MCTS (Exam 70-640)

Configuring Windows Server 2008 Active Directory

Self- Paced Training Kit

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Dan Holme, a graduate of Yale University and Thunderbird, has spent more than a decade as a consultant and trainer, delivering solutions to tens of thousands of IT professionals from the most prestigious organizations and corporations around the world. Dan's company, Intelliem, specializes in boosting the productivity of IT professionals and end users by creating advanced, customized solutions that integrate clients' specific design and configuration into productivity-focused tools, training, and knowledge management services. Dan is also a contributing editor for *Windows IT Pro* magazine, an MVP (Office SharePoint Server), and the community lead of *officesharepointpro.com*. From his base in beautiful Maui, Dan travels around the globe supporting customers and delivering Windows technologies training. Immediately following the release of this Training Kit, he will be preparing for the Beijing Olympic Games as the Windows Technologies Consultant for NBC television, a role he also played in Torino in 2006.

Danielle Ruest

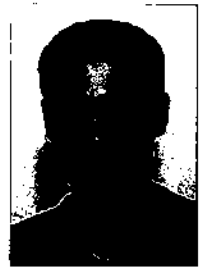
Danielle Ruest is passionate about helping people make the most of computer technology. She is a senior enterprise workflow architect and consultant with over 20 years of experience in project implementations. Her customers include governments and private enterprises of all sizes. Throughout her career, she has led change-management processes, developed and delivered training, provided technical writing services, and managed communications programs during complex technology implementation projects. More recently, Danielle has been involved in the design and support of test, development, and production infrastructures based on virtualization technologies. She is an MVP for the Virtual Machine product line.

Nelson Ruest

Nelson Ruest is passionate about doing things *right* with Microsoft technologies. He is a senior enterprise IT architect with over 25 years of experience. He was one of Canada's first Microsoft Certified Systems Engineers (MCSEs) and Microsoft Certified Trainers. In his IT career, he has been a computer operator, systems administrator, trainer, Help desk operator, support engineer, IT manager, project manager, and now, IT architect. He has also taken part in numerous migration projects, where he was responsible for everything from project management to systems design in both the private and public sectors. He is an MVP for the Windows Server product line.

Nelson and Danielle work for Resolutions Enterprises, a consulting firm focused on IT infrastructure design. Resolutions Enterprises can be found at *http://www.reso-net.com*. Both are authors of multiple books, notably the free *The Definitive Guide to Vista Migration* (*http://www.realtimenexus.com/dgvm.htm*) and *Microsoft Windows Server 2008: The Complete Reference* (McGraw-Hill Osborne, 2008) (*http://www.mhprofessional.com/product.php?cat=112&isbn=0072263652*).

Tony Northrup



Tony Northrup, MVP, MCSE, MCTS, and CISSP, is a Windows consultant and author living in Phillipston, Massachusetts. Tony started programming before Windows 1.0 was released but has focused on Windows administration and development for the past 15 years. He has written more than a dozen books covering Windows networking, security, and development. Among other titles, Tony is coauthor of *Microsoft Windows Server 2003 Resource Kit* (Microsoft Press, 2005) and *Windows Vista Resource Kit* (Microsoft Press, 2007).

When he's not consulting or writing, Tony enjoys photography, remote-controlled flight, and golf. Tony lives with his cat, Sam, and his dog, Sandi. You can learn more about Tony by visiting his technical blog at *http://www.vistaclues.com* or his personal Web site at *http://www.northrup.org*.

Contents at a Glance

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Heartfelt Thanks

Nelson, Danielle, Tony, and I would like to pay tribute to the incredible folks at Microsoft Press for giving us the opportunity to contribute to the Windows Server 2008 training and certification effort. Starting with Laura Sackerman and Ken Jones: you pulled us together in 2007 and created a framework that was both comfortable and effective, bringing out the best in us as authors and resulting in what we believe is a tremendous resource for the Windows IT professional community. Thanks for giving us the chance to write about a technology we love! Maureen Zimmerman, your tireless attention to detail and nurturing of the process brought us, and this training kit, across a finish line that at times seemed elusive. I know I owe you special thanks for your faith in me and your support and "props" along the way. Bob Hogan, you kept us honest and contributed great ideas to the cause. Kerin Forsyth, you make us sound better than we really are. Bob Dean, we all are grateful that with your efforts, the practice test questions for this training kit are first class. And Chris Norton, without you, there wouldn't be a page to look at, let alone hundreds of pages of valuable training and reference. Thanks to all of you, from all of us!

Finally, my own deepest gratitude goes to my Einstein, and we all thank our families, our friends, and our muses who make it possible and worthwhile.

