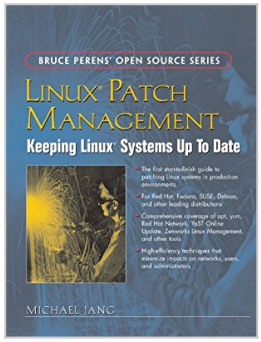

Linux Patch Management: Keeping Linux Systems Up To Date

By Michael Jang

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This book will guide you through managing patches and updates on one Linux computer or networks of Linux computers. You will learn to: Manage Linux updates on a network and minimize update loads in an internet connection, Minimize reliance on specific Linux distributions, Learn how to update every Linux computer on the local network without overloading the Internet connection.

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Preface

Welcome to *Linux Patch Management*! This is the book that can guide you through managing patches and updates on one Linux computer or networks of Linux computers.

What This Book Is About

It's important to keep Linux computers up to date. Linux developers are constantly updating key services to enhance security, add features you need, fix bugs that hinder your productivity and the productivity of your users, and help your systems to work more efficiently. These updates are known as patches. Most Linux distributions make gigabytes of patches available over the Internet. These updates cannot help you unless you know how to manage patches for the different Linux systems on your network.

This book assumes you have some sort of high-speed Internet connection that can help you download these patches. You may need to download hundreds of megabytes of patches, and that is not realistic on a 56Kbps telephone modem. If you have to download hundreds of megabytes on all the Linux computers in your office, you might overload all but the fastest business-quality high-speed connections.

In this book, I describe how you can manage patches on Red Hat/Fedora, SUSE, and Debian Linux systems. While Red Hat and SUSE have developed specialized update tools for their distributions, it's also possible to use community tools, such as apt and yum, on many Linux distributions.

To this end, you can use this book as a guide to managing patches on the noted distributions. In addition, you can use apt and yum on a number of other Linux systems. As a Linux administrator, you can use this book to learn to manage the hundreds of megabytes, or even gigabytes, of patches on a wide variety of Linux systems.

After you learn to manage patches on individual Linux systems, you can extend those skills to managing a group of Linux computers on a network. If you have a sufficient number of Linux systems, you may even want to build your own patch management repositories.

Patches on one or two Linux computers may work well with a standard high-speed Internet connection. If you have a substantial number of Linux computers, you might download the patches from each of these computers over the Internet. To keep these downloads from overloading your Internet connection, you can pay a premium for an even higher-speed connection.

Alternatively, you can use the techniques described in this book to configure a local patch management repository. This can help you avoid buying a faster high-speed Internet connection. *Thus, a patch management repository can help you save a lot of money*. In addition, you can update a group of computers more quickly when you download patches from a local repository.

Red Hat supports patch management on a group of Red Hat Enterprise Linux (RHEL) computers through the Red Hat Network. SUSE supports patch management on a group of SUSE Enterprise Linux Server and Workstation computers with YaST Online Update and Zenworks Linux Management. You can use these tools to manage patches on individual systems or on networks of these distributions. Red Hat and SUSE provide these tools to help you manage patches. If you have a large number of systems, these tools can help you keep the loads on your Internet connection to a minimum and speed up the updates you need.

But this book is not limited to Red Hat and SUSE Linux. It also can help you keep the loads on your Internet connection to a minimum when managing other distributions, including Debian and Fedora Linux. It also

uses the tools designed by Conectiva (now Mandriva) for RPM-based distributions. The skills you learn can help you manage patches on allied distributions, including Yellowdog, Ubuntu, Progeny, Lycoris, and the "rebuild" distributions that use the source code released for Red Hat Enterprise Linux.

What You Need to Know Before Reading This Book

This book assumes you have some experience with Linux. While it does not require that you have a network of Linux computers, you can take full advantage of the techniques described in this book only if you have such a network.

Some of the tools described in this book require a subscription. For example, access to the Red Hat Network Proxy Server requires a specialized subscription to the Red Hat Network. Access to SUSE Linux Enterprise Server updates requires subscription access to the YaST Online Update Server. Access to Novell's Zenworks Linux Management also requires a subscription. If you want to try out these tools, navigate to the associated Web sites. Trial subscriptions may still be available. And read this book!

Some of the tools described in this book are freely available. They are already included with many Linux distributions. Some have been customized by third parties for popular distributions, such as Red Hat Enterprise Linux. They are designed and maintained by the Linux community and are available courtesy of the GNU General Public License (http://www.gnu.org/copyleft/gpl.html).

Who You Are, and Why and How You Should Read This Book

This book is designed for experienced and budding Linux administrators. Patch management is a critical Linux administration skill. This book can help you manage patches on individual Linux systems and can help you manage patches on networks of Linux computers.

With these skills, you can keep your Linux systems up to date with the latest security, feature, and bug updates. You can keep a network of Linux systems up to date in this way with a minimum load on your Internet connection.

If your experience is limited to one or two Linux computers, this book can help you think beyond them to network management and what you will need to do in the workforce for a large group of Linux systems.

You can use this book to evaluate the patch-management features associated with several different distributions. The more patch management tools you know, the more you can do to maintain different Linux distributions on your network. For a general overview of patch management clients, read Chapter 1, "Patch Management Systems."

If you're evaluating patch management using the Red Hat Network and the associated Proxy Server, read Chapter 2, "Consolidating Patches on a Red Hat/Fedora Network." If you're evaluating patch management using the YaST Online Update Server or Zenworks Linux Management, read Chapter 3, "SUSE's Update Systems and rsync Mirrors." You'll also find information on how you can use rsync to mirror repositories from most all Linux distributions.

