Oracle Service Bus 12c: Design & Integrate Services Ed 1

JAVA

DURATION	MODULES	COURSE CODE
4 Days	**13 Lectures**	**—**

Course Overview

This Oracle Service Bus 12c: Design and Integrate Services training teaches you how to integrate services across various protocols and technologies. Deep dive into the VETRO (Validate, Enrich, Transform, Route, Operate) pattern implementation.

What You Will Learn

- Contents

Introduction

- Goals
- Audience
- Prerequisites
- Class Introductions
- Course Objectives
- Course Map
- Course Schedule
- How Can I Learn More?

Introducing Oracle Service Bus

- Objectives
- Agenda
- Service Integration Can End Up as Spaghetti
- Enterprise Service Bus Reduces Complexity and Enables Flexibility
- What Does an Enterprise Service Bus Do?
- What an Enterprise Service Bus Should Not Do
- Key Capabilities
- Benefits
- Agenda
- About Oracle Service Bus

- Example: Virtualizing Back-end Service
- Functional Features of Oracle Service Bus
- Features of Oracle Service Bus 12c
- Agenda
- SOA Reference Architecture
- Oracle Service Bus in Oracle SOA Suite
- Oracle SOA Suite and Oracle Service Bus Product Architecture
- Key Components in a SOA Composite Application
- Mediator Versus OSB
- Oracle SOA Suite and Oracle Service Bus Deployment Topology
- Agenda
- Developer and Production Distributions
- Domain Configuration
- Summary
- Practice 2: Overview

Getting Started with Oracle Service Bus Applications

- Objectives
- Agenda
- Web Services Description Language (WSDL)
- Abstract WSDL
- XML Schema Definition (XSD)
- XSD: Example
- Agenda
- OSB Components
- Business Services
- Service Types for Business Services
- Business Service Configuration
- Proxy Services
- Proxy Service Configuration
- Pipelines
- Quiz
- Agenda
- Developing Service Bus in JDeveloper
- Projects and Resources
- A Basic Service Bus Application
- High-Level Steps of Creating a Service Bus Application
- Creating a Business Service
- Creating a Proxy Service
- Agenda
- Features for Developers
- Import and Export Resources
- Share Artifacts with MDS
- Populating Shared Data with File-Based MDS
- Using Shared Data in MDS

- Promote Reusability and Best Practices with Pipeline Template
- Test and Debug Integrations
- OSB Maven Support
- Oracle Service Bus Console
- Working with Sessions
- Test Console
- Monitoring and Administering in EM Console
- Development Tasks Support
- Quiz
- Summary
- Practice 3: Overview

Basics of Message Flow

- Objectives
- Agenda
- Message Exchange Pattern
- Message Flow
- Pipeline
- Pipeline Components
- Message Processing Actions
- Communication Actions
- Flow Control and Report
- Message Flow Communication Actions
- Pipeline: Example
- Quiz
- Agenda
- Message Context
- Predefined Context Variables
- Message-related Variables
- $inbound and $outbound Variables
- $operation Variable
- $fault Variable
- Variables and Types
- Context Variables in Message Processing
- Pass Content by Reference
- User-Defined Variables
- Shared Variables
- Shared Variable Rules
- Creating a Shared Variable
- Quiz
- Agenda
- Pipeline Construction
- Creating a Pipeline
- Pipeline Templates
- Creating and Using Pipeline Template

- Breaking a Template Link
- Agenda
- Debugging Service Bus Applications
- Enable/Disable Stages and Actions
- Enable Flow Tracing in Pipeline
- Debugging Service Bus Applications with Debugger
- Features and Limitations
- Configuring Debugger
- Setting Breakpoints
- Starting the Debugger
- Stepping Through a Debugging Session
- Viewing and Modifying Variable Values
- Ending a Debugging Session
- Summary
- Practice 4: Overview

Validating Messages and Error Handling

- Objectives
- Agenda
- Message Validation
- Validate Action
- Dynamic Validation
- Quiz
- Agenda
- Faults: Overview
- Fault-Handling Challenges
- Handling Errors in OSB
- Error Handlers
- $fault Variable
- Reply Action
- Generating Error Messages Using Reply Action
- Quiz
- Agenda
- Reporting Actions
- Report Action
- Log Action
- Configuring OSB Log Level
- Alert Action
- Summary
- Practice 5: Overview

Transforming Messages

- Objectives
- Agenda
- Message Transformation in Service Bus

- Terminology and Concepts
- XPath
- XPath: Examples
- XPath Functions
- XPath Expression Builder
- Standard XPath Functions
- Custom XPath Functions
- Creating and Packaging Custom XPath Functions
- Registering a Custom Function
- Agenda
- Data Standards
- Transforming Data
- XSL Transformations
- XSLT Mapper
- Using XPath Functions in XSLT Mapper
- Agenda
- XQuery: Introduction
- Uses of XQuery
- XQuery Support in Service Bus
- XQuery Expression Builder
- XQuery Mapper
- Types of XQuery Maps
- Steps for Creating XQuery Map Files
- XSLT Versus XQuery
- Test Expressions at Design-Time
- Agenda
- XML to non-XML with nXSD
- Working with Native Format Data
- Native Data Transformation
- Specifying File Name and Native Data Format
- Specifying a Sample File
- Defining a Schema for a Native Format
- nXSD Translate Action
- Summary
- Practice 6: Overview

