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# Mastering System Center 2012 Operations Manager

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# **Mastering System Center 2012 Operations Manager**

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Best regards,

A handwritten signature in black ink, appearing to read 'Neil Edde', written in a cursive style.

Neil Edde

Vice President and Publisher

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—*The authors*

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—*Bob Cornelissen*

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time to make what initially might seem like impossible problems turn into simple solutions.

—*Kevin Greene*

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I would like also to express my gratitude to the whole System Center community—MVPs, bloggers, and team members. One of the reasons System Center is so successful is the passion of all these contributors across the world.

—*Ivan Hadzhiyski*

# About the Authors

**Bob Cornelissen** is a Managing Consultant for BICTT in the Netherlands. He specializes in Operations Manager and other System Center products.

Starting out as a fisheries biologist with a passion for fish, fishing, aquaria, and aquatic ecology, Bob got a chance to visit several parts of the world to investigate the aquatic life and obtain an MSc in zootechnics. After he worked in Thailand, it became a second home to him, and he visits at least once a year. Working on university websites and e-learning got him into the IT business over 12 years ago. Once he started as a system admin for several customers, he moved into Microsoft Server products and specialized in Windows Server, Active Directory, Exchange, and ISA. After a few years, Microsoft Operations Manager came into view, and a number of projects with 2000 and 2005 versions followed.

In 2007 Bob started the company BICTT to help big and small customers with their IT needs. Since the early beta versions of Operations Manager 2007, Bob has been very involved with the product and specializes in its design, implementation, management, and customization. During the last few years, Bob has become more active in the System Center community on forums, blogs, and the Community Evaluation Programs. Bob has been awarded the MCC 2011 award and System Center Cloud and Datacenter Management MVP status since 2012. Find out more on his blog at [www.bictt.com/blogs](http://www.bictt.com/blogs) or through LinkedIn.

Bob lives in Netherlands with his wife Amporn, and he fishes for most of the year and in Thailand during the holidays.

**Kevin Greene** is a Subject Matter Expert for System Center Operations Manager at Ergo in Ireland and has been working in IT since 1999. In the past, he has held such roles as IT Administrator, IT Engineer, Technical Team Lead, and Senior Consultant. He has been on the Microsoft certification track since the days of Windows NT 4 and holds several qualifications, including MCSE, MCITP, MCP, and MCTS. Kevin is an active participant in the System Center community and his contributions have been recognized as a past winner of the Microsoft Private Cloud Community Evaluation Program (CEP) contest. He blogs at <http://kevingreeneitblog.blogspot.com> and can be found hanging around Twitter as @kgreeneit. Kevin is also a presenter at System Center launch and community events and is a co-founder of the Irish System Center User Group (scug.ie).

Kevin lives in Sallins, Co. Kildare, Ireland with his wife Laura and son Matthew. When he's not working on the laptop or thinking about System Center, he spends his free time with the family and supporting Manchester United. He also holds a second-degree black belt in freestyle kickboxing, and although he's not as involved in the sport as he used to be, he's still an avid follower of the martial arts.

**Ivan Hadzhiyski** is a freelance consultant and trainer specializing in the System Center family of products, with a focus on Operations Manager and System Center Configuration Manager. From the early days of his career, his interest has been tools for monitoring and automation in Windows environments—initially only Visual Basic Scripting, but shortly after that MOM 2005, SMS 2003, and the first wave of System Center. Ivan is a regular speaker at various events in Bulgaria and co-founder of the Core IO User Group in Bulgaria.

**Paul Keely** has been in IT for over 14 years, is an Operations Manager MVP, and works for Infront Consulting,

a specialist System Center practice where he designs and builds high-end monitoring solutions on a global scale. He started out focusing on Exchange and Active Directory, and started to monitor Exchange and AD with MOM. Paul began to focus on Operations Manager and System Center when he worked for Microsoft Consulting Services (MCS). In MCS he got a deep technical insight to the product and worked solely on Operations Manager for over two years. Paul now uses Operations Manager as the central monitoring tool to align private cloud deployments for large corporations.

