

## Windows PowerShell Scripting and Toolmaking (PowerShell v3.0) (55039)

- **Formato do curso:** Presencial e Live Training
- **Localidade:** Porto
- **Data:** 07 Set. 2020 a 18 Set. 2020
- **Preço:** 1730€
- **Horário:** Pós-laboral - 18h30 - 22h00
- **Duração:** 35 horas

Five-day instructor-led course intended for IT Professionals who have a working knowledge of Windows PowerShell 3.0 techniques and technologies, and who want to build reusable tools by using Windows PowerShell 3.0.

Delegates may administer a wide variety of server and client products and technologies that offer Windows PowerShell integration, including Microsoft Exchange Server, Microsoft Windows Active Directory Domain Services, Microsoft SharePoint Server, and more. This course focuses on the Windows PowerShell scripting language, and on the concepts and techniques needed to produce reusable, professional tools.

### Destinatários

Administrators that have little or no programming experience, but who have a working knowledge of Windows PowerShell and who are able to use Windows PowerShell to run complex, interactive commands.

### Pré-requisitos

- Experience in administering Windows server and client computers
- Experience in running interactive Windows PowerShell commands from the command prompt
- Delegates attending this course must either have attended course M10961 - Automating Administration with Windows PowerShell v3.0 or have equivalent knowledge

### Objectivos

- Design tools, including input requirements, output requirements, and functional requirements.
- Write tools, including scripting, parameterizing commands, and providing verbose output.

- Debug tools and provide error handling within tools.
  - Combine tools into script and manifest modules.
  - Create custom formatting views.
  - Create tools that are consistent in naming and operation with native Windows PowerShell tools
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## Programa

### **Module 1: Preparing for Scripting**

This module explains how to prepare the environment for scripting, and provides refresher and background information for scripting.

Lessons

- Securing the Scripting Environment
- Understanding Variables and Operators
- Understanding Scripting Constructs and Scope

### **Module 2: Parameterizing a Command**

This module explains how to start with an existing command and parameterize it to create a reusable tool.

Lessons

- Designing Parameters
- Implementing Parameters

Lab : Parameterizing a Command

- Identify changeable values
- Declare parameters
- Use parameters in place of changeable values
- Test the script

### **Module 3: Creating a Script Module**

This module explains how to turn a basic script into a script module that can be distributed, loaded, and unloaded in Windows PowerShell.

Lessons

- Designing Script Modules
- Implementing Script Modules

Lab : Creating a Script Module

- Creating a Script Module
- Saving the script module

- Adding a module-level variable
- Controlling module member visibility
- Testing the script module

#### **Module 4: Handling Errors**

This module explains how to trap and handle errors within a script module.

Lessons

- Designing Error Handling
- Implementing Error Handling

Lab : Handling Errors

- Using the Try...Catch Construct
- Handling Command Errors
- Handling Non-Command Errors
- Logging Errors to a File
- Displaying Warning Messages

#### **Module 5: Writing Commands that Use Pipeline Input and Output**

This module explains how to write commands that integrate with the Windows PowerShell pipeline. Students will create commands that produce pipeline output and that accept pipeline input.

Lessons

- Understanding Pipeline Parameter Binding
- Implementing Pipeline Parameter Input
- Implementing Pipeline Parameter Input

Lab : Writing Commands that Use Pipeline Input and Output

- Adding Pipeline Input Capability to Parameters
- Working with Pipeline Input
- Creating Custom Output Objects
- Outputting Objects to the Pipeline

#### **Module 6: Creating Hierarchical Command Output**

This module explains how to create, and use, object-oriented output that includes object hierarchies.

Lessons

- Designing Complex Command Output
- Implementing Complex Command Output
- Using Object Hierarchies

Lab : Creating Hierarchical Command Output

- Retrieving and Enumerating Data
- Creating Child Objects
- Creating the Parent Object
- Displaying and Object Hierarchy
- Persisting an Object Hierarchy

## **Module 7: Debugging Scripts**

This module explains Windows PowerShell techniques used to debug scripts, and provides students with opportunities to practice debugging skills.

