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# SOAP Programming *with* Java™

Bill Brogden

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# SOAP Programming *with* Java<sup>TM</sup>

Bill Brogden



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*To my wife, Rebecca, my unfailing  
support through many years.*

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# Acknowledgments

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The contributors to the Apache SOAP project and developers mailing list for creating the open-source code that has been so useful in creating this book.

Finally, the wonderful people at Sybex for being a great group to work with!

# Introduction

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**T**he landscape of computing was completely changed in the last few years by a remarkable outbreak of cooperation between competitors in the software industry. As a consequence of the global nature of the Internet, and recognizing that computing no longer goes on in isolated islands of proprietary software, many important standards have been created.

One of the biggest success stories is the rapid acceptance of XML as a flexible and non-proprietary way of describing data in a form that is readable by both humans and computers. This success has encouraged industry leaders to propose SOAP (Simple Object Access Protocol) as a way of using XML for conveying not just data but also actions to be carried out on the data.

As a Java programmer, you are ideally positioned to take advantage of SOAP. Sun developers pioneered and supported the development of the basic technology of XML, so it is not surprising that some of the best tools for SOAP and XML are written in Java.

## The Connectivity Revolution

Sun has been saying “the network is the computer” for years; now that vision is bearing fruit. We have a revolution in programming paradigms, from computing as something that is carried out in isolated systems to computing as a process carried out by multiple cooperating processes that may be on hardware scattered around your office or across the entire Internet.

Hardware engineers have risen to meet the connectivity challenge with cheaper and more powerful networked devices. Practically every day brings new hardware capabilities, and the great thing for us programmers is that they all can run Java programs. I would not be surprised if we end up with more Java running on mobile phones and PDAs than on desktops.

Without higher levels of organization, SOAP would not be so revolutionary. Fortunately, there are widely accepted standards that enable you to make your SOAP service available on the Web with little hassle. I am referring to the Web Services Descriptive Language (WSDL) that lets you define an interface, and the Universal Description, Discovery, and Integration (UDDI) standard, which lets you advertise the availability of your service. Of course these standards also let you find other people’s SOAP services that may be able to cooperate with yours!



## Implications for Programmers

It is interesting to speculate on the implications of widespread acceptance of SOAP for individual programmers and small organizations. In a public registry of SOAP services, your product has equal standing with the products of large organizations. This eliminates many of the marketing barriers that tend to keep good products from small organizations out of the public eye.

There are also interesting implications for large organizations, especially those with widely distributed operations. I think that using SOAP to improve distribution of resources inside corporate networks will be the first large-scale application in many big organizations.

## Writing about SOAP

With everything in the SOAP world changing rapidly, I decided to avoid writing as if we already had the ideal API in the existing Apache SOAP project or any other existing toolkit. Instead, I have tried to emphasize the general approaches that you must use in dealing with SOAP. Naturally, the examples have to use a particular toolkit that may be superseded soon, but the general outline will remain valid.

I have also tried to avoid what seems to me to be an excessive focus in recent literature on SOAP messages traveling by HTTP and talking to web servers. Sure, that is going to be a big application area, but SOAP messages can travel by other paths as well. For that reason, I have dug into other message technology that you may not be familiar with, such as Java Message Service, JavaSpaces, JavaMail, and the Java 2 Micro Edition (J2ME) Wireless Toolkit.

## About the CD-ROM

The CD contains the source code for all of the significant software used in the book, organized by chapters. In addition, it includes the source and compiled class files for the Util-Snoop program that is used in several chapters to examine the conversations between SOAP clients and servers. Several prominent vendors have consented to provide evaluation copies of programs that I think you will find interesting and useful.

## Contacting the Author

I would be delighted to hear from any reader with suggestions, reports of errors in this text, or your SOAP success stories. You can reach me at [wbrogden@bga.com](mailto:wbrogden@bga.com) in cyberspace. My real-space address is William Brogden, 130 Woodland Trail, Leander, TX 78641.



I will be maintaining an area on the LANWrights, Inc. website for additional SOAP resources at:

<http://www.lanw.com/books/javasoap/>

Reports of errata will be available at:

<http://www.lanw.com/books/errata/>

## About the Author

William (Bill) Brogden has been working with Java since version 1.0 was released. His first big Java project was an applet that presented animated near-real-time major league baseball games. Bill is employed by LANWrights, Inc., where he has been using Java technology for online courseware. Bill has written several books about Java, including *Java Developer's Guide to Servlets and JSP* (Sybex, 2000).

In his spare time, Bill reads science fiction and trains basset hounds. He lives in the woods near Austin, Texas, with his wife Rebecca and numerous hounds.

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