

# JMS Programming for WebSphere MQ

WT1263

This course teaches Java programmers how to use the JMS (Java Messaging Service) classes for developing applications in the IBM WebSphere MQ environment. Through lectures and extensive hands-on exercises, the students learn to design, develop and deploy industrial strength messaging applications. The course topics include JMS architecture, point-to-point messaging model, publish/subscribe model, working with queue and message objects, JMS administered objects and many other topics.

## Audience

- This course is a must for Java developers who want to learn how to design, implement and deploy JMS application using the IBM WebSphere MQ transport

## Prerequisites

- WT1043 Technical Introduction to WebSphere MQ, plus Java programming experience

## Course Length

- 2 days

## Learning Objectives

- Understand JMS architecture as implemented in WebSphere MQ
- Work with JMS administered objects
- Develop JMS based messaging applications
- Understand JMS security implementation
- Implement WebSphere MQ specific functions in JMS applications

## Teaching Methods

- Lectures
- Hands-on workshops

## Course Outline

WTF10

### What is WMQ

- Integration = Reuse
- Integration Techniques: Procedure Call
- Integration Techniques: RPC
- Integration Techniques: File Sharing
- Integration Techniques: Database
- Integration Techniques: Message Queuing
- WMQ Concepts
- Message Descriptor (MQMD)
- Typical WebSphere MQ Environment
- Emerging WebSphere MQ Environment
- WebSphere MQ APIs

### What is JMS

- JMS Concepts
- Java APIs Related to JMS
- More JMS Concepts
- JMS Administration
- JMS Object Model
- JMS Client Prototype
- JMS Reference

### What is JNDI

- Interfacing naming and directory services
- JNDI is a Wrapper
- Directory Technologies
- What JNDI is not
- How are JMS and JNDI Related?
- JNDI Administration

### JMS Administration

- JMSAdmin.config
- JMSAdmin utility

### Examining a JMS Program

- JMS Client Prototype
- JMS Object Model
- JMS Reference
- Create JNDI Context Object
- Retrieve Connection Factory Object
- Retrieve Destination Object(s)

- Create Connection Object
- Create Session Object(s)
- Create Producer(s) / Consumer(s)
- Create Message Object(s)
- Start Message Delivery
- Cleanup
- Exceptions
- JMS Reference
- MQ Completion Codes
- MQ Reason Codes

### JMS and Websphere MQ Resources

- Online Manuals
- Support Paks
- rfhutil (utility to create, send, receive and examine messages)
- JMS Specification

### Messages

- Message Descriptor (MQMD)
- MQMD Format
- Message Data Headers
- WMQ View
- MQHRF2 - Fixed
- JMS Logical View
- WMQ to JMS Mapping
- JMS Header Fields
- MQHRF2 - Folders
- JMS Header Fields
- Provider Specific Fields

### JMS Message Selection

- Message Selector
- Specifying Property Values
- Message Selector Examples
- Message Selector Elements
- Message Selector Use

### JMS Message Types

- JMS Message Type
- BytesMessage
- Create BytesMessage
- Unpack BytesMessage

- StreamMessage
- Create StreamMessage
- Unpack StreamMessage
- TextMessage
- Create TextMessage
- Unpack TextMessage
- MapMessage
- Create MapMessage
- Unpack MapMessage
- ObjectMessage
- Create ObjectMessage
- Unpack ObjectMessage

### JMS Program Initiation

- JMS Daemon or Service
- Asynchronous Receive
- Listener Registration
- WMQ Trigger Mechanism
- Message Driven Bean (MDB)

### Request-Reply Pattern

- Overview
- Request-Reply Properties
- Simple Request-Reply
- Typical Request-Reply
- Request-Reply Variation

### Publish Subscribe Pattern

- Overview
- Publishers
- Subscribers
- Brokers
- Pub Sub Commands
- Parallels

### Transaction Processing with JMS

- What is a Transaction?
- Transaction Types
- Local Transaction Scenario
- Local Transaction Coding
- Poison Messages
- Global Transaction Scenario