



## Processing XML Using Java (TT4360)

**Length:** 3 days

### Description

This course is an intensive, hands-on treatment of how to generate and transform XML within Java and J2EE applications. The course is a balanced mixture of theory and practical labs designed to take students from the basic fundamentals of XML processing through to the related advanced technologies such as Java/XML interoperability. The students learn the various APIs in a structured manner to enable them to master the concepts, ideas, and patterns, which are reinforced in the lab exercises.

### Audience

This is an **intermediary** level Java programming course, designed for those needing to process XML from within Java applications.

### Prerequisite

A working knowledge of XML is expected.

### Topics

#### XML REVIEW

##### *XML Mechanics*

- XML Document Structure
- Well-Formed and Valid XML Documents
- Structure, Content and Format
- Working with XML

##### *Namespaces and Schemas*

- Namespace Defined
- Working with Namespaces
- XML Schema Overview
- Working with XML Schemas

#### JAXP AND SAX PARSING

##### *JAXP and SAX (Part 1)*

- Processing XML Using Parsers
- Validating and Non-validating
- JAXP Overview
- JAXP Usage Patterns
- SAX Parsing Using JAXP

##### *JAXP and SAX (Part 2)*

- SAX Events
- SAX API
- Handling Exceptions
- SAX Content Handling
- Designing SAX Content Handlers

#### JAXP AND DOM PARSING

##### *JAXP and DOM (Part 1)*

- JAXP Usage Patterns with DOM
- DocumentBuilders
- DOM Parsing Using JAXP

##### *JAXP and DOM (Part 2)*

- DOM Concepts
- DOM Nodes
- DOM API
- Handling Exceptions
- DOM Operations and Processing
- Designing DOM Processing

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### RENDERING: JAXP AND TRANSFORMATIONS

#### *XSLT Transformations in Java*

- JAXP/TRaX Concepts and Terminology
- Transformer Patterns
- Stream to Stream Transformations
- DOM to DOM Transformations
- Exception Handling with Transformers
- Identity Transforms
- Performance Considerations
- Working With XSLT Processors

### BINDING JAVA AND XML

#### *XML Interoperability with Java: JAXB*

- JAXB Concepts
- JAXB Class Generation
- JAXB Runtime Features
- On-demand Validation
- Consuming XML Using JAXB
- Generating XML Using JAXB

### SECURITY AND JAXP

#### *XML Signature, Encryption, and XWSS*

- Concepts and Terminology
- XML Signature
- XML Encryption
- XWSS: XML Security
- Processing Unsafe XML
- Vulnerabilities and Attacks

### SESSION: BEST PRACTICES

#### *Performance Issues*

- Review of Best Practices