Routing Messages

- Objectives
- Agenda
- Message Routing: Overview
- Routing Use Cases
- Header-based Routing
- Agenda
- Content-based Routing
- Conditional Branch Node

- Configuring Conditional Branch Node
- Routing Table Action
- Conditional Branching Versus Routing Table
- Quiz
- Agenda
- Dynamic Routing
- Dynamic Routing with Dynamic Routing Action by Example
- Mapping Table Used by Dynamic Routing Action: Example
- XQuery Expression for Dynamic Routing Action
- Configuring Dynamic Routing Action
- Dynamic Routing with Routing Options Action by Example
- Mapping Table Used by Routing Options Action: Example
- Configuring Routing Options Action
- Quiz
- Summary
- Practice 7: Overview

Enriching Messages

- Objectives
- Message Enrichment Options
- Service Callout
- Using Service Callout
- Service Callout Action
- Configuring Service Callout Action
- Constructing Service Callout Messages
- Java Callout
- Use Cases
- Java Callout Guidelines
- Java Callout Action
- Summary
- Practice 8: Overview

Processing Messages with Concurrent Calls

- Objectives
- Split-Join
- Split-Join Patterns
- Split-Join Invocation
- Split-Join Construction: Static Split-Join
- Split-Join Construction: Dynamic Split-Join
- Split-Join Operations
- Global and Local Variables
- Transaction Support
- Summary
- Practice 9: Overview

Adapters and Transports

- Objectives
- Agenda
- JCA Transport
- JCA Adapter Framework
- JCA Adapters
- Supported Adapters and Transports
- File Adapter
- Database Adapter
- JMS Message
- JMS Messaging
- JMS Resources
- Oracle JMS Transport
- Agenda
- SOA-DIRECT Transport
- Features of SOA-DIRECT Transport
- Transactional Boundaries
- Synchronous Invocation of a SOA Composite
- Endpoint URI Linking to a SOA Composite
- Synchronous Invocation from a SOA Composite
- Asynchronous Invocation of a SOA Composite
- Service Roles in Asynchronous Invocation
- Agenda
- REST: Overview
- REST Queries
- Comparing REST and SOAP
- Example: Use Cases for REST and SOAP
- Supported Features in OSB
- Creating a REST Binding
- Configuring a REST Binding
- Summary
- Practice 10: Overview

Reliable Messaging

- Objectives
- Reliable Communication
- Quality of Service
- Default Value of qualityOfService
- Overriding the Default Value of QoS in Routing Options Action
- Configurations for Reliable Communication
- Configuring Retry Handling in JMS Queue
- High-Level Steps
- Configuring Delivery Failure Options
- JMS Transport Configuration of the Proxy Service

- Summary
- Demonstration: Overview

Service Bus Security

- Objectives
- Agenda
- Web Services Security: Overview
- Transport-Level Security
- Message Security
- WS-Security
- SAML
- SAML Architecture
- WS-Security and SAML
- WS-Policy: Overview
- Policy Assertion
- Quiz
- Agenda
- SB Security Capabilities
- Active and Passive Intermediary
- Securing Services with OWSM Policies
- Oracle Web Service Manager
- Components of Oracle Web Services Manager Architecture
- Inbound Security by Using OWSM
- Outbound Security by Using OWSM
- Policy Support (12c 12.1.3.0)
- User Interface (UI) Support
- Identity Propagation
- Identity Propagation: Example
- OWSM Predefined Policies
- Applying OWSM Policies to Services in JDeveloper
- Test Console Support: Business Service
- Test Console Support: Proxy Service
- Agenda
- Service Access Control Policies
- Role-Based Access: Application Security Roles
- Summary
- Practice 12: Propagating Identity from Service Bus to a Web Service

Advanced Topics

- Objectives
- Agenda
- Principles and Best Practices of Using Service Bus
- BPEL Versus Service Bus
- Testing Approaches
- Agenda

- Service Result Caching
- Use Cases of Result Caching
- How Does Result Catching Work?
- Configuring a Business Service for Result Caching
- Using an Out-of-Process Coherence Cache Server
- Coherence Configuration Files
- Agenda
- SLA Alert in OSB
- SLA Alert Rules
- Creating SLA Alert Rules
- Agenda
- Managed File Transfer (MFT)
- OSB and MFT Integration
- Agenda
- Resequencing Message
- Configuring the Resequencer
- Work Manager in Service Bus
- Agenda
- About Maven
- Concepts and Terminology
- OSB Maven Support
- Summary
- Practice 13: Overview
- Building Service Bus Projects with Maven