

PowerShell 3.0 for Support Professionals

Length: 3 Days

About this course: Learn how with Windows PowerShell 3.0, you can remotely manage single or multiple Windows-based servers and automate day-to-day management and administration tasks.

This three day course provides students with the fundamental knowledge and skills to use Windows PowerShell 3.0 for administering and automating administration of Windows based servers. It focuses on primary Windows PowerShell command-line features and techniques, and will provide prerequisite skills supporting many different Microsoft products. This includes Windows Server, Windows Client, Exchange Server, SharePoint Server, SQL Server, System Center, and more. In keeping with that goal, this course will not focus on any one of those products, although Windows Server (which is the common platform for all of those) will serve as the example for the techniques being taught.

In this three day course you will learn to execute and monitor scripts more efficiently through more robust session connectivity. Learn Windows PowerShell with greater ease through improved cmdlet discovery and simplified, consistent syntax across all cmdlets. Write Windows PowerShell scripts quicker and more intuitively through the new Integrated Scripting Environment (ISE) that enables script sharing, which connects IT pros to a larger Windows PowerShell user community.

Audience Profile: This course is intended for IT Professionals already experienced in general Windows Server and Windows Client administration or already experienced in administering and supporting Application servers and services including Exchange, SharePoint, and SQL. It is broadly intended for students who want to use Windows PowerShell to automate administrative tasks from the command line, using any Microsoft or independent software vendor (ISV) product that supports Windows PowerShell manageability.

This course is not intended to be a scripting or programming course, and includes only basic coverage of scripting and programming topics. Students are not expected to have prior scripting or programming experience, and are not expected to have prior Windows PowerShell experience

At Course Completion: After completing this course, students will be able to:

- 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

Prerequisites: Before attending this course, students must have:

- Previous Windows Server and Windows Client management knowledge and hands on experience.

- Experience Installing and Configuring Windows Server into existing enterprise environments, or as standalone installations.
- Knowledge and experience of network adapter configuration, basic Active Directory user administration, and basic disk configuration.
- Knowledge and hands on experience specifically with Windows Server 2012 and Windows 8 would be of benefit but is not essential.

COURSE CONTENT

Module 1: Getting Started with Windows PowerShell

In this module students will learn a bit about PowerShell's purpose and history, and will learn the basics of using the shell, including the help system, command syntax, command discovery and more.

Lessons

- Overview and Background
- Finding and Running Commands
- Lab : Configuring Windows PowerShell
- Configure the console application
- Configure the ISE Application
- Lab : Finding and Running Basic Commands
- Finding and Running Basic commands

Module 2: Working with the Pipeline

In this module students will learn to use PowerShell's pipeline, along with a number of new commands, to start retrieving, manipulating, and displaying data. An emphasis is placed on proper syntax and form.

Lessons

- Working with the Pipeline
- Exporting, Importing and Converting Data
- Filtering Objects Out of the Pipeline
- Enumerating Objects in the Pipeline
- Lab : Working with the Pipeline
- Retrieve data, manipulate objects and customise the final display
- Lab : Exporting, Importing and Converting

Data

- Import, Export and convert data within Windows PowerShell

Lab : Filtering Objects Out of the Pipeline

- Filter Objects Out of the Pipeline
- Examine Several Commands and Predict Their Output

Lab : Enumerate Objects in the Pipeline

- Enumerate Objects in the Pipeline and perform specific tasks>>>

Module 3: Understanding How the Pipeline Works

In this module students will learn the underlying details of how commands are passed from one command to another in the pipeline. Having seen it in action, they'll now get to see some of the theory under the hood. The emphasis will be in the ByValue and ByPropertyName techniques, with demonstrations that illustrate effective uses of each. Students will also learn techniques that can be used in lieu of pipeline binding, for when such binding is unavailable or ineffective.

Lessons

- Passing Data in the Pipeline ByValue
- Passing Data in the Pipeline ByPropertyName
- Lab : Working with Pipeline Parameter Binding
- Examine Several Commands and Predict Whether or Not They Will Work as Written
- Construct new Commands that Utilize Pipeline Parameter Binding

Module 4: Using PSProviders and PSDrives

In this module students will learn about PSProviders and PSDrives, and learn to use – Item* commands to manipulate items within a PSDrive.

Lessons

- Understanding PSProviders and PSDrives
 - Using PSDrives
- Lab : PSProviders and PSDrives
- Using PSProviders and PSDrives

Module 5: Formatting Output

In this module students will learn to manipulate command output to create customized on-screen, text file, and hardcopy results

Lessons

- Using Basic Formatting
 - Using Advanced Formatting
 - Redirecting Formatted Output
- Lab : Formatting Output
- Use Formatting cmdlets to customize those cmdlets output

Module 6: Using WMI and CIM

In this module students will learn to use Windows Management Instrumentation / Common Information Model (WMI/CIM) to retrieve, and in some cases, modify management information about local and remote computers.

Lessons

- Understanding WMI/CIM
 - Querying Data with WMI/CIM
 - Making Changes with WMI/CIM
- Lab : Working with WMI and CIM
- Locate and Query WMI Classes to retrieve Management Information

Module 7: Prepare for Scripting

In this module students will learn about pre-requisite features to writing PowerShell scripts,

including variables and PowerShell's scripting security features.

Lessons

- Using Variables
 - Scripting Security
 - Working with Alternate Credentials
- Lab : Working with Security in PowerShell
- Configure Execution Policy
 - Create and Use Alternate Credentials

Module 8: Moving From a Command to a Script to a Module

In this module students will learn to take a command that runs well in the console, and turn it into a reusable script. A number of important concepts, such as error handling, will be introduced – but not explored in extreme depth. Students will be taught enough to be “immediately effective” with these concepts, but not given an exhaustive education. The point is to get them started in an effective fashion using best practices, and to give them a basis for further independent exploration.

Lessons

- Moving From Command to Script
 - Moving From Script to Function to Module
 - Using Basic Scripting Constructs
 - Further Exploration in Scripting
- Lab : Moving From Command to Script
- Convert a Functioning command into a parameterized Script
- Lab : Moving From Script to Function to Module
- Encapsulate a Script into a Function, Turn the script into a Module and add debugging
- Lab : Adding Logic to a Script
- Add a function to a Script

Module 9: Administering Remote Computers

In this module students will learn how to configure and use PowerShell Remoting

Lessons

- Using Basic Remoting
- Using Remote Sessions

- Using Remoting for Delegated Administration
Lab : Working with Remoting
- Enable Remoting
- Remotely Manage Machines
Lab : Working with PSSessions
- Import a Module from a Remote Machines
- Establish and Use Connections with several computers
Lab : Remoting for Delegated Administration
- Create and Register a Custom Session Configuration
- Test the Custom Session Configuration