Lessons

- Designing Scripts for Debugging
- Implementing Script Debugging

Lab : Debugging Scripts

- Using Write-Debug
- Using PSBreakpoints

## **Module 8: Customizing Default Formatting**

This module explain how to create a custom formatting view that can be added to a script module.

Lessons

- Designing Formatting
- Implementing Custom Formatting

Lab : Customizing Default Formatting

- Adding a Custom Type Name to an Object
- Creating a DefaultDisplayPropertySet Type Extension
- Creating a Custom View
- Adding Type Extensions and Views to Modules and Creating a Module Manifest

## **Module 9: Adding Advanced Parameter Attributes and Command Documentation**

This module explains how to declare parameter aliases, help messages, and input validation. It also explains how to implement switch parameters, how to add support for the -WhatIf and -Confirm parameters, and how to add comment-based help to a command.

Lessons

- Implementing Advanced Parameter Attributes
- Implementing Help Documentation

Lab : Adding Advanced Parameter Attributes and Command Documentation

- Defining Aliases and Help Messages
- Defining Parameter Validation
- Adding Comment-Based Help
- Writing a Command that Uses -Confirm and -WhatIf

## **Module 10: Creating Controller Scripts**

This module explains how to create scripts that implement complex business processes by running multiple tools in a specified sequence.

Lessons

- Designing Script Execution
- Implementing a Controller Script

Lab : Creating Controller Scripts

- Creating a Controller Script
- Parameterizing a Controller Script
- Testing a Controller Script
- Debugging a Controller Script

## **Module 11: Creating HTML-Based Reports**

This module explains how to write controller scripts that produce HTML-based management reports.

Lessons

- Creating Basic HTML Reports
- Creating Enhanced HTML Reports

Lab : Creating Reports by using HTML

- Creating Reports by using HTML
- Converting Objects into HTML Fragments
- Combining HTML Fragments
- Adding Basic Formatting
- Creating Enhanced HTML Fragments
- Applying Conditional Formatting

## **Module 12: Creating Basic Workflows**

This module explains the key differences between Windows PowerShell functions and workflows, and shows delegates how to create a basic workflow.

Lessons

- Understanding Workflows
- Implementing Workflows

Lab : Creating Basic Workflows

- Importing the PSWorkflow Module
- Converting a Function to a Basic Workflow
- Parallelizing Commands

### **Module 13: Working with XML Data**

This module explains how Windows PowerShell interprets, represents, and manipulates XML-based data.

Lessons

- Understanding XML
- Implementing XML Manipulation

Lab : Working with XML Data

- Loading XML
- Manipulating XML as an Object Hierarchy
- Selecting XML Elements by using XPath
- Modifying XML
- Saving XML

### **Module 14: Using Advanced Scripting Techniques**

This module explains how to use advanced scripting techniques, including execution of external commands and graphical user interfaces.

Lessons

- Using External Functionality
- Adding Graphical User Interface Elements

### **Module 15: Creating Proxy Functions**

This module explains how to create proxy functions in Windows PowerShell.

Lessons

- Designing Proxy Functions
- Implementing Proxy Functions

Lab : Creating Proxy Functions

- Generating a Proxy Function Template
- Modifying the Template
- Using the Proxy Function
- Bypassing a Proxy Function

### **Module 16: Building Tools in Windows PowerShell**

This module is a final exam for the course, and offers delegates the opportunity to build a complete tool, from scratch, using many of the techniques that they have learned in the preceding days.

#### Lessons

- Designing the Tool
- Implementing the Tool
- Testing the Tool

#### Lab : Building Tools in Windows PowerShell

- Designing the Tool
- Implementing the Tool
- Testing the Tool