Introduction

This training kit is designed for IT professionals who support or plan to support Microsoft Windows Server 2008 Active Directory Domain Services (AD DS) and who also plan to take the Microsoft Certified Technology Specialist (MCTS) 70-640 examination. It is assumed that, before you begin using this kit, you have a solid foundation-level understanding of Microsoft Windows client and server operating systems and common Internet technologies. The MCTS exam, and this book, assume that you have at least one year of experience administering AD DS.

The material covered in this training kit and on the 70-640 exam builds on your understanding and experience to help you implement AD DS in distributed environments that can include complex network services and multiple locations and domain controllers. By using this training kit, you will learn how to do the following:

- Deploy Active Directory Domain Services, Active Directory Lightweight Directory Services, Active Directory Certificate Services, Active Directory Federation Services, and Active Directory Rights Management Services in a forest or domain.
- Upgrade existing domain controllers, domains, and forests to Windows Server 2008.
- Efficiently administer and automate the administration of users, groups, and computers.
- Manage the configuration and security of a domain by using Group Policy, fine-grained password policies, directory services auditing, and the Security Configuration Wizard.
- Implement effective name resolution with Domain Name System (DNS) on Windows Server 2008.
- Plan, configure, and support the replication of Active Directory data within and between sites.
- Add, remove, maintain, and back up domain controllers.
- Enable authentication between domains and forests.
- Implement new capabilities and functionality offered by Windows Server 2008.

Find additional content online As new or updated material that complements your book becomes available, it will be posted on the Microsoft Press Online Windows Server and Client Web site. Based on the final build of Windows Server 2008, the type of material you might find includes updates to book content, articles, links to companion content, errata, sample chapters, and more. This Web site will be available soon at *http://www.microsoft.com/learning/books/online/serverclient* and will be updated periodically.

Making the Most of the Training Kit

This training kit will prepare you for the 70-640 MCTS exam, which covers a large number of concepts and skills related to the implementation and administration of AD DS on Windows Server 2008. To provide you with the best possible learning experience, each lesson in the training kit includes content, practices, and review questions, and each chapter adds case scenario exercises and suggested practices. The companion CD provides links to external resources and dozens of sample questions.

We recommend that you take advantage of each of these components in the training kit. Some concepts or skills are easiest to learn within the context of a practice or sample questions, so these concepts and skills might be introduced in the practices or sample questions and not in the main body of the lesson. Don't make the mistake of reading the lessons and not performing the practices or of performing practices and taking sample exams without reading the lessons. Even if you do not have an environment with which to perform practices, at least read and think through the steps so that you gain the benefit of the new ideas they introduce.

Setup and Hardware Requirements

Practice exercises are a valuable component of this training kit. They enable you to experience important skills directly, reinforce material discussed in lessons, and even introduce new concepts. Each lesson and practice describes the requirements for exercises. Although many lessons require only one computer, configured as a domain controller for a sample domain named *contoso.com*, some lessons require additional computers acting as a second domain controller in the domain, as a domain controller in another domain in the same forest, as a domain controller in another forest, or as a server performing other roles.

The chapters that cover AD DS (chapters 1–13) require, at most, three machines running simultaneously. Chapters covering other Active Directory roles require up to seven machines running simultaneously to provide a comprehensive experience with the technology.

It is highly recommended that you use virtual machines rather than physical computers to work through the lessons and practices. Doing so will reduce the time and expense of configuring physical computers. You can use Virtual PC 2007 or later or Virtual Server 2005 R2 or later, which you can download for free at *http://www.microsoft.com/downloads*. You can use other virtualization software instead, such as VMware Workstation or VMware Server, which can be downloaded at *http://www.vmware.com*. Refer to the documentation of your selected virtualization software for guidance regarding the creation of virtual machines for Windows Server 2008.

Windows Server 2008 can run comfortably with 512 megabytes (MB) of memory in small environments such as the sample *contoso.com* domain. As you provision virtual machines, be sure to give each machine at least 512 MB of RAM. It is recommended that the physical host

running the virtual machines have sufficient physical RAM for the host operating system and each of the concurrently running virtual machines. If you encounter performance bottlenecks while running multiple virtual machines on a single physical host, consider running virtual machines on different physical hosts. Ensure that all virtual machines can network with each other. It is highly recommended that the environment be totally disconnected from your production environment.

The authors recommend that you preserve each of the virtual machines you create until you have completed the training kit. After each chapter, create a backup or snapshot of the virtual machines used in that chapter so that you can reuse them as required in later exercises.

Software Requirements and Setup

You must have a copy of Windows Server 2008 to perform the exercises in this training kit. Several exercises require Windows Server 2003, and some optional exercises require Windows Vista.

Evaluation versions of Windows Server 2008 can be downloaded from *http://www.microsoft.com/downloads*. To perform the exercises in this training kit, you can install either the Standard or Enterprise editions, and you can use either 32-bit or 64-bit versions, according to the hardware or virtualization platform you have selected. Chapter 1, "Installation," includes setup instructions for the first domain controller in the *contoso.com* domain, which is used throughout this training kit. Lessons that require an additional computer provide guidance regarding the configuration of that computer.

