

Juniper



路由器 参考大全 (英文版)

[美] Jeff Doyle 等 编著
Matt Kolon

覆盖了所有主要协议,包括 IS-IS, BGP4, OSPF, MPLS 和 RIPv2。 | 解释了 JUNOS 是如何工作的。 | 提供了有关 Juniper Networks M 系列路由器家族的完整细节。

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Jeff Doyle Matt Kolon

Juniper Networks Routers: The Complete Reference

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内 容 提 要

本书全面系统地介绍了 Juniper 路由器方方面面的知识，全书共分为 16 章，分别介绍了硬件与体系结构、Juniper 软件设计、JUNOS 软件命令行接口、系统管理与服务、接口配置与控制、协议独立的路由、路由策略、RIP、OSPF 理论与配置、IS-IS、域间路由选择理论与案例研究、MPLS 概述、MPLS VPN 概述、Internet Processors II 与防火墙过滤器等。

本书由知名的网络专家编写，是学习 Juniper 路由器知识的必备教材，本书还可以作为一些疑难问题的速查手册。

—Peter Moyer

My work on this book is dedicated to my four girls: Jazmin, Kristin, Lorin, and Kathy

—Jason Rogan

My chapter is dedicated to my Mother.

—Scott Robohn

make all the hard work worth the effort.

To my wife, Stephanie, and my children, Holly, Kelsey, Benjamin, and Samantha. You

—Galina Pildush

everything is possible!

It is to her parents, husband, and kids—David and Joseph—that Galina is grateful for

their faithful patience, support, and understanding. Thank you for believing that

—Steven Holman

back many years to the first time she told me she was proud of me. I still remember.

also like to dedicate my chapter to my Mom, whose influence in motivating me stems

Happiness, my wife Lynn whose cheerful nature never ceased to encourage me. I would

I would like to dedicate my chapter to my life's love and companion, my Little

—E. Gary Hauser Jr.

project and ignoring them too much!

Aishah and our two dogs, who never let me forget when I was way too involved in this

I would like to dedicate my work on this book to my very patient and tolerant wife-to-be

—Hannes Gredler

women in my life.

My chapter is dedicated to Caroline, Hannah, and Lena, the three most important

—Avram Dorfman

no, Stacy is a guy).

into internetworking in the Pentagon and has stayed with me every step of the way. (And

always there when I need her anyway. It is dedicated second to Stacy, who brought me

My chapter is dedicated first to my mom, who wishes I never got involved with it, but is

—Sean Christensen

to my Mom, Dad, and Sister. Thank you for your support and your love.

I would like to dedicate my chapter to my family—my wife, Ginger and my son, Alex. Also

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—*Hannes Gredler*

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—*Steven Holman*

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—*Jason Rogan*



I would like to thank my wife, Christine, whose patience and love has allowed me to pursue those things in my life that excite me. In addition, my family and friends have provided encouragement beyond words that have helped me reach this point in my life. Finally, for the numerous peers in the industry who selflessly shared their knowledge with a young kid with too many questions, I would not have achieved all that I have without your assistance. A hearty thanks to all!

—*Joe Soricelli*

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—*Todd Warble*

I would like to thank Darren Bovis for his excellent technical reviews and recommendations on the two BGP chapters.

—*Peter Moyer*

Preface

From the introduction of the M40 router in 1998, Juniper Networks has risen to a position of considerable leadership in the Internet router marketplace, a position it has maintained through the introduction of multiple succeeding router models and software releases. That leadership has been acquired in large part by offering a product with best-in-class forwarding and routing performance, but also by providing an alternative to the incumbent router vendor for sources of information about the challenges that Internet Service Providers and other users of high-speed routers face, and by providing solutions to these challenges. We offer this book in that same spirit: providing solutions to those who seek a better way.

This book is intended to serve as a reference for networking professionals who wish to learn about the operation and configuration of Juniper Networks M-series routers. As you can see by the cover and title page, writing it has been a collaborative effort involving a large team of people. Our mission has been to produce—in a relatively short period of time—a single volume that could be used by both novices and experienced router jockeys as an aid in the operational aspects of using Juniper Networks routers.

Because router operation is so closely linked with the routing protocols they implement, we have also addressed the protocols in detail. This should obviate your need to combine this book with other “background” books on individual protocols. You will find excellent introductions as well to some of the ancillary protocols and



techniques that are becoming important to the core of the Internet, such as traffic engineering with MPLS and packet filtering for security.

The chapters of the book are arranged to educate you in these topics as though you were studying in a hands-on classroom. Therefore, we begin with the hardware and software components of the router platform, and proceed through the syntax of the user interface and components of system management to give you a foundation in the tools of the platform and their control and operation. Building upon this foundation, we next explore the control of traffic interfaces, protocol-independent routing issues, and the central role of routing policy control in controlling the distribution of routing information.

Our routing protocol coverage extends to those protocols implemented by Juniper Networks that are in common use in today's Internet: RIP, OSPF, IS-IS, and BGP. We close the book with chapters on MPLS and firewall filters.

One note on the title: "The Complete Reference" is something of a misnomer. At this stage of the Internet's growth, and with the rapid pace of hardware, software, and protocol development, to write a truly complete reference to any modern platform or operating system is an impossible task. To address this point, we have concentrated on the features that are most likely to be used by the majority of router professionals as they complete their day-to-day tasks.

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