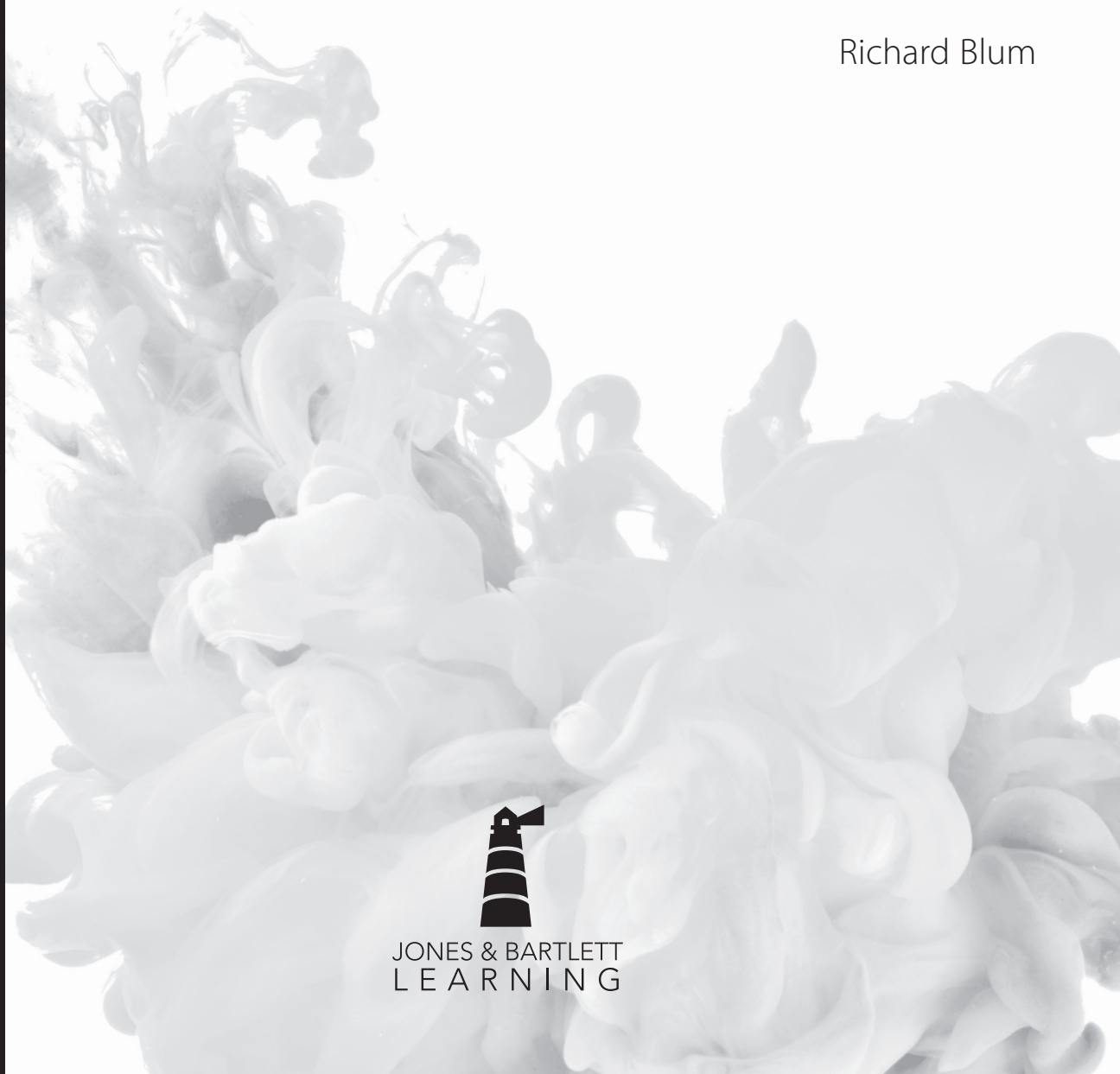
SECOND EDITION

Linux Fundamentals

Richard Blum



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To all the teachers, coworkers, students, friends, and Internet posters who continue to teach me new things every day.

"An intelligent heart acquires knowledge, and the ear of the wise seeks knowledge."
Proverbs 18:15 (ESV)

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Preface

The Linux world is constantly changing, requiring new knowledge and skills to work as a Linux system administrator. This second edition of *Linux Fundamentals* not only updates the first edition with new material, but also changes the book's focus a bit, from a basic approach to Linux to a more advanced server-oriented look at using Linux. While the first edition tracked the skills needed to meet the LPI Linux Fundamentals exam requirements, this edition tracks the more advanced CompTIA Linux+ exam requirements.

The CompTIA Linux+ exam is oriented toward having the skills needed to work as a Linux system administrator in a commercial Linux server environment. Thus, this edition dives deeper into the Linux server environment, covering the commands you are expected to know for the Linux+ exam. In the examples I use both Red Hat and Debian-based Linux distributions so you will have experience working in both of those Linux server environments. The updated chapters provide expanded coverage on how to manage users, files, devices, and filesystems in a multi-user networked server environment.

In these dangerous times, nothing is more important than having a secure Linux system. This edition adds a new chapter focusing on Linux security. It covers the popular SELinux and AppArmor tools for implementing mandatory access control to files, as well as providing tips on using encryption and firewalls to keep your data safe both on and off the network.

Finally, this second edition ends with a brief look at the popular topics of virtualization, containers, and orchestration. These have become hot topics in the IT world, and Linux has played an important role in each of these technologies. The final chapter provides an overview of just how to use these technologies in a Linux environment.

Acknowledgments

First, all glory and praise go to God, who through His Son, Jesus Christ, makes all things possible and gives us the gift of eternal life.

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Finally, I would like to thank my wife Barbara for her patience and the life-sustaining baked goods she prepared to help me keep up my energy while writing!

About the Author

RICHARD BLUM, Linux+ ce, has worked in the IT industry for more than 35 years as both a systems and a network administrator. During that time he's had the opportunity to work with lots of different computer products, including many different flavors of UNIX, and of course, Linux. Over the years he's also volunteered for several nonprofit organizations to help support small networks that had little financial support. Rich is the author of many Linux-based books for total Linux geeks, and teaches online courses in Linux and web programming. When he's not busy being a computer nerd, Rich enjoys playing piano and bass guitar and spending time with his wife, Barbara, and two daughters, Katie and Jessica.