Using the CD

A companion CD, included with this training kit, contains the following:

- **Practice tests** You can reinforce your understanding of how to configure Windows Server 2008 by using electronic practice tests you customize to meet your needs from the pool of Lesson Review questions in this book. Alternatively, you can practice for the 70-640 certification exam by using tests created from a pool of 200 realistic exam questions, which give you many practice scenarios to ensure that you are prepared.
- **An eBook** An electronic version (eBook) of this book is included for when you do not want to carry the printed book with you. The eBook is in Portable Document Format (PDF), and you can view it by using Adobe Acrobat or Adobe Reader.
- **Sample chapters** Sample chapters from other Microsoft Press titles on Windows Server 2008 are offered on the CD. These chapters are in PDF.

Digital Content for Digital Book Readers: If you bought a digital-only edition of this book, you can enjoy select content from the print edition's companion CD. Visit **http://go.microsoft.com/fwlink/?LinkId=114977** to get your downloadable content. This content is always up-to-date and available to all readers.

How to Install the Practice Tests

To install the practice test software from the companion CD to your hard disk, do the following:

1. Insert the companion CD into your CD drive and accept the license agreement. A CD menu appears.

NOTE If the CD menu does not appear

If the CD menu or the license agreement does not appear, AutoRun might be disabled on your computer. Refer to the Readme.txt file on the CD-ROM for alternate installation instructions.

2. Click Practice Tests and follow the instructions on the screen.

How to Use the Practice Tests

To start the practice test software, follow these steps.

1. Click Start\All Programs\Microsoft Press Training Kit Exam Prep.

   A window appears that shows all the Microsoft Press training kit exam prep suites installed on your computer.

2. Double-click the lesson review or practice test you want to use.

NOTE Lesson reviews vs. practice tests

Select the (70-640) TS: Configuring Windows Server 2008 Active Directory *lesson review* to use the questions from the "Lesson Review" sections of this book. Select the (70-640) TS: Configuring Windows Server 2008 Active Directory *practice test* to use a pool of 200 questions similar to those that appear on the 70-640 certification exam.

Lesson Review Options

When you start a lesson review, the Custom Mode dialog box appears so that you can configure your test. You can click OK to accept the defaults, or you can customize the number of questions you want, how the practice test software works, which exam objectives you want the questions to relate to, and whether you want your lesson review to be timed. If you are retaking a test, you can select whether you want to see all the questions again or only the questions you missed or did not answer.

After you click OK, your lesson review starts.

- To take the test, answer the questions and use the Next and Previous buttons to move from question to question.
- After you answer an individual question, if you want to see which answers are correct—along with an explanation of each correct answer—click Explanation.
- If you prefer to wait until the end of the test to see how you did, answer all the questions and then click Score Test. You will see a summary of the exam objectives you chose and the percentage of questions you got right overall and per objective. You can print a copy of your test, review your answers, or retake the test.

Practice Test Options

When you start a practice test, you choose whether to take the test in Certification Mode, Study Mode, or Custom Mode.

- **Certification Mode** Closely resembles the experience of taking a certification exam. The test has a set number of questions. It is timed, and you cannot pause and restart the timer.
- **Study Mode** Creates an untimed test in which you can review the correct answers and the explanations after you answer each question.
- **Custom Mode** Gives you full control over the test options so that you can customize them as you like.

In all modes, the user interface when you are taking the test is basically the same but with different options enabled or disabled, depending on the mode. The main options are discussed in the previous section, "Lesson Review Options."

When you review your answer to an individual practice test question, a "References" section is provided that lists where in the training kit you can find the information that relates to that question and provides links to other sources of information. After you click Test Results to score your entire practice test, you can click the Learning Plan tab to see a list of references for every objective.

How to Uninstall the Practice Tests

To uninstall the practice test software for a training kit, use the Add Or Remove Programs option (Windows XP) or the Programs And Features option (Windows Vista) in Windows Control Panel.

Microsoft Certified Professional Program

The Microsoft certifications provide the best method to prove your command of current Microsoft products and technologies. The exams and corresponding certifications are developed to validate your mastery of critical competencies as you design and develop or implement and support solutions with Microsoft products and technologies. Computer professionals who become Microsoft certified are recognized as experts and are sought after industry-wide. Certification brings a variety of benefits to the individual and to employers and organizations.

MORE INFO All the Microsoft certifications

For a full list of Microsoft certifications, go to *http://www.microsoft.com/learning/mcp/default.asp*.

Technical Support

Every effort has been made to ensure the accuracy of this book and the contents of the companion CD. If you have comments, questions, or ideas regarding this book or the companion CD, please send them to Microsoft Press by using either of the following methods:

- E-mail: tkinput@microsoft.com
- Postal mail at:

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