

AZ-040T00- Automate Administration with PowerShell

Overview

Course Duration: 5 Days

About This Course

This course provides students with the fundamental knowledge and skills to use PowerShell for administering and automating administration of Windows servers. This course provides students the skills to identify and build the command they require to perform a specific task. In addition, students learn how to build scripts to accomplish advanced tasks such as automating repetitive tasks and generating reports. This course provides prerequisite skills supporting a broad range of Microsoft products, including Windows Server, Windows Client, Microsoft Azure, and Microsoft 365. 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 products, will serve as an example for the techniques this course teaches.

Audience Profile

This course is intended for IT Professionals who are already experienced in general Windows Server, Windows client, Azure, and Microsoft 365 administration, and who want to learn more about using Windows PowerShell for administration. No prior experience with any version of PowerShell or any scripting language is assumed. This course is also suitable for IT Professionals already experienced in server administration, including Microsoft Exchange Server, Microsoft SharePoint Server, and Microsoft SQL Server.

Course Outline

Module 1: Get started with Windows PowerShell

This learning path introduces you to Windows PowerShell and provides an overview of the product's functionality. It explains how to open and configure Windows PowerShell, run commands, and use its built-in Help system.

- Review Windows PowerShell
- Understand the command syntax in Windows PowerShell
- Find commands and Get-Help in Windows PowerShell

Module 2: Maintain system administration tasks in Windows PowerShell

This learning path covers cmdlets that are commonly used for system administration tasks related to Active Directory, network configuration, server administration, and Windows 10 device administration.

- Manage Active Directory Domain Services using PowerShell cmdlets
- Manage network service settings for Windows devices using PowerShell cmdlets
- Manage Windows Server settings using PowerShell cmdlets
- Manage settings for a local Windows machine using PowerShell cmdlets

Module 3: Work with the Windows PowerShell pipeline

This learning path explains the purpose and use of the PowerShell pipeline and use the pipeline to sort, filter, enumerate and display output data for PowerShell cmdlets. It also explains how to pass pipeline objects.

- Understand the Windows PowerShell pipeline
- Select, sort, and measure objects using the pipeline
- Filter objects out of the pipeline
- Enumerate objects in the pipeline
- Send and pass data as output from the pipeline

- Pass pipeline objects

Module 4: Work with PowerShell providers and PowerShell drives in Windows PowerShell

This learning path explains two technologies: PowerShell providers and PowerShell drives, which let you work with many forms of storage by using the commands and techniques that you use to manage the file system.

- Connect with data stores using PowerShell providers
- Use PowerShell drives in PowerShell

Module 5: Query management information by using Common Information Model and Windows Management Instrumentation

This learning path covers Windows Management Instrumentation (WMI) and Common Information Model (CIM). These technologies help to access information about computers. Additionally, both technologies provide local and remote access to management information from the operating system, computer hardware, and installed software.

- Review CIM and WMI
- Query configuration information by using CIM and WMI
- Query and manipulate repository objects by using CIM and WMI methods

Module 6: Use variables, arrays, and hash tables in Windows PowerShell scripts

This learning path explains how to work with variables, arrays, and hash tables in Windows PowerShell scripts.

- Manage variables in Windows PowerShell scripts
- Work with arrays and hash tables in Windows PowerShell scripts

Module 7: Create and modify scripts by using Windows PowerShell

This learning path explains how to create and modify scripts. It covers useful scripting techniques that include importing data from a file, accepting user input, and error handling.

- Create and run scripts by using Windows PowerShell
- Work with scripting constructs in Windows PowerShell
- Import data in different formats for use in scripts by using Windows PowerShell cmdlets
- Use methods to accept user inputs in Windows PowerShell scripts
- Troubleshoot scripts and handle errors in Windows PowerShell
- Use functions and modules in Windows PowerShell scripts

Module 8: Administer remote computers by using Windows PowerShell

This learning path covers remoting mainly in its default configuration, using HTTP on port 5985. It describes how to configure remoting to allow for—or require—encryption based on Secure Sockets Layer (SSL).

- Manage single and multiple computers by using Windows PowerShell remoting
- Use advanced Windows PowerShell remoting techniques
- Manage persistent connections to remote computers by using Windows PowerShell sessions

Module 9: Manage cloud resources by using Windows PowerShell

This learning path explains how to install the necessary modules for cloud services management and use PowerShell commands to perform simple administrative tasks on cloud resources such as Azure virtual machines, Azure storage accounts, and Azure subscriptions. The learning path also covers how to use the Azure Cloud Shell environment to perform PowerShell-based or Bash-based administration directly from the Azure portal.

- Review Azure PowerShell module
- Review the features and tools for Azure Cloud Shell
- Manage Azure resources with Windows PowerShell

Module 10: Manage Microsoft 365 services by using Windows PowerShell

This learning path explains how to efficiently manage the most commonly used services in Microsoft 365, such as Microsoft Entra ID, Microsoft Exchange Online, Microsoft SharePoint Online, and Microsoft Teams.

- Manage users, groups, and licenses in Microsoft Entra ID by using Windows PowerShell
- Manage Exchange Online by using Windows PowerShell
- Manage SharePoint Online by using Windows PowerShell
- Manage Microsoft Teams by using Windows PowerShell

Module 11: Create and manage background jobs and scheduled jobs in Windows PowerShell

This learning path explains the jobs feature of Windows PowerShell. Jobs are an extension point in Windows PowerShell, and there are several types of jobs. Each type works slightly differently and has distinct capabilities.

- Create and manage background jobs using Windows PowerShell
- Create and manage scheduled jobs using Windows PowerShell

Prerequisites

- Windows Server administration, maintenance, and troubleshooting.
- Windows Client administration, maintenance, and troubleshooting.
- Basic security best practices.
- Windows networking technologies and implementation.
- Core networking technologies such as IP addressing, name resolution, and Dynamic Host Configuration Protocol (DHCP).
- Familiarity with Windows networking technologies and implementation.
- Familiarity with Windows Server administration, maintenance, and troubleshooting.
- Familiarity with Windows PowerShell and its commands to perform specific tasks.
- Familiarity with PowerShell cmdlets used for system administration tasks related to Active Directory, network configuration, server administration, and Windows 10 device administration.
- Familiarity with Windows PowerShell pipeline, PowerShell providers, and PowerShell drives
- Familiarity with CIM and WMI technologies
- Familiarity to use variables, arrays, hash tables, and scripting constructs in Windows PowerShell
- Familiarity to administer remote computers with Windows PowerShell.
- Familiarity to manage Azure resources and Microsoft 365 services with Windows PowerShell