

PowerShell IN DEPTH

An administrator's guide

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PowerShell in Depth

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Chapter 1

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Introduction

This chapter covers

- What the book will and won't teach
- The boundaries of this book
- Going beyond PowerShell

As of this writing, Windows PowerShell is approaching its sixth year of existence and in its third major release. In that time, it's changed the way people look at administering many Microsoft, and even some non-Microsoft, products. Although the graphical user interface (GUI) will always be an important part of administration in many ways, PowerShell has given administrators options: Use an easy, intuitive GUI; manage from a rich, interactive command-line console; or fully automate a simple scripting language. We're delighted that so many administrators have started using PowerShell, and we're honored that you've chosen this book to further your own PowerShell education.

1.1 Who this book is for

We wrote this book for system administrators, not developers. In the Microsoft world, administrators go by the catchall title "IT professional" or "IT pro" and that's who we had in mind. As such, we assume you're not a full-time programmer,

although if you have some programming or scripting experience it'll make certain parts of PowerShell easier to learn.

We assume you're primarily interested in automating various administrative tasks and processes, or at least being more efficient, but we don't make any assumptions about the products with which you work. You may be an Exchange Server administrator, or maybe SharePoint or SQL Server is your thing. Perhaps you manage Active Directory, or you're in charge of file servers. You may even manage a Citrix or VMware environment (yes, they can be managed by PowerShell). It doesn't matter, because what we'll focus on in this book is the core technologies of PowerShell itself: the techniques and features you'll need to use no matter what products you're administering. We do use Active Directory in a few examples, but every technique, pattern, practice, and trick we show you will apply equally well, no matter where you've chosen to use PowerShell.

1.2 *What this book will teach you*

You can certainly read this book cover to cover, and we've tried to arrange the chapters in a logical progression. But in the end, we intend for this book to be a reference. Need to figure out PowerShell Remoting? Skip to that chapter. Confused about how commands pipe data from one to another? We've written a chapter for that. Need to access a database from within a PowerShell script? There's a chapter for that.

We've no intention of making you a programmer—we don't claim to be programmers—we all have backgrounds as IT pros. Yes, PowerShell can support some robust scripts, but you can also accomplish a lot by running commands. If you have programming experience, it'll serve you well, and you may be tempted to approach PowerShell more as a scripting language, which is fine. If you've never scripted or programmed a single line of code, you'll probably see PowerShell as a pure command-line interface, where you run commands to make stuff happen, and that's fine, too. Either way you win because you get to automate your tedious, repetitive work.

1.3 *What this book won't teach you*

We assume you're already an experienced administrator and that you're familiar with the inner workings of whatever technology you manage. We aren't going to teach you what an Active Directory user account is, or what an Exchange mailbox does, or how to create a SharePoint site. PowerShell is a tool that lets you accomplish administrative tasks, but like any tool it assumes you know what you're doing.

To use a noncomputer analogy, PowerShell is a hammer, and this book will teach you how to swing that hammer and not smash your thumb. We won't teach you about building houses, though—we assume you already know how to do that, and you're looking for a more efficient way to do it than pounding nails with a rock.

1.4 Where we drew the line

It's safe to say that PowerShell can't do everything for you. You'll find some things with which it's completely incapable of helping, as with any technology. But you'll also find tasks for which PowerShell works well. And you'll encounter that weird middle ground where you *could* do something in PowerShell, but to do it you'd have to go beyond the strict boundaries of what PowerShell is.

For example, PowerShell doesn't natively contain a way to map a network printer. You could instantiate a Component Object Model (COM) object to accomplish the task from *within* PowerShell, but it has nothing to do with PowerShell. Instead, it's the shell giving you a way to access completely external technologies. In these cases (which are becoming increasingly rare in the latest version of Windows), we'll only say, "You can't do that in PowerShell yet." We know our statement isn't 100 percent true, but we want to keep this book focused on what PowerShell is and what it does natively. If we turn this book into "everything you can do with PowerShell natively, plus all the external stuff like .NET and COM and so on that you can get to from PowerShell," it'd grow to 7,000 pages in length and we'd never finish.

That said, we're including material in the book on using some of these external technologies, along with some guidance on where you can find resources to educate yourself on them more completely if you've a mind to do so.

1.5 Beyond PowerShell

PowerShell is a lot like the Microsoft Management Console (MMC), with which you're probably familiar. On its own, it's useless. Both the MMC and PowerShell only become useful when you add extensions, which in the MMC would be "snap-ins," and in PowerShell would be either a "snap-in" or a "module." Those extensions give you access to Exchange, Active Directory, SharePoint, SQL Server, and so on.

Understand that the folks at Microsoft who write PowerShell *don't* write the extensions. They provide some tools and rules for the developers who do create extensions, but their job is to create the core PowerShell stuff. Extensions are made by other product teams: The Exchange team makes the Exchange PowerShell extension, the Active Directory team makes its extension, and so on. If you're looking at a particular extension and don't like what you see, blame the product team that produced it, not PowerShell. If you'd like to administer something—maybe WINS Server, for example—and PowerShell has no way to administer it, it's not the PowerShell team's fault. Blame the owners of the technology you're trying to work with, and encourage them to get on board and produce a PowerShell extension for their product.

This division of labor is one reason why we're keeping this book focused on the core of PowerShell. That core is what you'll use no matter what extensions you end up deploying to achieve your administrative goals.

1.6 *Ready?*

Okay, that's enough of an introduction. If you want to follow along, make sure you have PowerShell v3 installed on a Windows 7 Desktop, or run a Windows 8 client. Now, pick a chapter and jump in.

PowerShell IN DEPTH

Jones • Siddaway • Hicks



Organized into 40 concise chapters, **PowerShell in Depth** is the go-to reference for administrators working with Windows PowerShell. Every major shell technique, technology, and tactic is explained and demonstrated, providing a comprehensive reference to almost everything an admin would do in the shell. Written by three experienced authors and PowerShell MVPs, this is the PowerShell book you'll keep next to your monitor—not on your bookshelf!

What's Inside

- Covers PowerShell 3.0
- Automating time-consuming tasks
- Managing HTML and XML data
- Background jobs and scheduling
- PowerShell Security
- Packaging and deploying scripts
- Standard scripting conventions
- Using the .NET Framework in PowerShell scripts
- Much more

This book requires basic familiarity with PowerShell.

Don Jones, Jeffery Hicks, and Richard Siddaway are Microsoft MVPs who have collectively authored nearly three dozen books on PowerShell and Windows administration.

To download their free eBook in PDF, ePub, and Kindle formats, owners of this book should visit manning.com/PowerShellinDepth

“By three of the best writers in the PowerShell community.”

—Mike Shepard
Jack Henry & Associates

“A most wonderful PowerShell administrators’ guide.”

—Kais Ayari, Microsoft

“Hicks, Jones, and Siddaway come together to deliver the ultimate PowerShell resource.”

—James Berkenbile
Berkenbile Consulting

“I have many books on my shelf—this one will be on my desk!”

—Trent Whiteley, Fiserv

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