

PowerShell – 40 Hours

Objective:

- Understand the basic concepts behind Windows PowerShell
- Work with the Pipeline
- Understand How the Pipeline Works
- 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 module introduces students to Windows PowerShell, its purpose and history. The module will also cover the basics of using the shell, including the help system, command syntax, command discovery explaining the use of the two built-in host applications.

- Overview and Background
- Finding and Learning Commands
- Running Commands

Module 2: Working with the Pipeline

This module covers the Windows PowerShell pipeline along with a number of additional techniques and commands, including customizing command output, exporting and converting data, sorting objects, filtering objects, and enumerating objects allowing for the overall retrieval, manipulation and displaying of data.

- Understanding the Pipeline
- Selecting, Sorting, and Measuring Objects
- Converting, Exporting, and Importing Objects
- Filtering Objects Out of the Pipeline
- Enumerating Objects in the Pipeline

Module 3: Understanding How the Pipeline Works

This module explains the underlying details of how

Windows PowerShell passes objects from command to command within the pipeline. Having seen it in action in the previous module will now get to see some of the theory under the hood. The emphasis will be on two specific techniques used by the shell and students will learn to explain the pipeline operation, predict command behavior and allows them construct more useful, predictable commands.

- Passing Data in the Pipeline By Value
- Passing Data in the Pipeline By Property Name

Module 4: Using PSProviders and PSDrives

This module explains the purpose and use of Windows PowerShell PSProviders and PSDrives, and shows students how to use these useful components for administrative tasks. Students will also learn to use the `-item*` commands to manipulate items within a PSDrive.

- Using PSProviders
- Using PSDrives

Module 5: Formatting Output

This module demonstrates how to format command output and how to create custom output elements.

- Using Basic Formatting
- Using Advanced Formatting
- Redirecting Formatted Output

Module 6: Querying Management Information by Using WMI and CIM

This module explains Windows Management Instrumentation (WMI) and Common Information Model (CIM), and shows students how to retrieve and in some cases modify management information about local and remote computers.

- Understanding WMI and CIM
- Querying Data with WMI and CIM
- Making Changes by Using WMI and CIM

Module 7: Preparing for Scripting

This module prepares students for writing scripts with Windows PowerShell, covering the Windows PowerShell security model and the use of variables.

- Using Variables
- Scripting Security

Module 8: Moving From a Command to Script to Module

This module shows students how to take a command that runs well in the console and turn it into a parameterized, reusable script, and how to evolve that script into a standalone script module. Students will learn the foundations needed to create their own reusable tools.

- Moving From Command to Script
- Moving From Script to Function to Module
- Implementing Basic Error Handling
- Using Basic Scripting Constructs
- Exploring Other Scripting Features

Module 9: Administering Remote Computers

This module explains Windows PowerShell remoting, and shows students how to configure and use remoting to manage multiple remote computers.

- Using Basic Remoting
- Using Advanced Remoting Techniques
- Using Remoting Sessions

Module 10: Putting it All Together

This module offers students an opportunity to use everything they have learned so far. Students will discover, learn, and run commands that perform a complex, real-world administrative task.

- Provisioning a New Server Core Instance

Module 11: Using Background Jobs and Scheduled Jobs

In this module students will learn to create and manage background jobs and scheduled jobs.

- Using Background Jobs
- Using Scheduled Jobs

Module 12: Using Profiles and Advanced PowerShell Techniques

This module covers a variety of additional advanced Windows PowerShell features and techniques including additional comparison operators, use of alternate credentials, creation of profile scripts, manipulation of strings and date objects.

- Using Advanced PowerShell Techniques
- Creating Profile Scripts
- Working With Alternative Credentials