

# Fast Track to SOA and Java Web Services (JAX-WS) on the JBoss® Application Server (3 Days)

## Custom Training Institute

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## Fast Track to SOA and Java Web Services (JAX-WS) on the JBoss® Application Server (CTI 325)

*Students will learn the basic technologies underlying Web services, including WSDL, SOA, and UDDI, as well as current Web service architecture. They will learn how to build Web services with the new Java APIs, including JAX-WS, JSR-181 and SAAJ, as well as learning how to secure Web services and create XML-based Web services without SOAP.*

*Prerequisites: Good familiarity with Java programming. Some familiarity with XML and Web applications.*

*Minimum software requirements: Java 5 (J2SE 5.0 SDK.), JBoss 4.2.x App Server, Eclipse 3.4 (Ganymede) JEE IDE.*

*Minimum hardware requirements: Pentium at 1.5 GHz, 1 Gb RAM; 1 Gb free hard disk space before installation. Internet access.*

*Microsoft PowerPoint, Adobe Acrobat reader (pdf) on instructor's workstation for presentation purposes.*

### Module 1: Overview of SOA/Web Services

SOA (Service Oriented Architecture)  
Overview  
Web Services Overview/Relationship to SOA  
Web Services Architecture  
SOAP and WSDL Overview

### Module 2: Introduction to Java Web Services

Overview of Java Web Services  
JAX-WS and JSR-181  
Service Definition with @WebService  
Creating a Web Service with JAX-WS  
*Lab: Creating and Invoking a Simple Web Service*

### Module 3: WSDL - Web Services Description Language

Introduction  
XML Namespace and XML Schema Overview  
Namespaces and Schema in WSDL Documents  
WSDL Structure and Elements  
A WSDL Document  
Definitions, Types, Messages, PortTypes and Operations  
Bindings, Ports and Services  
SOAP 1.1 Binding for WSDL  
*Lab: Working with WSDL for Our Services*

### Module 4: SOAP

SOAP Overview  
Message Structure  
Envelope/Header/Body  
Detailed SOAP Message Structure  
SOAP Faults, Attachments  
SOAP Messaging and HTTP Binding  
SOAP Styles and Encoding  
*Lab: Examining SOAP Messages with tcpmon*

### Java Web Services APIs

#### Module 6: JSR-181

Overview  
@WebService, Modifying the Generated Service  
Other Annotations (@WebMethod, @SOAPBinding)  
The SDI (Service Endpoint Interface)  
*Lab: Defining a Service with an SEI*

#### Module 7: JAX-WS Capabilities

Overview  
WSDL to Java Mapping  
Capabilities (XML Messaging, Handlers, SOAP/HTTP, Client Programming)

#### Module 8: JAX-WS Clients

Programming Model, Generating Classes from WSDL  
Writing a JAX-WS Client  
Dynamic Clients  
*Lab: JAX-WS Client and Dynamic Client*

## **Fast Track to SOA and Java Web Services (JAX-WS) on the JBoss® Application Server (CTI 325) - continued**

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### **Module 9: SAAJ**

Overview, SAAJ Message Structure and API

Creating/Sending Messages

DOM Overview

Using DOM with SAAJ

*Lab: Creating a SAAJ Client*

### **Module 10: SOAP Handlers**

Overview and Processing

Logical and Protocol Handlers

Writing/Configuring a SOAP Protocol Handler

Writing/Configuring a Logical Handler

*Lab: Creating a Handler*

### **Module 11: JAXB - Java Architecture for XML Binding**

Overview and Architecture

JAXB and WSDL

JAXB Annotations

### **Module 12: Start from WSDL/Start from WSDL and Java**

Starting from WSDL

Binding Customizations

Starting from WSDL and Java

### **Module 13: Bare XML Web Services**

XML Messaging Overview

JAX-WS Providers

A SOAP Provider and Source Provider

XML Clients with Dispatch

XML/HTTP Messaging with Provider

Overview of REST and JAX-RS

*Lab: Provide-Based XML Messaging*

### **Module 14: Security**

Java EE Security/Role Based Security

Securing Web Services with BASIC

Authentication

Transport Security/HTTPS

Securing Web Services with HTTPS

WSS (WS-Security) Overview

*Lab: Web Service and Basic*

*Authentication*

*Lab: Web Service and HTTPS*

### **Module 15: EJB-Based Web Services**

EJB Overview

Programming EJB

Creating/Configuring EJB-Based Web Services

*Lab: Creating an EJB-Based Web Service*

### **Module 16: UDDI - Universal Description, Discovery and Integration**

UDDI Overview and Capabilities

JAXR - Java API for XML Registries

JAXR Infomodel and Architecture

Using the JAXR API

### **Module 17: WS-\* Overview**

WS-Interoperability (WS-I)

The WS-I Basic Profile

WS-Addressing

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