



Windows Server • Course - 10961

Automating Administration with Windows PowerShell

Length

- 5 days

In five days, learn vital skills for administering and automating Windows servers with PowerShell 3.0. The class has a strong focus on PowerShell command-line features and techniques.

Prerequisites

No prior scripting, programming, or Windows PowerShell experience required. This course includes only basic coverage of scripting and programming topics.

You will also learn prerequisite skills for other Microsoft products. (e.g. Windows Server, Windows Client, Exchange Server, SharePoint Server, SQL Server, System Center, etc.)

Audience

IT professionals with Windows Server and/or Client administration experience.
IT professionals administering and supporting Application servers and services (e.g. Exchange, SharePoint, SQL).
Students who want to use Windows PowerShell to automate tasks from the command line.

What You'll Learn

- Basic concepts behind Windows PowerShell
- Understanding the Pipeline
- Work with the Pipeline
- Use PSProviders and PSDrives
- Format Output
- Use WMI and CIM
- Prepare for Scripting
- Moving From a Command to a Script to a Module
- Administer Remote Computers
- Put the various Windows PowerShell components together
- Use Background Jobs and Scheduled Jobs
- Use Advanced PowerShell Techniques and Profiles

Course Outline

Module 1: Getting Started with Windows PowerShell

This will introduce you to Windows PowerShell and its history. Also covers the basics of using the shell and explains the use of the two built-in host applications.

Lessons

1. Overview and Background
2. Finding and Learning Commands
3. Running Commands

Module 2: Working with the Pipeline

You will learn the basics of the Windows PowerShell pipeline. Includes techniques for customizing output, exporting/converting data, sorting objects, filtering objects, and enumerating objects.

Lessons

1. Understanding the Pipeline
2. Selecting, Sorting, and Measuring Objects
3. Converting, Exporting, and Importing Objects
4. Filtering Objects Out of the Pipeline
5. Enumerating Objects in the Pipeline

Module 3: Understanding How the Pipeline Works

Explains how Windows PowerShell passes objects from command to command within the pipeline. You will learn about pipeline operation, predict command behavior and construct useful, predictable commands.

Lessons

1. Passing Data in the Pipeline By Value
2. Passing Data in the Pipeline By Property Name

Module 4: Using PSProviders and PSDrives

Shows you how to use Windows PowerShell PSProviders and PSDrives for administrative tasks. Students will also learn to use the -item* commands to manipulate items within a PSDrive.

Lessons

1. Using PSProviders
2. Using PSDrives

Labs

- Lab: Configuring Windows PowerShell
- Lab: Finding and Running Basic Commands
- Lab: Using the Pipeline
- Lab: Converting, Exporting, and Importing Objects
- Lab: Filtering Objects
- Lab: Enumerating Objects
- Lab: Working with Pipeline Parameter Binding
- Lab: Using PSProviders and PSDrives
- Lab: Formatting Output
- Lab: Working with WMI and CIM
- Lab: Working with Security in Windows PowerShell
- Lab: Moving From Command to Script
- Lab: Moving From Script to Function to Module
- Lab: Implementing Basic Error Handling
- Lab: Creating an Advanced Function
- Lab: Using Basic Remoting
- Lab: Using Remoting Sessions
- Lab: Provisioning a New Server Core Installation
- Lab: Using Background Jobs
- Lab: Using Scheduled Jobs
- Lab: Practicing Advanced Techniques

Module 5: Formatting Output

Demonstrates how to format command output and how to create custom output elements.

Lessons

1. Using Basic Formatting
2. Using Advanced Formatting
3. Redirecting Formatted Output

Module 6: Querying Management Information by Using WMI and CIM

Explains Windows Management Instrumentation (WMI) and Common Information Model (CIM). Learn how to retrieve and modify management information about local and remote computers.

Lessons

1. Understanding WMI and CIM
2. Querying Data with WMI and CIM
3. Making Changes by Using WMI and CIM

Module 7: Preparing for Scripting

Learn how to write scripts with Windows PowerShell, including the security model and variables.

Lessons

1. Using Variables
2. Scripting Security

Module 8: Moving From a Command to Script to Module

Take a command that runs well in the console and turn it into a parameterized, reusable script. Learn how to evolve that script into a standalone script module. You will also learn the foundations needed to create your own reusable tools.

Lessons

1. Moving From Command to Script
2. Moving From Script to Function to Module
3. Implementing Basic Error Handling
4. Using Basic Scripting Constructs
5. Exploring Other Scripting Features

Module 9: Administering Remote Computers

Learn how to configure and use Windows PowerShell remoting to manage multiple remote computers.

Lessons

1. Using Basic Remoting
2. Using Advanced Remoting Techniques
3. Using Remoting Sessions

Module 10: Putting it All Together

Use everything you have learned so far. You will discover, learn, and run commands that perform a complex, real-world administrative task.

Lessons

1. Provisioning a New Server Core Instance

Module 11: Using Background Jobs and Scheduled Jobs

Learn how to create and manage background jobs and scheduled jobs.

Lessons

1. Using Background Jobs
2. Using Scheduled Jobs

Module 12: Using Profiles and Advanced PowerShell Techniques

Learn advanced Windows PowerShell features and techniques:

- Extra comparison operators
- Use of alternate credentials
- Creation of profile scripts
- Manipulation of strings and date objects

Lessons

1. Advanced PowerShell Techniques
2. Creating Profile Scripts
3. Working With Alternative Credentials