



Data Center Automation with PowerShell

The process of managing and automating the workflow and processes of a data center facility is called Data Center Automation. It helps in automating the data center operations including management, monitoring and maintenance activities.

Essentially, automating the servers, networks and routine processes such as patching, updating and reporting are the data center tasks come under the purview of data center automation. PowerShell is the Microsoft framework used for task automation and configuration management for data centers.

Windows PowerShell

Windows PowerShell consists of a command-line shell and is based on a .NET framework scripting language. Since its release in 2006, PowerShell has seen a wide adoption across the data center automation industry.

Why you must learn PowerShell for Data Center Automation?

- Every industry, including, IT relies heavily on automation.
- Data Centers generally deal with bulk data that often need to be managed, monitored and analysed in similar fashion – hence, the pressing need for data center automation.
- The quick speed, compatibility with .NET objects and forms, and management of domains are the reasons why PowerShell is a must-learn technology in data automation

Course Syllabus:

Module 1: Getting Started with Windows PowerShell

- Overview and Background
- Finding and Running Commands
- Lab : Finding and Running Basic Commands
- Finding and Running Basic commands

Module 2: Working with the Pipeline

- 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

- 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

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

Module 5: Formatting Output

- 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

- 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

- 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

- Moving From Command to Script
- Moving From Script to Function to Module
- Implementing Basic Error Handling
- 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 : Implementing Basic Error Handling
- Add Basic Error Handling capabilities to a Script
- Lab : Adding Logic to a Script
- Add a function to a Script

Module 9: Administering Remote Computers

- 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

Module 10: Administering Remote Computers

- Planning the Script
- Lab : Configuring a New Server Core Installation
- Determine Server Cores IP Address
- Add Server Core Computers IP Address to local TrustedHosts list
- Add the Server Core Computer to a Domain and Configure a DHCP reservation
- Add Specified Roles and features to the Server Core Computer

Module 11: Using Background Jobs and Scheduled Jobs

- Using Background Jobs
- Using Scheduled Jobs
- Lab : Working with Background Jobs
- Start Background Job
- Manage Existing Jobs
- Lab : Working with Scheduled Jobs
- Create, run and retrieve data using Scheduled Jobs

Module 12: Using Advanced PowerShell Techniques and Profiles

- Using Advanced PowerShell Techniques
- Creating Profile Scripts
- Lab : Practicing Advanced Techniques
- Practice Advanced Techniques
- Create a Profile Script that defines several parameter defaults

