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Sara Perrott
Paladin, Mage, Guardian,
Cybersecurity Nerd

Windows Server® 2022 & PowerShell®

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by Sara Perrott

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Windows Server® 2022 & PowerShell® All-in-One For Dummies®

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Introduction

Microsoft continues to improve on its server operating system with its release of Windows Server 2022. Although Windows Server 2022 doesn't introduce any huge sweeping changes, it offers some great new features, including advancements to security, services, and system administration.

Security features have been improved upon to offer better encryption support for Server Message Block (SMB) protocol. A new offering with Windows Server 2022 is a secured core server, which essentially allows system administrators to harden their system at the hardware/firmware level.

As more and more customers have moved to the Azure cloud, Microsoft has added new features to better support Windows Server 2022 administration in the Azure cloud, as well as on-premises for hybrid environments. One of the new features is the ability to patch without reboots (yes, it's a thing!).

About This Book

Windows Server 2022 & PowerShell All-in-One For Dummies provides something for everyone — from the junior system administrator just getting their start, to the seasoned system administrator looking to improve their skills.

I try to cover as many of the everyday topics that you would need to know as a system administrator and explain things that are outside of your daily work. My goal with this book is to help you understand not just the what and the how, but also the why.

This isn't the kind of book that you pick up and read from start to finish, and it's probably not the kind of book you'll read on the beach. Instead, this book is a reference — the kind of book you can pick up, turn to just about any page, and start reading. It's divided into eight minibooks, each covering a specific aspect of working with Windows Server 2022 or PowerShell.

You don't have to memorize anything in this book. Pick it up when you need to know something. After you find what you're looking for, put it down and get on with your life.

Within this book, you may note that some web addresses break across two lines of text. If you're reading this book in print and want to visit one of these web pages, simply key in the web address exactly as it's noted in the text, pretending as though the line break doesn't exist. If you're reading this as an e-book, you've got it easy — just click the web address to be taken directly to the web page.

Foolish Assumptions

I had to make some assumptions about you as I wrote this book:

- I assume that you want to know more about Windows Server 2022 and PowerShell and you've worked with some version of Windows Server in the past.
- I assume that you're a system administrator, and that you have the permissions to do the things mentioned in this book. Some of the procedures require you to have administrator access.

Icons Used in This Book

As you read through the book, you'll see icons in the margin. I use those icons to grab your attention. Here's what each of these icons mean:

TIP

Anything marked with the Tip icon will save you time or frustration or just generally make your life easier — at least your system administrator life (I can't do anything about your relationship with your parents).

WARNING

If you see a Warning icon, take heed! Anything marked with this icon could be destructive or at the very least give you a major headache.

TECHNICAL STUFF

When you see the Technical Stuff icon, this is usually where I go full nerd and add some more in-depth technical information. If you want to let your inner geek flag fly, read these with gusto! But if you're in a hurry and just want to get the information you absolutely need, you can pass these by.

REMEMBER

If something is really important — important enough for you to commit it to memory — I mark it with the Remember icon.

Beyond the Book

In addition to what you're reading right now, this product also comes with a free access-anywhere Cheat Sheet that includes helpful tips and tricks to navigate and administer Windows Server 2022. To get this Cheat Sheet, simply go to `www.dummies.com` and type **Windows Server 2022 & PowerShell All-in-One For Dummies Cheat Sheet** in the Search box.

Where to Go from Here

I'm a traditionalist, so I recommend starting with Book 1, Chapter 1. This is where you find out about the new things that await you in Windows Server 2022. From there, it's entirely up to you! You can read the book in order, or skip around, letting your curiosity be your guide.

One last note: I highly recommend that you create a test environment as you go through this book and experiment with different components of the Windows Server operating system. I try to call attention to potentially destructive procedures, but it's your responsibility to ensure that you're practicing in a safe environment, ideally not your production environment.

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Installing and Setting Up Windows Server 2022

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IN THIS CHAPTER

- Getting an overview of the features new to Windows Server 2022
- Making sense of the Windows Server 2022 editions
- Looking at the different Windows Server 2022 user experiences
- Recognizing the benefits of Server Manager
- Working with the Windows Admin Center
- Making your data center bigger and better

Chapter 1

An Overview of Windows Server 2022

Windows Server 2022 is the latest version of Microsoft's flagship server operating system. This chapter has something for everyone. If you're already familiar with Windows Server, I discuss the new features that Windows Server 2022 brings to the table. If you haven't worked with Microsoft Server operating systems much before, you'll appreciate the information on the editions and user experiences that you can use, depending on your needs.

Extra! Extra! Read All About It! Seeing What's New in Windows Server 2022

With each new version of Windows Server, Microsoft introduces new and innovative technologies to improve administration, add needed functionality, and improve security. Here are some of the new features in Windows Server 2022:

- **Secured-core server:** These systems have special hardware that enables them to use advanced security features. Trusted Platform Module (TPM) 2.0 is a standard feature, for example, which can be used for a variety of things, including secure key storage and improved boot time protection from BitLocker. Microsoft also provides increased protections against firmware-level attacks and virtualization-based security (VBS).
- **Improvements to Domain Name System (DNS) security:** DNS requests can now be made via Hypertext Transfer Protocol Secure (HTTPS), using an encrypted channel. This new feature is referred to as *DNS-over-HTTPS,* which is shortened to DoH. If you're like me, you probably pictured Homer Simpson yelling "D'oh!"
- **Transport Layer Security (TLS):** In Windows Server 2022, both HTTPS and TLS 1.3 are enabled by default to better protect your network and Internet activity. For more information on this feature, check out Book 5, Chapter 3.
- **Server Message Block (SMB) security:** Windows Server 2022 brings several improvements for SMB security. SMB can now be used over the QUIC protocol instead of Transmission Control Protocol (TCP). This allows you to take advantage of TLS 1.3 encryption. SMB Direct now supports encryption with little to no performance impact. Previously, if you enabled SMB encryption, direct data placement was disabled due to the impact to performance. Plus, traffic between storage clusters in Storage Spaces Direct can now be encrypted.
- **Azure hybrid capabilities:** In Windows Server 2022, you have Azure Arc, which provides centralized management of servers, and Azure Automanage: Hotpatch, which allows for rebootless updates. I discuss these features a bit more toward the end of this chapter.
- **Windows Admin Center:** Improvements have been made to Windows Admin Center to add support for the new secured-core server features.
- **Improved support for Windows Containers:** Container image sizes have been greatly reduced, and increased support for Kubernetes has been added. I discuss these subjects in greater detail in Book 8.
- **Network performance:** TCP and User Datagram Protocol (UDP) performance have both been improved in Windows Server 2022.