

**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 computer 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 be fine.

**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