

kod szkolenia: MS 55039 / ENG DL 5d

# Windows PowerShell Scripting and Toolmaking



## Training recipients

This course is intended for administrators in a Microsoft-centric environment who want to build reusable units of automation, automate business processes, and enable less-technical colleagues to accomplish administrative tasks.



## Benefits

After completing this course, students will be able to:

- Describe the correct patterns for building modularized tools in Windows PowerShell
- Build highly modularized functions that comply with native PowerShell patterns
- Build controller scripts that expose user interfaces and automate business processes
- Manage data in a variety of formats
- Write automated tests for tools
- Debug tools



## Training program

1. Module 1: Tool Design
  - Tools do one thing
  - Tools are flexible
  - Tools look native
2. Module 2: Start with a Command
  - Why start with a command?
  - Discovery and experimentation
3. Module 3: Build a Basic Function and Module
  - Start with a basic function

- Create a script module
- Check prerequisites
- Run the new command

4. Module 4: Adding CmdletBinding and Parameterizing

- About CmdletBinding and common parameters
- Accepting pipeline input
- Mandatory-ness
- Parameter validation
- Parameter aliases

5. Module 5: Emitting Objects as Output

- Assembling information
- Constructing and emitting output
- Quick tests

6. Module 6: An Interlude: Changing Your Approach

- Examining a script
- Critiquing a script
- Revising the script

7. Module 7: Using Verbose, Warning, and Informational Output

- Knowing the six channels
- Adding verbose and warning output
- Doing more with verbose output
- Informational output

8. Module 8: Comment-Based Help

- Where to put your help
- Getting started
- Going further with comment-based help
- Broken help

9. Module 9: Handling Errors

- Understanding errors and exceptions
- Bad handling
- Two reasons for exception handling
- Handling exceptions in our tool
- Capturing the actual exception
- Handling exceptions for non-commands
- Going further with exception handling
- Deprecated exception handling

10. Module 10: Basic Debugging

- Two kinds of bugs
- The ultimate goal of debugging
- Developing assumptions
- Write-Debug

- Set-PSBreakpoint
- The PowerShell ISE

11. Module 11: Going Deeper with Parameters

- Parameter positions
- Validation
- Multiple parameter sets
- Value from remaining arguments
- Help messages
- Aliases
- More CmdletBinding

12. Module 12: Writing Full Help

- External help
- Using PlatyPs
- Supporting online help
- “About” topics
- Making your help updatable

13. Module 13: Unit Testing Your Code

- Sketching out the test
- Making something to test
- Expanding the test
- Going further with Pester

14. Module 14: Extending Output Types

- Understanding types
- The Extensible Type System
- Extending an object
- Using Update-TypeData

15. Module 15: Analyzing Your Script

- Performing a basic analysis
- Analyzing the analysis

16. Module 16: Publishing Your Tools

- Begin with a manifest
- Publishing to PowerShell Gallery
- Publishing to private repositories

17. Module 17: Basic Controllers: Automation Scripts and Menus

- Building a menu
- Using UIChoice
- Writing a process controller

18. Module 18: Proxy Functions

- A proxy example
- Creating the proxy base
- Modifying the proxy

- Adding or removing parameters
- 19. Module 19: Working with XML Data
  - Simple: CliXML
  - Importing native XML
  - ConvertTo-XML
  - Creating native XML from scratch
- 20. Module 20: Working with JSON Data
  - Converting to JSON
  - Converting from JSON
- 21. Module 21: Working with SQL Server Data
  - SQL Server terminology and facts
  - Connecting to the server and database
  - Writing a query
  - Running a query
  - Invoke-SqlCmd
  - Thinking about tool design patterns



### Expected preparation of the participant

Before attending this course, students must have:

- Experience at basic Windows administration
- Experience using Windows PowerShell to query and modify system information
- Experience using Windows PowerShell to discover commands and their usage
- Experience using WMI and/or CIM to query system information



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### Language

- Training: English
- Materials: English