

## Java1.4EE Foundations – Servlets 2.4.3 & JavaServer Pages 2.0.2

Days of Training: 3

### Overview

This practical, application-oriented three-day course introduces Java Servlets technology and shows how to use it to develop simple to complex web applications. The course then introduces JavaServer Pages, or JSP, which is the standard means of authoring dynamic content for Web applications under the Java Enterprise platform. Students learn the Java Servlets architecture, the request/response cycle, and servlet life cycle, and how to build interactive web applications that parse and/or generate HTML forms. The course shows how Java servlets and JSPs establish a framework for writing Web applications and covers JSP 2.0 features in detail, from scripting elements to use of dedicated JavaBeans to JSP. Students will be able to create their own JSP applications, including interactive applications using HTML forms and pages that perform fairly complex processing using scripts and or actions. Although scripting is covered, the scriptless authoring style encouraged by the JSP 2.0 specification is emphasized and students will be well equipped to develop concise and effective JSP applications.

### Prerequisites

- Java programming experience.
- Knowledge of HTML and background in web applications is helpful but not necessary.

### At Course Completion

Upon successful completion of this course, students will be able to:

- Understand and appreciate the role of Java Servlets in the overall Java EE architecture
- Describe JavaServer Pages and their relationship to servlets & Java EE generally.
- Describe how a JSP is translated into a servlet and processed at runtime.
- Develop interactive web applications using HTML forms and servlets.
- Implement simple JSPs that use Java code in declarations, expressions and scriptlets.
- Implement an interactive Web application using JSP.
- Use Java exception handling and JSP error pages to handle errors in JSP applications.
- Implement session management for a JSP application.
- Preserve portability and ease of administration for a servlet application by parameterizing servlet code, using initialization parameters, properties files & JNDI
- Manage cookies to store client-specific information at various scopes and durations.
- Explain the use of JavaBeans in JSP and their role in enhancing the separation of business logic from page design.
- Write JSP expressions and implement JSPs that use them in favor of scripts.

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### Lesson 1: Web Applications

Web Servers  
Server-Side Programming  
Web Protocols and Web Applications  
Java Servlets  
Structure of a Java Servlet  
JSP

### Lesson 2: Servlets Architecture

Servlets Architecture  
Servlet and HttpServlet  
Request and Response  
Reading Request Parameters  
Producing an HTML Response  
Redirecting the Web Server  
Deployment Descriptors  
Servlets Life Cycle  
Relationship to the Container

### Lesson 3: Interactive Web Applications

Building an HTML Interface  
HTML Forms  
Handling Form Input  
Application Architecture  
Single-Servlet Model  
Multiple-Servlet Model  
Routing Servlet Model  
Template Parsers

### Lesson 4: Session Management

Managing Client State  
Sessions  
Session Implementations  
HttpSession  
Session Attributes  
Session Events  
Invalidating Sessions

### Lesson 5: Configuration & Context

The Need for Configuration  
Initialization Parameters  
Properties Files  
JNDI and the Component Environment  
Working with XML Data

### Lesson 6: JSP Architecture

JSP Containers  
Servlet Architecture  
Page Translation  
Types of JSP Content  
Directives  
Content Type  
Buffering  
Scripting Elements  
JSP Expressions  
Standard Actions  
Custom Actions and JSTL  
Objects and Scopes  
Implicit Objects  
JSP Lifecycle

### Lesson 7: Scripting Elements

Translation of Template Content  
Scriptlets  
Expressions  
Declarations  
Dos and Don'ts  
Implicit Objects for Scriptlets  
The request Object  
The response Object  
The out Object

### Lesson 8: Interactive JSP Applications

HTML Forms  
Reading CGI Parameters  
JSPs and Java Classes  
Error Handling  
Session Management  
The Session API  
Cookies and JSP

### Lesson 9: Using JavaBeans

Separating Presentation and Business Logic  
JSP Actions  
JavaBeans  
Working with Properties  
<jsp:useBean>  
<jsp:getProperty> and  
<jsp:setProperty>  
Using Form Parameters with Beans  
Objects and Scopes  
Working with Vectors

### Lesson 10: The Expression Language

Going Scriptless  
The JSP Expression Language  
EL Syntax  
Type Coercion  
Error Handling  
Implicit Objects for EL