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**Jim Keogh**

Columbia University Java Application Development Instructor





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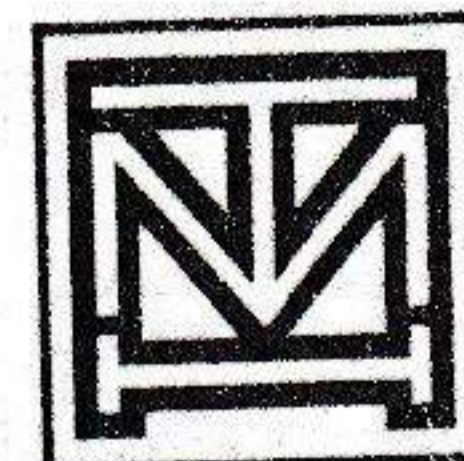
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**J2EE™**

# The Complete Reference

Jim Keogh



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Dedicated to Amber-Leigh Christine, the light of our lives





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# Introduction

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Java technology has evolved from a programming language designed to create machine independent embedded systems into a robust, vendor-independent, machine-independent server-side technology, enabling the corporate community to realize the full potential of web-centric applications.

Java began with the release of the Java Development Kit (JDK). It was obvious from the start that Java was on a fast track to becoming as a solution to many corporate systems problems. More interfaces and libraries were extended the JDK, as the corporate world demanded—and received—application programming interfaces (API) that addressed real world situations.

JDK API extensions fully integrated into the JDK with the release of the Java 2 Standard Edition (J2SE). J2SE contains all the APIs needed to build industrial strength Java applications. However, the corporate world felt J2SE lacked the strength required for developing enterprise-wide applications.

Again the corporate pushed Sun Microsystems, Inc. to revise Java technology to address needs of an enterprise. Sun then launched the Java Community Program (JCP), which brought together corporate users, vendors, and technologists to develop a standard for enterprise Java APIs. The result is the Java 2 Platform, Enterprise Edition commonly referred to as Java 2 Enterprise Edition (J2EE).

Enterprise systems are traditionally designed using the client/server model where client-side systems request processing from service-side systems. However, enterprise systems were undergoing their own evolution. A new model called web services gradually replaced the client/server model in corporations.

Application programmers assembled applications from an assortment of processing components called web services. Each web service was independent from other web services and independent from applications. Client-side application communicates with a middle-tier, server-side application, which in turn interacts with the necessary web services that are also located on the server-side.

With the adoption of the web services model in corporations, the JCP realized that J2EE must also go through another evolutionary cycle. With the introduction of J2EE 1.4, the Java community has merged J2EE technology with web services technology.

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## What's Inside

This book covers in detail all aspect of J2EE and Web services. The book is divided into these five parts:

- Part I J2EE Basics
- Part II Java Databases
- Part III J2EE Foundation
- Part IV Java Interconnectivity
- Part V Web Services
- Part VI Appendixes

Part one provides a comprehensive discussion of J2EE basics. In this part you receive an overview of J2EE and the foundation of the J2EE architecture and framework. You are also presented with the best practices for designing and developing a J2EE application.

Database technology is a critical component of every J2EE application. In the second part of the book you learn about database concepts and Java data object and how to incorporate basic and advanced JDBC techniques to build even the most complex and challenging J2EE applications.

As you'll discover as you read chapters of this book, J2EE embraces many existing Java technologies. These include Java API of XML Processing (JAXP), Java API for XML Messaging (JAXM), Java Servlets, Java ServerPages, and Enterprise JavaBeans. Each of these technologies is detailed in Par III J2EE Foundation.

Part IV of this book covers Java Interconnectivity, which shows you how to communicate to Web services, objects, and other applications through the use of an assortment of Java technologies. These include Java Mail, Java IDL/CORBA Common

Object Request Broker Architecture, Java Remote Method Invocation, Java Messaging Service (JMS), Java Security, and Java Naming and Directory Interface.

It is in Part V of the book where you learn web services technology and how to incorporate web services technology into your J2EE application. Topics include SOAP, Universal Description, Discovery, Integration (UDDI), Electronic Business XML (EbXML), Java API for XML Registries (JAXR), and the Web Service Description Language (WSDL).

Part VI is a handy reference guide that I've provided for those moments when you need some quick information to get you back on track, but don't want to re-read the theory you learned in the main part of the book. If you want quick, succinct information on J2EE classes, methods, and interfaces, look no further.

---

## **A Book for All Programmers**

J2EE: The Complete Reference is designed for all Java programmers, regardless of their experience level. It does assume, however, a reader is able to create at least a time Java program. If you are just learning Java this book will make an excellent companion to any Java tutorial and serve as a source of answers to your specific questions. Experienced Java and J2EE pros will find the coverage of the many new web services features very helpful.

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## **Don't Forget: Code On The Web**

Remember, the source code for all of programs in this book is available free of charge on the Web at <http://www.osborne.com>. Downloading this code prevents you from having to type in the examples.

