Oracle SOA Suite 11g: Build Composite Applications

Duration: 5 Days

What you will learn

This course covers designing and developing SOA composite applications for application integration with services by using a Service-Oriented Architecture (SOA) implementation approach.

Composite applications are modeled and developed according to the Service Component Architecture (SCA) specifications. Oracle JDeveloper 11g is used to design, develop and deploy applications to an Oracle SOA Suite 11g run-time environment, in which the composite applications are executed.

With the Oracle JDeveloper 11g Integrated Development Environment (IDE), participants learn how to design, develop, deploy, and test SOA Composite applications comprised of Mediator, BPEL, Business Rules, Human Tasks (Workflow) components. They also learn the usage of these components in depth that is sufficient to implement a reasonably complex business solution, based on a purchase order processing scenario.

Learn to:

- Test, debug, and troubleshoot an SOA Composite application
- Interact with an ADF Business Component Service as an Service Data Object (SDO)
- Initiate SOA Composite applications using the Events Delivery Network
- Apply security policies to service endpoints
- Perform basic administration and monitoring tasks of SOA composite applications
- Create an SOA Composite application using JDeveloper

Audience

Application Developers
Business Analysts
Developer
SOA Architect
Technical Consultant

Related Training

Required Prerequisites

Conceptual knowledge about XML, XML Schema, XSL Transformations and XPath.

Knowledge of Web Services and Web Service standards specifically SOAP and WSDL

Some basic SQL query skills

Suggested Prerequisites

Oracle ADF basic concepts
Course Objectives
Describe SOA concepts and related technology
Create an SOA Composite application using JDeveloper
Work with Mediator components with routing rules, filters, and transformations
Orchestrate business process flows by using BPEL
Implement Business Rule component with IF-THEN rules and decision tables
Implement Human workflow with Human Task components
Perform basic administration and monitoring tasks of SOA Composite applications
Test, debug, and troubleshoot an SOA Composite application
Interact with an ADF Business Component Service as an Service Data Object (SDO)
Initiate SOA Composite applications using the Events Delivery Network
Integrate services by using Oracle Service Bus
Apply security policies to service endpoints to secure interactions

Course Topics

Overview of SOA and SCA Concepts
Describing Service-Oriented Architecture (SOA)
Reviewing of Services and key standards
Explaining Service Component Architecture (SCA) and Service Data Object (SDO)
Describing Event Driven Architecture (EDA)
Discussing the course application and environment

Designing Composite Applications with Oracle SOA Suite 11g
Explaining the Oracle SOA Suite 11g architecture and components
Implementing an SOA application design approach
Describing basic synchronous and asynchronous interaction patterns
Discussing the course application implementation with Oracle SOA Suite 11g

Creating a Composite Application
Creating, editing, and deploying a composite application
Creating composite service entry points
Creating composite components, such as Mediator, BPEL, Human Task, and Business Rule components
Creating service references
Wiring composite constructs
Testing a composite using Web based interfaces
Introducing working with adapters
Create a file adapter service reference

Managing and Monitoring a Composite Application
Managing SOA composite application by using Oracle Enterprise Manager
Tracking messages through SOA composite application by using Oracle Enterprise Manager
Deploying a composite application
Un-deploying a composite application
Moving a composite application to a production environment

Creating Adapter Services
Introducing the adapter framework
Identifying types of adapters
Invoking a File adapter to read a file
Implement a Database adapter to query database data
Working with the JMS adapter

Working with Mediator Components
Explaining the Service Infrastructure
Creating a Mediator component
Defining a Routing Service
Adding Routing Rules
Creating XSL Transformations with the XSLT Mapper
Creating content-based routing filters
Exploring Domain-Value Maps and cross references

Developing a Simple BPEL Component
Creating BPEL components
Describing the Types BPEL Process Structure
Structuring a BPEL Process with Scope activities
Choosing global or local variables
Creating an Assign activity
Defining copy operations for the Assign activity
Creating and configuring a Transform activity

Orchestrating Services with BPEL
Describing conditions for business process orchestration
Providing and accessing services from BPEL
Importing XML schemas and setting message types
Creating and configuring a Partner Link
Invoking a service synchronously and asynchronously
Describing WS-Addressing and correlation concepts
Performing conditional branching by using a Switch activity
Adding and configuring cases for conditional branching

Implementing Coordination and Interaction Patterns
Implementing parallel processing by using a Flow activity
Adding and configuring Flow activity branches
Exploring request-response interaction patterns
Implementing a Pick activity with messages and alarm branches
Creating an execution loop with a While activity
Suspending a BPEL process with a Wait activity

**Handling Exceptions in Composite Applications**
- Describing basic error handling and propagation in SOA Composites
- Describing the SOA fault management framework
- Creating a WSDL fault and message for a synchronous service
- Creating messages for asynchronous faults
- Throwing faults in a BPEL process
- Catching faults in a BPEL process

**Managing Transactions with Services**
- Describing transactions with services
- Managing transactions with the Database adapter
- Describing and accessing Service Data Objects with Entity Variables
- Managing transactions with SDOs
- Understanding compensation handling within a BPEL process

**Implementing Human Task Services**
- Describing Human Task Concepts
- Designing a Human Task
- Invoking a Human Task from a BPEL process
- Generating ADF Task Forms for Human Tasks
- Adding E-mail Notification to a BPEL process

**Developing Business Rules**
- Explaining business rules concepts
- Describing the Oracle Business Rules architecture
- Creating rules and decision tables by using Oracle JDeveloper Rule Editor
- Integrating a simple rule with a BPEL process
- Describing the role of the Rules SDK

**Testing and Debugging Composite Applications**
- Creating test suites for composite applications
- Testing initiation of inbound messages, emulating outbound, fault, and callback messages
- Creating test cases with value-based and XML-based assertions
- Evaluating techniques and tool for debugging applications

**Securing Services and Composite Applications**
- Explaining security for services
- Describing the Fusion Middleware security architecture
- Attaching security policies at design time in JDeveloper
- Attaching security policies post-deployment in Enterprise Manager
- Discussing security propagation between applications and an SOA Composite

**Designing and Managing Business Events**
- Describing the Event Delivery Network
- Explaining the Event Delivery Network Configuration Types
- Describing Event Definition Language (EDL)
- Creating a business event
- Publishing an event
- Subscribing to an event
- Managing events in Oracle Enterprise Manager
Monitoring Composite Applications with Sensors and Oracle BAM
Creating and configuring BPEL sensors
Creating and configuring Composite sensors
Viewing Sensor information in Enterprise Manager
Publishing Sensors to Oracle BAM
Viewing BPEL sensor information in a BAM Dashboard
Introducing Oracle Complex Event Processing (CEP)

Integrating Service with Oracle Service Bus (OSB)
Describing the Oracle Service Bus (OSB) Architecture
Defining Business Services
Defining Proxy Services
Comparing OSB and Mediator Components