

## Windows PowerShell™ Hands-On: Automating Administrative Tasks - 4 Days

### Course 969 Overview

- You Will Learn How To**
- Administer workstations, servers and applications with Windows PowerShell
  - Harness .NET functionality through PowerShell cmdlets
  - Manage execution of scripts through pipelining and flow control operators
  - Leverage Windows Management Instrumentation (WMI) for computer inventories and configuration
  - Manipulate local and active directory objects using the Active Directory Services Interface (ADSI)
  - Perform remote management of Exchange, Hyper-V and other Microsoft servers
- Course Benefits** Windows PowerShell is revolutionising systems administration with time-saving tools for managing servers and workstations. PowerShell increases administrator productivity by automating repetitive tasks and ensuring complex, error-prone routines are performed consistently. In this course, you gain practical experience using PowerShell to solve both one-time and recurring administrative challenges.
- Who Should Attend** Administrators who want to more efficiently manage Windows systems. Windows administration experience at the level of Course 960, "Windows Server 2008 Comprehensive Introduction", or Course 595, "Windows Server 2003 Comprehensive Introduction", is assumed. Scripting experience is strongly recommended.
- Hands-On Training** Exercises provide hands-on experience automating administrative tasks and include:
- Implementing secure PowerShell scripts
  - Generating reports on system status and configuration
  - Reading, writing and parsing event logs
  - Configuring hardware and software with WMI
  - Creating and maintaining AD users, groups and organisational units (OUs)
  - Managing local users and groups
  - Administering Exchange servers, users and mailboxes
  - Optimising productivity with PowerShell profiles

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## Course 969 Outline

### Introduction to PowerShell

- Identifying opportunities for automation
- Analysing shortcomings of existing automation solutions
- Combining the functionality of a shell and scripting language
- Expanding the scope of managed objects with the .NET Framework

### PowerShell Fundamentals

#### Assessing the PowerShell console

- Administering local and remote computers
- Capitalising on PowerShell help
- Navigating PowerShell drives

#### Configuring PowerShell

- Preventing execution of malicious code with an enhanced security policy
- Optimising the user environment through profiles

#### Invoking functionality through cmdlets

- Streamlining scripts with simplified syntax
- Improving productivity and maintainability through consistent command structure

#### Managing input and output

- Displaying complex data using **Out-GridView**
- Obtaining input from multiple file formats
- Formatting output for clarity
- Redirecting output to alternate locations

#### Manipulating PowerShell object instances

- Reading and writing object properties
- Driving object behaviour with method operators

#### Controlling Script Execution

##### Constructing the object pipeline

- Pipelining objects to streamline administrative tasks
- Isolating objects through filtering

##### Implementing flow control

- Enumerating objects via **foreach-object** loops
- Employing comparison operators and the **Switch** statement
- Creating modular code using functions

- Increasing the power of expressions with wildcard operators

#### Unleashing the power of .NET objects

- Working with .NET properties and methods
- Retrieving object information through reflection

#### Configuring Systems with Windows Management Instrumentation (WMI)

##### Exploiting WMI objects

- Instantiating WMI objects
- Conducting hardware and software inventories

##### Automating computer management with WMI object instances

- Assigning properties to control computer configuration
- Invoking methods to perform system administration
- Harnessing powerful WMI Query Language (WQL) queries

#### Leveraging the Active Directory PSProvider

##### Accessing Active Directory objects

- Creating users, computer and groups
- Efficiently altering and deleting existing objects
- Manipulating group membership

##### Administering local machines with the WinNT provider

- Accessing local SAM databases
- Tweaking local users and groups

#### Optimising Scripts

##### Troubleshooting your scripts

- Handling runtime errors
- Debugging your problem code
- Enabling strict-mode processing of variables

##### Designing and deploying production scripts

- Building script logic
- Signing scripts with the Set-AuthenticodeSignature cmdlet
- Enabling script execution through digital signatures

#### Administering Microsoft Servers

- Configuring Exchange servers
- Automating user mailbox creation

- Creating virtual machines on Hyper-V servers
- Configuring Virtual CPUs, Virtual Memory and Virtual Hard Drives