Bluetooth for Java

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Bluetooth for Java
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*First and foremost, I dedicate this book to the Lord Jesus Christ, without whom
I could not have written this book. I also dedicate this book to my loving wife,
Schrell, and my two wonderful children, Lydia and Bruce Jr.*

—Bruce Hopkins

Dedicated to my parents, Prof. Antony Mampilly and Prof. Kochurani Mampilly.

—Ranjith Antony

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About the Authors

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—Ranjith Antony

Introduction

IN THE NEAR FUTURE, Bluetooth wireless technology will be embedded into nearly every consumer electronics device. Devices like mobile phones, PDAs, laptops, desktops, calculators, watches, keyboards, mice, printers, scanners, cameras, and video game consoles are just a sample of what device manufacturers will be embedding with Bluetooth. Today, Bluetooth chipsets can be purchased (in mass quantities) for \$5, so it's only a matter of time before many of your personal devices become Bluetooth enabled.

With Java, you get the ability to create applications that are agnostic of their underlying hardware platform. As you can see, this makes Java the perfect programming language for Bluetooth! Regardless of the hardware or OS used for your PDA, mobile phone, watch, etc., you can use the same programming language to create your Bluetooth applications. This book is all about how to create wireless applications using Java and Bluetooth.

How This Book Is Organized

Here's an overview of what's covered in this book:

Chapter 1: Introducing Bluetooth: If you're completely new to Bluetooth, then this chapter is for you. In Chapter 1, we give a brief introduction to Bluetooth, with a general explanation of what you can do with the technology.

Chapter 2: Bluetooth 1.1: In this chapter, we dive right into the dirty details of the Bluetooth protocol. Here we define the roles and relationships between the Bluetooth stack, Bluetooth profiles, and Bluetooth hardware. If you've seen Bluetooth terminology before, but you don't know the difference between SDP and SDAP for instance, then this chapter will help clear things up.

Chapter 3: Before You Get Started: Chapter 3 is very appropriately named because it covers all the loose ends that need to be addressed before we show you how to integrate Bluetooth and Java.

Chapter 4: Understanding the Java Bluetooth API: This chapter covers the full life cycle of a Bluetooth application (whether you're using Java or not). This chapter also shows you how to use the `javax.bluetooth` package of

the official Java Bluetooth API (the JSR-82) in order to create Bluetooth applications.

Chapter 5: Bluetooth with J2ME MIDP: The first complete example of a Java Bluetooth application is explained in Chapter 5. Before we present the code, however, we provide a short review of the J2ME MIDP.

Chapter 6: Creating a Bluetooth Print Server with JPS API: Now with a complete example under your belt, things will start to get pretty exciting. In Chapter 6, we introduce you to the Java Printing API and show you how to create a Bluetooth print server.

Chapter 7: Java and OBEX: Chapter 7 covers the foundation of the OBEX protocol and provides an example on how to transfer files using the `javax.obex` package of the JSR-82.

Chapter 8: Using a Bluetooth Simulator: As you might have guessed, this chapter is all about how to create Java applications that interact with virtual Bluetooth devices. In this chapter, the entire Bluetooth network is simulated in software.

Chapter 9: Bluetooth Security: Chapter 9 covers the security measures provided by the Bluetooth specification in order to make wireless applications more secure.

Chapter 10: Wireless Embedded Systems with the Micro BlueTarget: The primary focus of Chapter 10 is the Micro BlueTarget by Smart Network Devices. In this chapter, we explore the possibilities of creating applications with a fully functional computer that fits in your hand and includes an implementation of the JSR-82.

Chapter 11: Enterprise Bluetooth Applications with the Ericsson BlipNet: In Chapter 11, we introduce you to enterprise Bluetooth applications and show you how to construct them using Java and the Ericsson BlipNet.

Chapter 12: Bluetooth and Jini: In the final chapter of the book, we provide an overview of Jini network technology and describe how to implement Jini and Bluetooth together.

Appendix A: javax.bluetooth: Appendix A is a handy reference that contains all the method signatures of the `javax.bluetooth` API.

Appendix B: javax.obex: Appendix B is a handy reference that contains all the method signatures of the `javax.obex` API.

Appendix C: Java Bluetooth Development on the PalmOS Platform: Appendix C provides a quick overview of how to get started creating Java Bluetooth applications on the Palm OS platform.

Appendix D: BlipNet 1.1 API: Appendix D contains full descriptions of the classes, exceptions, and interfaces that comprise the BlipNet API. This appendix will be really useful to have on hand when developing BlipNet applications.

Intended Audience

So who are you? This book really has two audiences. If you're a Java developer, then this book assumes that you're an intermediate Java developer with little or no experience with Bluetooth. You'll get the most out of this book if you've written a few Java classes on your own (especially J2ME applications).

If you're a Bluetooth developer, then this book becomes useful to you after Chapter 2. If you've never used Java before, then we'd suggest that you read the first few chapters of a J2ME book before you read this book.

The Code

The source code for this book is available at <http://www.apress.com> in the Downloads section. The book's companion Web site, <http://www.javablueetooth.com>, also contains the source code, as well as other useful resources such as a list of recommended Bluetooth hardware for running the examples.