**Sam Allen** is a Premier Field Engineer with Microsoft and has been specializing in Operations Manager for the last six years. He started his journey in IT nearly 15 years ago while working at a money management firm in Dallas, Texas. Shortly after that, he worked as a network administrator at a radiopharmaceutical company, and then went on as an independent consultant for a few years. In 2005 he joined Microsoft's Directory Services team, later moving to the Manageability team, where he supported both Configuration Manager and Operations Manager. Since 2007 he has been specializing in Operations Manager and has recently transitioned to dedicated support for enterprises across the United States. Sam lives in North Texas with his wife and eight children, four of whom are in college.

**Telmo Sampaio** is the Main Geek at MCTrainer.NET, specializing in System Center, SharePoint, SQL Server, and .NET.

Telmo wrote his first application in 1984, with the intent of demonstrating physics concepts to his fellow classmates. His passion for technology and teaching made him a self-taught developer from an early age.

In 1989 he moved to Wellesley, Massachusetts when his father was transferred to work in Boston for a year. He kept developing applications to demonstrate science and math concepts and decided to remain in the United States after

his family left. In 1991 he moved back to Brazil and studied Systems Analysis at PUC/RJ.

When Microsoft extended their Microsoft Certified Professional program to Brazil, Telmo was one of the first in the country to become certified. In 1994 he started teaching Microsoft classes. Soon he was managing the largest training center in Latin America. To date, he has been certified in over 20 different Microsoft products, passing over 80 exams.

After moving back to the United States in 2003, Telmo became a contributor to several Microsoft certification exams, an author for official courseware, and a speaker at events such as TechEd, PASS, and MMS.

Telmo lives in Miami, Florida, with his wife Joanne and spends his weekends with his three boys: Marco, Rafael, and Enzo—that is, when he is not traveling the world holding training programs.

## About the Contributors

**Arie de Haan** (Groningen, Netherlands) is the owner of Pandinus. He has been in IT for more than 20 years, starting as a developer but soon moving into the area of system management of the largest DEC VMS cluster. During the Windows NT 4 period he moved over to the Windows platform and discovered MOM 2000. He became the number 10 MOM MVP for four years starting in 2006. Nowadays Arie is involved in large Operations Manager implementations, including architecture, implementation, and development, mostly in enterprise environments.

Arie lives in the north of the Netherlands with his three sons, and during his free time he rides his motorbike, reads, does martial arts, loves to visit the theater, and of course spends time with his kids. Learn more at:

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**Pavel Dzemyantsau** (Minsk, Belarus) has been working in IT for half his life. For the last 11 years he has been working at EPAM Systems. He started his career as a C++ developer and drifted to enterprise administration in a heterogeneous world: Microsoft Exchange, Active Directory, Tomcat, and JBoss. Pavel has a deep knowledge of troubleshooting skills in different platforms: from Visual Basic Scripting, Bash, and PowerShell to raw machine code. He started to work with Operations Manager from MOM 2005 and later became a team leader for the monitoring direction with dedicated projects. He has grown his team into a group specializing in complex delivery, from analyzing requirements to building proof-of-concept models and suggesting suitable monitoring designs. Such projects required a deep knowledge in various areas from Pavel's team. In that period he grew his own skills and the team's skills to advanced levels of scripting knowledge in T-SQL/SSRS, C#, PowerShell, and XML. Pavel earned MCSE and Operations Manager certification. For the last three years, Pavel has been leading the enterprise monitoring team at EPAM Systems as Project Coordinator. His hobbies are debugging things and decomposing them into parts.

