
Preface

In the past three years, Sun has collaborated with major consumer device manufacturers and other companies to create a highly portable, secure, small-footprint Java™ application development environment for resource-constrained, wireless consumer devices such as cellular telephones, two-way pagers and personal organizers. This work started with the development of a new, small-footprint Java virtual machine called the *K Virtual Machine* (KVM). Two Java Community Process (JCP) standardization efforts, *Connected, Limited Device Configuration* (CLDC) and *Mobile Information Device Profile* (MIDP), were then carried out to standardize the Java libraries and the associated Java language and virtual machine features across a wide variety of consumer devices. Twenty-four companies participated in these standardization efforts directly, and more than five hundred companies and individuals participated indirectly by sending feedback while the standardization efforts were in progress. Major consumer device companies such as Motorola, Nokia, NTT DoCoMo, Palm Computing, Research In Motion (RIM) and Siemens played a key role in these efforts.

This book intends to make the results of the standardization work in the wireless Java technology area available to the wider software development community. At the high level, this book combines two Java Community Process Specifications, JSR-30 (CLDC 1.0) and JSR-37 (MIDP 1.0), and presents them as a single monograph. We have added a general introduction to the Java 2 Platform, Micro Edition (J2ME™), provided more background material, and included a number of sample applications to illustrate the use of CLDC and MIDP in the real world. We also provide some guidelines and instructions for getting started with Java 2 Platform, Micro Edition.

A reference implementation of the software discussed in this book is available from Sun Microsystems under the Sun Community Source License (SCSL).

Intended Audience

This book is intended for software developers, content providers and other professionals who want to develop Java™ software for resource-constrained, connected devices. The book is also targeted to consumer device manufacturers who want to build small Java Powered™ devices and would like to integrate a compact Java application development platform in their products.

Objectives of This Book

This book intends to

- provide an overview of Java 2 Platform, Micro Edition (J2ME™),
- provide a general introduction to the application development platforms defined by the J2ME standardization efforts,
- explain the technical aspects of the J2ME Connected, Limited Device Configuration (CLDC),
- explain the technical aspects of the J2ME Mobile Information Device Profile (MIDP),
- provide sample programs to illustrate the use of CLDC and MIDP,
- help you write your own J2ME applications.

How This Book Is Organized

The topics in this book are organized as follows:

- **Chapter 1, “Introduction,”** provides a context for Java 2 Micro Edition and the CLDC and MIDP Specifications.
- **Chapter 2, “Overview of Java 2 Platform, Micro Edition (J2ME™),”** provides an overview of Java 2 Micro Edition, its configurations and profiles.
- **Chapter 3, “Goals, Requirements, and Scope,”** defines the goals, requirements and scope of the CLDC and MIDP standardization efforts.
- **Chapter 4, “High-Level Architecture and Security,”** presents the high-

level architecture of the CLDC and MIDP standards, as well as discusses the security features of these standards.

- **Chapter 5, “Connected Limited Device Configuration,”** introduces the CLDC standardization effort and summarizes the supported Java programming language and virtual machine features compared to the Java 2 Platform, Standard Edition.
- **Chapter 6, “CLDC Libraries,”** introduces the Java class libraries defined by the *CLDC Specification*.
- **Chapter 7, “Mobile Information Device Profile,”** introduces the MIDP standardization effort.
- **Chapter 8, “MIDP Application Model,”** introduces the *MIDlet* application model defined by the *MIDP Specification*.
- **Chapter 9, “MIDP User Interface Libraries,”** introduces the user interface libraries defined by the *MIDP Specification*.
- **Chapter 10, “MIDP Networking Libraries,”** introduces the networking libraries defined by the *MIDP Specification*.
- **Chapter 11, “MIDP Persistence Libraries,”** introduces the record management system (RMS) defined by the *MIDP Specification*.
- **Chapter 12, “Additional MIDP APIs,”** introduces some additional MIDP application programming interfaces (APIs) such as Timers.
- **Chapter 13, “Sample Applications,”** illustrates the use of CLDC and MIDP libraries through some sample applications.
- **Chapter 14, “Summary,”** provides a summary of the topics discussed in the book, as well as outlines some future directions.
- **Appendix A, “CLDC Application Programming Interface,”** contains the application programming interface documentation in Almanac format for the CLDC.
- **Appendix B, “MIDP Application Programming Interface,”** contains the application programming interface documentation in Almanac format for the MIDP.

Related Literature and Helpful Web Pages

The Java™ Language Specification, First Edition by James Gosling, Bill Joy, and Guy L. Steele. Addison-Wesley, 1996, ISBN 0-201-63451-1

The Java™ Language Specification, Second Edition by James Gosling, Bill Joy, Guy L. Steele, and Gilad Bracha. Addison-Wesley, 2000, ISBN 0-201-31008-2

The Java™ Virtual Machine Specification, Second Edition by Tim Lindholm and Frank Yellin. Addison-Wesley, 1999, ISBN 0-201-43294-3

Connected, Limited Device Configuration Specification
<http://java.sun.com/aboutJava/communityprocess/final/jsr030/>

Mobile Information Device Profile Specification
<http://java.sun.com/aboutJava/communityprocess/final/jsr037/>

Java 2 Micro Edition Product Web Page
<http://java.sun.com/products/j2me/>

K Virtual Machine (KVM) Product Web Page
<http://java.sun.com/products/kvm/>

Connected, Limited Device Configuration (CLDC) Product Web Page
<http://java.sun.com/products/cldc/>

Mobile Information Device Profile (MIDP) Product Web Page
<http://java.sun.com/products/midp/>

J2ME Wireless Toolkit Product Web Page
<http://java.sun.com/products/j2mewtoolkit/>