:** Radio buttons for 'Bytes' (selected) and 'Text'.
- Response Queues:** Radio buttons for 'None' (selected), 'One for all Request URIs', and 'One per Request URI'.
- Dispatch Policy:** A dropdown menu showing 'SBDefaultResponseWorkManager'.
- Request Encoding:** A text field containing 'UTF-8'.
- JMS Service Account:** A text field showing '<Not Selected>' with a search icon.
- Advanced Settings:**
 - Use SSL:** An unchecked checkbox.
 - Expiration:** A text field containing '0'.
 - Enable Message Persistence:** A checked checkbox, highlighted with a red rectangular box.
 - Unit Of Order:** A text field.
 - Pass Caller's Subject:** An unchecked checkbox.
 - JNDI Timeout:** A text field containing '0'.

Configuring Retry Handling in JMS Queue



High-Level Steps

1. Create a main queue and a corresponding error queue for the main queue.
2. Set the delivery failure option for the main queue.
3. Create a proxy service to consume the message from the main queue and enable the transaction parameters.
4. Create a business service to post the message to target queue.
5. Create a message flow to route the message to business service.

Configuring Delivery Failure Options

Settings for OSBDemoQueue

Configuration

Monitoring

Control

Security

Subdeployment

Notes

General

Thresholds and Quotas

Overrides

Logging

Delivery Failure

Save

Use this page to define message delivery failure parameters, like specifying redelivery limits, for undeliverable or expired messages.

Redelivery Delay Override:

10000

Redelivery Limit:

2

Expiration Policy:

Redirect

Expiration Logging Format:

Error Destination:

OSBDemoErrorQueue

JMS Transport Configuration of the Proxy Service

General
Transport
Transport Details
Security

Transport Configuration
Use this page to configure the transport information for this service

Protocol: jms

Endpoint URI: jms://localhost:7101/jms.demo.OSBDemoConnFactory/jms.demo.OSBDemoQueue

Format: `jms://((host:port),((host:port))*|((host:port)?)/FactoryJndiName/QueueJndiName`

Headers:
☒ Get All Headers
☐ Get Specified Headers

Main queue

Summary

In this lesson, you should have learned how to:

- Describe OSB's support for reliable messaging
- Describe OSB Quality of Service configurable settings and default behaviors
- Describe the configuration options of using JMS transport for reliable communication



Demonstration: Overview

- Configuring Retry Handling in JMS Queue