# Introduction

Welcome to this book on System Center 2012 Operations Manager. During the past 10 years and after multiple iterations of the product, Operations Manager has grown to be one of the main monitoring products for medium to large enterprises. The Operations Manager 2007 version, for instance, brought us from server-based monitoring to application-based monitoring, whereas the 2007 R2 version brought us cross-platform monitoring toward the Unix/Linux machines in our datacenter. Operations Manager 2012 is now bringing us expanded network monitoring, a much better dashboarding experience, application performance monitoring (which used to be known as a separate product called AVIcode), and an important infrastructural change by removing the root management server and using resource pools, just to name a few improvements. We are excited about this version of the product and keen to tell you more about it. This book will give you an overview of Operations Manager with deep dives into important pieces. The chapters contain real-world examples from the field, which also might give you ideas on how to use Operations Manager in different ways.

## Who Should Read This Book?

The answer to this question: *everyone*. Well, maybe anyone who wants to monitor their network using Operations Manager 2012. Included between the covers of this book is a comprehensive look at deploying, managing,

troubleshooting, and working with Operations Manager and the new command set for PowerShell.

As complex as products are becoming, no one can be an expert on all of them. If you are like most administrators, you have time to learn only enough about a product so that you can manage it effectively. However, there is probably a lot more that you could be doing with any one product. This book is meant to get you up to speed quickly and then help you through some of the more arcane topics.

Not every administrator will have the same type of infrastructure to work with. What works well in a large corporation does not always work for small companies. What works well for small companies may not scale well for large organizations. Microsoft has attempted to address the differences among companies and deliver a product that can be implemented quickly for a small company, yet will still scale well for large organizations. No matter which scenario fits you, you will want to learn how this product will work for you.

But most of all, any administrator who wants to try to get to the “proactive” side of managing their infrastructure should consider looking through these pages to see how they can start monitoring their systems effectively. Being on the other side—the “reactive” management side—means that you are constantly having to respond to emergencies and continually “putting out fires.” If you are a reactive administrator, you probably already understand how hard it is to try to make your infrastructure more efficient when you don’t have enough time to work on anything else but emergencies.

## **The Contents at a Glance**

There are two parts to this book. Part 1 covers implementation and administration. Part 2 covers

maintenance and troubleshooting. As you read through each section, you will find that the material flows from one subject to another, building as you go. By the time you finish Part 1, you should have a good understanding of what goes into deploying and managing your management group. Throughout Part 2, you will learn some of the tips and tricks to keep your management group running smoothly.

# Part 1: Implementation and Administration

## **Chapter 1: Overview of Operations Management**

This chapter explains what operations management is and how Microsoft has implemented it with Operations Manager 2012. The topics covered include Microsoft Operations Framework, Information Technology Infrastructure Library, and the role played by Operations Manager 2012.

**Chapter 2: Installing Operations Manager 2012** This chapter identifies the prerequisites and examines the installation options in detail.

**Chapter 3: Management Group Settings** The settings that control the management servers within the management group are discussed in this chapter. You will see how to manage the global settings applied to all management servers, and then how to override the settings on a server-by-server basis.

**Chapter 4: Installing and Configuring Agents** Each of the monitored systems needs to have an agent installed in order for the monitored system to send detailed information to the management server and to be monitored and managed. The options for installing and configuring the client are discussed in this chapter.

## **Chapter 5: Managing Management Packs**

Management packs define what is monitored on each of the managed systems. They also contain the rules for creating reports and tasks within the Operations Console. This chapter covers importing management packs and working with all of the objects contained within them.

## **Chapter 6: Understanding Management Packs**

Management packs are dynamic in nature. After you create a management pack, it will need to be fine-tuned

and additional object modifications will need to be made. In this chapter you will be introduced to life cycle management for your management packs.

**Chapter 7: Working with Consoles** After the management group has been created and the management packs and agents deployed, you will need to start monitoring. The Operations Console is the primary tool for working with all of the objects for the management group. Here you will find out how to work with the Operations console effectively.

**Chapter 8: Network Monitoring** Operations Manager 2012 has implemented improvements in network monitoring. This chapter explains how to discover, manage, monitor, and report on network devices.