If you're evaluating patch management on Debian Linux systems, read Chapter 4, "Making apt Work for You." As Knoppix and Ubuntu are built on Debian, the same tools can help you manage systems associated with those distributions, as well. You'll learn how to create a Debian repository on your own network.

If you prefer the apt patch management commands associated with Debian Linux, you can also use them on

many RPM-based distributions. If that is what you want, read Chapter 5, "Configuring apt for RPM Distributions." That chapter will show you how to create an apt-based repository for a RPM-based distribution on your own network.

If you prefer the affinity of yum for RPM-based distributions, read Chapters 6 and 7. Chapter 6, "Configuring a yum Client," details how you can use yum to keep your systems up to date. Chapter 7, "Setting Up a yum Repository," details how you can create yum repositories on your own network.

How This Book Is Laid Out

Here is a brief summary of all the chapters:

- Chapter 1 provides a basic overview of how you can manage patches on an individual Linux system. Techniques that we describe cover RHEL, SUSE Linux (formerly known as SUSE Linux Professional), SUSE Linux Enterprise Server, Debian Linux, Fedora Linux, and some of the rebuilds of RHEL. This chapter also previews some of the tools you can use to create a patch management repository on your own network.
- Chapter 2 starts by providing a model of how you can create a repository for Fedora Linux. It continues with a focus on the Red Hat Network, specifically the associated Proxy Server, which can help you cache updates. It also adds more detail on how you can manage patches on systems with RHEL rebuild distributions.
- Chapter 3 is focused on the patch management tools created by SUSE and Novell for their Linux systems. It also describes how you can use rsync to mirror update servers for all Linux distributions. You can point YaST Online Update to a variety of local or network sources, such as a local patch management server, which you can copy from the mirror of your choice. Finally, we describe how Zenworks Linux Management can be installed on SUSE Linux Enterprise Server or even RHEL to administer patches on a variety of SUSE and RHEL clients.
- Chapter 4 guides you through the fundamentals of the apt commands, along with their capabilities. By the time you complete this chapter, you'll know how to use various apt commands, the aptitude utility, and the GUI Synaptic Package Manager to manage your system. Finally, this chapter guides you through different tools available for downloading and synchronizing your local repository with the mirror of your choice.
- Chapter 5 helps you learn to install and use many of the apt tools from Chapter 4 on RPM-based distributions, such as Fedora and SUSE Linux. Based on the work of Conectiva (now Mandriva) Linux, you can use the tools described in Chapter 5 to create and maintain an apt repository for several different RPM-based distributions.
- Chapter 6 supports the use of yum as a client on RPM-based distributions. Many Linux users prefer yum because of its Python-based compatibility with RPM systems. It's now the default update tool for Fedora Linux. You can even install and use yum on RHEL (and rebuild distributions). While GUI tools for yum are not yet stable, the Yum Extender appears to be most promising.
- Chapter 7 helps you design, populate, and manage your own yum Repository on a RHEL computer. You can use this repository to maintain Fedora Linux systems. It includes guidelines that can help you minimize the downloads required to create the repository. Finally, if you have authorized subscriptions, this chapter provides instructions on how you create a yum repository for a network of RHEL computers.

Conventions Used

Command line operations are called out with a monospaced font. The prompt is assumed; for example, the following command would be run at a Linux command line interface:

```
up2date --show-channel
```

Commands are often included in the text of a paragraph in a similar monospaced font. For example, if you see up2date --show-channel, you could type that text in a command line interface.

Many URLs in this book do not include a prefix such as http://, unless the context is not obvious. For example, when we refer to the vsFTP home page at vsftpd.beasts.org, we are referring to the associated Web page. But remember, there are other TCP/IP ports and prefixes, such as ftp://, rsync://, and file:///.

Long commands are written on multiple lines for clarity (as shown here), but should be typed on one line. A backslash () is inserted in the line to indicate that it is all one line; for example,

```
rsync -av --exclude debug
rsync://mirrors.kernel.org/fedora/core/updates/3/i386/*
/var/ftp/pub/yum/3/i386/updates/
```

Notes, Warnings, and Tips appear in the text as follows:

Note - Particular points that need to be emphasized appear in a box to alert you.

Warning - The warning box is used to emphasize an issue or concern that might be encountered and should be avoided.

Tip - A box labeled with the above denotes information that is specifically useful.

Acknowledgments

While it is my name on the cover, the production of a book is a team effort. Outside of the team, I'd also like to thank Todd Warner of Red Hat, as well as Martin Buckley, Sascha Wessels, Marissa Krupa, and Jasmin Ul-Haque of Novell/SUSE for their help.

Naturally, Linux would not have the world-class patch management tools without its world of dedicated developers. The Debian developers behind apt, the Yellowdog developers behind yum, the Conectiva (now Mandriva) developers who brought apt to RPM-based distributions, as well as those who have added to the associated tools, all deserve special thanks.

Also important to this process are the editors at Prentice Hall: Chris Zahn, Jill Harry, Karen Gettman, Ebony Haight, Michael Thurston, Elise Walter, and Debbie Williams. I could not have made this book into a quality

work without the reviews of Elizabeth Zinkann, Joe Brazeal, Matthew Crosby, Bret Strong, George Vish, Aaron Weber, and Fabien Gandon. This book would not have been possible except for the vision of the Open Source Series editor, Bruce Perens.

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