

**Advanced PowerShell and Introduction to Desired State Configuration**

**Course Number:** MOCPKG-100  
**Duration:** 5 days

**Overview**

This Microsoft course, Advanced PowerShell and Introduction to Desired State Configuration, combines MOC 10962 and MOC 55202 to teach attendees how to use DSC to configure, manage, and maintain Windows-based servers and how to build more complex and capable PowerShell scripts.

**Prerequisites**

All students should understand the basics of PowerShell through Accelebrate's [Automating Administration with PowerShell (AZ-040)](file:////training/automating-administration-with-powershell) or have equivalent experience.

**Materials**

All Microsoft training students receive Microsoft official courseware.

**Software Needed on Each Student PC**

Attendees will not need to install any software on their computers for this class. The class will be conducted in a remote environment that Accelebrate will provide; students will only need a local computer with a web browser and a stable Internet connection. Any recent version of Microsoft Edge, Mozilla Firefox, or Google Chrome will work well.

**Objectives**

* Work with Desired State Configuration (DSC)
* Create MOF file workflows
* Use different methods for configuring data
* Create and use configuration files
* Use DSC Resources
* Implement parameters, push and pull models, configurations, and debugging techniques
* Create Advanced Functions
* Use Cmdlets and Microsoft .NET Framework in Windows PowerShell
* Write Controller Scripts
* Handle Script Errors
* Use XML Data Files
* Analyze and Debugging Scripts
* Understand Windows PowerShell Workflow

**Outline**

* Introduction
* PowerShell 5.0 Desired State Configuration Introduction
  + Understanding Desired State Configuration
  + Understanding DSC Metaphor
  + PowerShell is Imperative, or Declarative, or Both?
  + Exploring DSC from 30,000 Feet!
  + Examining Why to Put Effort into DSC (Or Inspire Me Dude)?
  + Understanding DSC Requirements
  + Examining PowerShell Version 4: DSC Features Added
  + Exploring PowerShell Version 5: DSC Improvements
* DSC Architecture
  + Taking a Preliminary Look
  + Updating the Help System
  + Exploring Management Models
  + Reviewing the MOF File Creation Workflow
  + Examining Methodologies of Configuration Data
  + Exploring Functions and Cmdlets Available for DSC with WMF 5.0
  + Understanding DSC Pull Server
* DSC Configuration Files
  + Preparing the Environment
  + Defining a DSC Configuration Script
  + Configuration Keyword
* DSC Resources
  + Examining File Resource
  + Exploring Archive Resource
  + Examining Environment Resource
  + Exploring Group Resource
  + Examining Log Resource
  + Understanding Package Resource
  + Examining Registry Resource
  + Exploring Script Resource
  + Examining Service Resource
  + Exploring User Resource
  + Examining WindowsFeature Resource
  + Understanding PsDscRunAsCredential
* DSC Pull and Push Servers
  + Discussing Parameters
  + Examining a Push Mode Example
  + Exploring the Pull Mode
  + Reviewing the Local Configuration Manager (LCM)
  + Placing Configurations and Resources for Distribution by the Pull Server
  + Discussing Configuration Drift
  + Debugging DSC in Version 5
* PowerShell 5.0 Basics
  + Introduction to PowerShell
  + Utilizing PowerShell
  + The Pipeline
  + Processing Data with Loops
  + Scripting and Functions
* Creating Advanced Functions
  + Converting a Command into an Advanced Function
  + Creating a Script Module
  + Defining Parameter Attributes and Input Validation
  + Writing Functions that use Multiple Objects
  + Writing Functions that Accept Pipeline Input
  + Producing Complex Function Output
  + Documenting Functions by using Content-Based Help
  + Supporting -Whatif and -Confirm
* Using Cmdlets and the Microsoft .NET Framework in Windows PowerShell
  + Running Windows PowerShell Commands
  + Using the Microsoft .NET Framework in Windows PowerShell
* Writing Controller Scripts
  + Understanding Controller Scripts
  + Writing Controller Scripts that Show a User Interface
* Handling Script Errors
  + Understanding Error Handling
  + Handling Errors in a Script
* Using XML Data Files
  + Reading, Manipulating and Writing Data in XML
* Analyzing and Debugging Scripts
  + Debugging in Windows PowerShell
  + Analyzing and Debugging and Existing Script
* Understanding Windows PowerShell Workflow
* Conclusion