Foreword

Debugging. That part of the job that we programmers don't enjoy, but can't avoid. (Of course, it's still not as bad as documentation.) When faced with debugging, we want the best tools we can get, and we want to know how to use them to find our problems, fix them, and get back to the fun part of our jobs (or hobbies).

That's what this book is all about: the open-source tools for finding problems and fixing them. From simple applications to kernel debugging, this book covers a wide range of the problems you may encounter and shows you what tools are out there, where to get them if you don't already have them, and how to use them. There's a lot here, even for experienced programmers.

The Linux kernel, the GDB debugger, and essentially all the tools described in this book are Free Software. The word "Free" (with a capital "F") means Free as in Freedom. In The Free Software Definition (*http://www.gnu.org/philosophy/free-sw.html*), Richard Stallman defines the freedoms that make software Free. Freedom 0 is the freedom to run the software. This is the most fundamental freedom. But immediately after that is Freedom 1, the freedom to study how a program works. This freedom is often overlooked. However, it is very important, because one of the best ways to learn how to do something is by watching other people do it. In the software world, that means reading other people's programs and seeing what they did well, as well as what they did poorly.

The freedoms of the GPL are, at least in my opinion, one of the most fundamental reasons that GNU/Linux systems have become such an important force in modern computing. Those freedoms benefit you every moment you use your GNU/Linux system, and it's a good idea to stop and think about that every once in a while.

With this book, we take advantage of Freedom 1 to give you the opportunity to study debugging and problem solving in an open-source environment. Because of Freedom 1, you will see these programs in action, and you will be able to learn from them.

And that brings me to the Prentice Hall Open-Source Software Development series, of which this book is one of the first members. The idea for the series developed from the principle that reading programs is one of the best ways to learn. Today, the world is blessed with an abundance of Free and open-source software—with source code just waiting (maybe even eager!) to be read, understood, and appreciated. The aim of the series is to be your guide up the software development learning curve, so to speak, and to help you learn by showing you as much real code as possible.

I sincerely hope that you will enjoy this book and learn a lot. I also hope that you will be inspired to carve out your own niche in the Free Software and open-source worlds, which is definitely the most enjoyable way to participate in them.

Have fun!

Arnold Robbins

Series Editor