

## 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", is assumed. Scripting experience is strongly recommended.
- Hands-On Training** Exercises provide hands-on experience auto-mating 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
- Enabling code reuse with script modules
- Capturing module details with script manifests

### 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