

Advanced Administration and Automation with PowerShell(M55626A)

Duration: 3 days

Audience: Professionnel TI

Who is this training for?

This course is intended for IT professionals with experience in general administration of Windows Server and Windows Client. This training can also support developers involved in development environments and deployment processes.

Training objectives

- Automate administrative tasks using Windows PowerShell
- Create and use advanced functions and scripting modules
- Manage pipeline inputs and outputs in PowerShell scripts
- Document and secure developed scripts
- Use complementary technologies such as .NET, REST, XML, and JSON
- Handle errors and debug PowerShell scripts
- Automate business processes using advanced scripts and features
- Implement Desired State Configuration (DSC) for Server Configuration Management
- Use Just Enough Administration (JEA) to strengthen administrative security
- Understand and leverage Windows PowerShell Workflow

Summary

This three-day course allows participants to automate administrative tasks using Windows PowerShell. You will be able to develop essential scripting skills, including creating advanced functions, writing control scripts, and handling errors in scripts. You'll also learn how to work with Windows PowerShell Workflow, the REST API, and XML and JSON data files. The training also covers the use of advanced administration tools such as Desired State Configuration (DSC) and Just Enough Administration (JEA) to configure and secure servers.

Course outline

Module 1: Creating Advanced Functions

This module explains how to set up a command in an advanced function.

Lessons

- Convert a command to an advanced function
- Create a scripting module
- Define parameter attributes and input validation
- Write functions that accept inputs from the pipeline
- Produce complex outputs in the pipeline
- Document functions using feedback-based help
- Support -WhatIf and -Confirm parameters

Labs

- Convert a command to an advanced function
- Create a script module
- Define Parameter attributes and input validation
- Writing functions with pipeline input
- Producing complex outputs in the pipeline
- Documenting functions
- Support for -WhatIf and -Confirm

Module 2: Using the Microsoft .NET Framework and REST API in Windows PowerShell

This module describes how to use the Microsoft .NET Framework and the REST API to complement the functionality offered by Windows PowerShell.

Lessons

- Use the Microsoft .NET Framework in Windows PowerShell
- Use the REST API in Windows PowerShell

Labs

- Use the Microsoft .NET Framework
- Use the REST API

Module 3: Writing Control Scripts

This module describes how to combine advanced functions to automate business processes and create control scripts.

Lessons

- Introduction to Control Scripts
- Writing Scripts with a User Interface
- Writing Scripts Producing Reports

Labs

- Scripting with a User Interface
- Scripting with a Text Menu
- Creating Functions for Control Scripts
- Generating HTML Reports

Module 4: Handling Script Errors

This module explains how to handle errors in PowerShell scripts.

Lessons

- Understanding Error Handling
- Handling Errors and Timeouts in a Script

Lab

- Handling Errors in a Script

Module 5: XML, JSON, and Custom Data

This module explains how to manipulate XML and JSON data.

Lessons

- Reading, Manipulating, and Writing XML Data
- Reading, Manipulating, and Writing JSON Data
- Reading and Manipulating Custom Data

Lab

- Manipulating XML Data

Module 6: Desired State Configuration and Just Enough Administration

This module covers server configuration and security with DSC and JEA.

Lessons

- Understanding Desired State Configuration (DSC)
- Creating and Deploying a DSC Configuration
- Implementing Just Enough Administration (JEA)

Labs

- Creating and Deploying DSC
- Configuring and Using JEA

Module 7: Analyzing and Debugging Scripts

This module describes how to analyze and remediate existing scripts.

Lessons

- Debugging in Windows PowerShell
- Analyzing and Debugging an Existing Script

Lab

- Analyzing and Debugging an Existing Script

Module 8: Windows PowerShell Workflow

This module introduces Windows PowerShell Workflow.

Lessons

- Understanding Windows PowerShell Workflow

Lab

- Creating and Running a Windows PowerShell Workflow

Approach and methodology

- Practical and structured approach combining focused theory and guided workshops.
- Participants gradually administer and automate environments with PowerShell through real-world exercises inspired by professional scenarios, promoting immediate application of learning. They learn how to create advanced scripts, automate complex tasks, and effectively manage Windows systems and services. The training focuses on interactivity and the development of directly transferable technical skills to optimize administration and automation in a professional context.

Prerequisites

Have completed the Automate Administration with PowerShell (AZ-040T00) or equivalent content.

Recommendations

- Solid foundation in PowerShell (scripts, cmdlets, pipeline)
- Knowledge of Windows/Windows Server administration
- Understanding of automation and system management concepts
- Hands-on experience in IT administration (strong asset)