**Chapter 9: Application Performance Monitoring** Deep monitoring of applications has always been a problem in the past. This chapter discusses how to use Application Performance Monitoring features in Operations Manager to get to the bottom of certain application-related problems.

**Chapter 10: Working with Complex Configurations** You may find yourself having to work with multiple management groups or allow your management group to interface with other management products. This chapter explains how connections can be made and how you can create a hierarchy of management groups.

## Part 2: Maintenance and Troubleshooting

**Chapter 11: Optimizing Your Environment** Not everyone can use the management packs right out of the box. You will need to test them in your organization to see how they work. This chapter will cover some of the options that you have to make your management group work more efficiently.

**Chapter 12: Backup, Restore, and Disaster Recovery** You do not want to start over from scratch, and you definitely don't want to lose all of the data that you have collected. This chapter covers your options for making sure that you have your management group protected in case a disaster strikes.

**Chapter 13: Troubleshooting** Even though we would like to think that everything works perfectly all of the time, we know that is not the case. Some troubleshooting tips are detailed in this chapter.

**Chapter 14: Scripting Operations Manager 2012** PowerShell is a very powerful tool that will help you manage your management group. This chapter is a primer on PowerShell as it is used in Operations Manager 2012.

## The Mastering Series

The *Mastering* series from Sybex provides outstanding instruction for readers with intermediate and advanced skills, in the form of top-notch training and development for those already working in their field and clear, serious education for those aspiring to become pros. Every *Mastering* book includes:

- Real-World Scenarios, ranging from case studies to interviews, that show how the tool, technique, or knowledge presented is applied in actual practice
- Skill-based instruction, with chapters organized around real tasks rather than abstract concepts or subjects
- Self-review test questions, so you can be certain you're equipped to do the job right

## **Final Comments**

Make sure you take the time to become familiar with Operations Manager 2012. The more comfortable you are with it, the more you will be able to do with it. At the very end of some chapters, you'll find Master It self-tests: small labs that help reinforce the topics in the chapters. Instructions have been included that allow you to create a virtual environment. Building a virtual test environment can come in handy when you are trying to work through a new topic or troubleshoot a problem.

Most of all, have fun as you are going through the topics contained in this book. Once you find out how much power Operations Manager has in store for you, you will be amazed at some of the things you can do. Just looking at the surface, being able to monitor servers and services, may be impressive enough, but the additional features can be equally impressive, such as monitoring the health of an application from the time a user submits a request until the response is returned from your servers, reporting on the availability of servers and services, and creating scripts that will automatically alter the way the service functions when a problem arises.

# How to Contact the Authors

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# Part 1

## Implementation and Administration

- **Chapter 1: Overview of Operations Management**
- **Chapter 2: Installing Operations Manager 2012**
- **Chapter 3: Management Group Settings**
- **Chapter 4: Installing and Configuring Agents**
- **Chapter 5: Managing Management Packs**
- **Chapter 6: Understanding Management Packs**
- **Chapter 7: Working with Consoles**
- **Chapter 8: Network Monitoring**
- **Chapter 9: Application Performance Monitoring**
- **Chapter 10: Working with Complex Configurations**

Part I of this book explains how to install, configure, and manage Microsoft System Center 2012 Operations Manager.

Chapter 1 is an overview of operations management, where it integrates within the Microsoft Operations Framework (MOF) and Dynamic Systems Initiative (DSI), and how they complement the Information Technology Infrastructure Library (ITIL). These are the backbone of Operations Manager. Once we have introduced you to those concepts, we will discuss the concept of cloud computing and explain the IT as a Service (ITaaS) model. Operations Manager delivers the ITaaS model and empowers businesses to create service maps based on their IT service catalog. In the chapters that follow, we move into installing the management servers and creating the management group. After the management group is created, you will learn how to configure and manage your Operations Manager

deployment. All of this will be presented to you in an orderly fashion so you can follow along and build your environment to meet your needs.