

Windows PowerShell for Administrators

Course Summary

Description

This class will introduce administrators to the new Windows command-line shell, Windows PowerShell. Windows PowerShell offers both a command-line interface as well as a scripting environment. With connectivity to Microsoft products such as Microsoft Exchange Server 2007, Microsoft System Center Operations Manager (MOM 2007), and many more, Windows PowerShell provides a consistent interface to more easily control system administration and accelerate automation. It runs on Windows XP Service Pack 2 (SP2), Windows Server 2003, Windows Vista, and Windows Server 2008.

Objectives

At the end of this course, students will be able to:

- Use Windows PowerShell commands and navigate the Command Line Interface (CLI).
- Use pipelines and scripts.
- Manipulate data using variables and arrays.
- Create, execute, and sign scripts for security.
- Use script flow control statements.

Topics

- Introduction to Windows PowerShell - the Basics
- The Windows PowerShell Pipeline, Scripts, and Syntax
- Variables and Data Types, Variable Scopes, and Arrays
- Security
- Script Flow Control Statements
- Formatting
- Regular Expressions
- Functions
- Error Handling

Audience

This course is intended for IT professionals.

Prerequisites

Before attending this course, students must have experience administering servers.

Duration

Three days

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Course Outline

I. Introduction to Windows PowerShell - the Basics

- A. What Is Windows PowerShell?
- B. What Is Windows PowerShell?
- C. Installation
- D. Starting Windows PowerShell
- E. PowerShell Commands
- F. Shell Function Commands
- G. Script Commands
- H. Native Commands
- I. Command Line Interface (CLI) Navigation
- J. Windows PowerShell Cmdlets
- K. Windows PowerShell Snap-Ins
- L. Windows PowerShell Navigation
- M. Drives
- N. Aliases
- O. Parameters
- P. Help
- Q. Variables
- R. Windows PowerShell Profiles
- S. Creating a Profile

II. The Windows PowerShell Pipeline, Scripts, and Syntax

- A. Pipelines
- B. Scripts
- C. Properties and Methods
- D. Object Sorting
- E. Syntax, Special Characters, and Operators
- F. Quotes
- G. Output Redirection
- H. Command Continuation
- I. Special Characters
- J. Operator Precedence
- K. Operators Galore

III. Variables and Data Types, Variable Scopes, and Arrays

- A. Variables and Data Types
- B. More Data Types
- C. Variables with Variables!
- D. Environment Variables
- E. Get-Variable
- F. Set-Variable

- G. New-Variable
- H. Clear-Variable
- I. Remove-Variable
- J. Variable Scopes
- K. Arrays
- L. Associative Arrays

IV. Security

- A. Script Execution
- B. Running a Script
- C. Execution Policy
- D. Group Policy for Execution
- E. Script Signing
- F. Local Certificate Authority Creation
- G. Signing Certificate Creation
- H. Signing Scripts Using Certificates
- I. Secure String Creation
- J. Whatif
- K. Requesting Credentials and Using Secure Strings

V. Script Flow Control Statements

- A. Foreach and For
- B. Foreach
- C. For
- D. While/Do While/Do Until
- E. While
- F. Do While
- G. Do Until
- H. Branching with IF and SWITCH
- I. IF
- J. Switch
- K. Break/Continue
- L. Break
- M. Continue

VI. Formatting

- A. Using Format-cmdlets
- B. Format-List (FL)
- C. Format-Table
- D. Format-Wide
- E. Format-Custom
- F. Groupby
- G. Group-Object
- H. Session Colors
- I. Using Sort-Object, Where-Object

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Course Outline (cont'd)

- J. Sort-Object
- K. Where-Object
- L. Exporting Results to Files
- M. CSV
- N. XML
- O. HTML

VII. Regular Expressions

- A. Understanding Regular Expression Characters
- B. Using Regular Expressions
- C. Select-String

VIII. Functions

- A. Functions, Filters, and Arguments
- B. Functions
- C. Filters
- D. Function Management
- E. Scripting with Functions and Parameters
- F. Passing Arguments into a Script

IX. Error Handling

- A. Script Debugging

X. Advanced Scripting for Administrators

- A. Manipulating Files and Folders
- B. Modifying Registry Data
- C. Retrieving Event Log Information
- D. Understanding ADSI and Windows PowerShell
- E. Using the New-Object cmdlet
- F. Understanding Timer Jobs