

Internet Programming with XML

Creating and Deploying Web Services in Java

Module Objectives

- Learn Web Services in Java Technology
- Understand the Java Web Services Developer Pack components
- Know what are JAXP, JAXB, JAX-RPC, SAAJ and JAXR
- Build, deploy and run Web Services in Java

Reading Assignments:

- **Teach Yourself Web Services in 24 Hours:** Part III, page 201 - 214
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Java Technology and Web Services

The Java 2 Platform, Enterprise Edition (J2EE) platform provides the APIs and tools you need to quickly design, develop, test, and deploy Web services and clients that fully interoperate with other Web services and clients running on any platform. This full interoperability is possible because application data is translated "behind-the-scenes" to a standardized XML-based data stream. »

[Read More](#)

Overview of the Java APIs for XML and Web Services

The Java APIs for XML and Web Services let you write your Web applications entirely in the Java programming language. They fall into two broad categories: those that deal directly with processing XML documents and those that deal with procedures.

- Document-oriented
 - [Java API for XML Processing \(JAXP\)](#) [Tutorial](#)
enables applications to parse, validate and transform XML documents.
 - [Java Architecture for XML Binding \(JAXB\)](#) [Tutorial](#) [New Tutorial](#)
provides a fast and convenient way to bind between XML schemas and Java representations.
 - [SOAP with Attachments API for Java \(SAAJ\)](#) [Tutorial](#)
provides a standard way to send XML documents over the Internet from the Java platform.

- Procedure-oriented
 - [Java API for XML-based RPC \(JAX-RPC\) Tutorial](#) sends SOAP method calls to remote parties over the Internet and receives the results.
 - [Java API for XML Registries \(JAXR\) Tutorial](#) provides a uniform and standard Java API for accessing various kinds of XML registries.
- Both (in Java WSDP 2.0)
 - [Java API for XML Web Services \(JAX-WS\) Tutorial](#) [New Tutorial](#) allows developers to write message-oriented as well as RPC-oriented web services. It replaces JAXP and JAX-RPC.

Required Software for Building, Deploying and Running Web Services in Java

- [Java SE Technologies and Web Services](#)
- [Java EE Web Services Technologies](#) (Enterprise)
- Project [GlassFish](#) replaces the Java Web Services Developer Pack, the previous release vehicle for providing new web services between releases of the Sun Java System Application Server. » [Read More](#)
- [Java Web Services Developer Pack \(Java WSDP\) 2.0 \(Pre-Java 6 separate download\)](#)
a free integrated toolkit from Sun Microsystems that allows Java developers to build and test XML applications, Web services, and Web applications with the latest Web services technologies and standards implementations. Its components include implementations of the core WS and XML Java technologies that are fully tested against a number of different [containers](#).

The previous release of Java Web Services Developer Pack, Version 2.0, contains the new JAX-WS 2.0 EA, JAXB 2.0 EA, and SAAJ 1.3 EA implementations, the "integrated stack" for Web services. These three components represent a new architecture that establishes more logical relationships between Web services description, data binding, and SOAP attachment processing. The result is that deploying Web services with the integrated stack is easier, more efficient, and more reliable.

The Java WSDP 2.0 also includes an experimental release ("extremely EA") of JAX-WSA 1.0. JAX-WSA is Sun's implementation of the WS-Addressing specification from the World Wide Web Consortium.

- [Current Java Standard Edition \(JDK\)](#) or
- [Current JDK with Java EE \(includes Java WSDP\)](#)

The Java Web Services Resources:

- [Web Services Tutorials](#) [\(current version\)](#)

- [Java Web Services Tutorial \(For Java Web Services Developer's Pack, v2.0\)](#) [\(previous version\)](#)
- [Java Technology and Web Services](#)
- [Java Web Services APIs and Docs](#)
- [Java Web Services FAQs](#)
- [Java Web Services Developer Pack \(Java WSDP\) 2.0](#) [\(previous releases\)](#)

Java Technology Tools

Hands-on Assignment:

- **Final Project** due **Week 12**