

KOENIG SOLUTIONS · COURSE OUTLINE

PowerShell 5.0 and Desired State Configuration

Learn to build, deploy and manage Desired State Configuration in PowerShell 5.0, from configuration files to pull and push servers.

7

MODULES

47

TOPICS

30

HANDS-ON LABS

COURSE OVERVIEW

This course covers Desired State Configuration (DSC) in PowerShell 5.0, starting with core concepts, the DSC metaphor and features added across versions 4 and 5. It then examines DSC architecture, including management models, MOF file creation and configuration data methodologies, before moving into writing and structuring DSC configuration files. Coverage continues with a range of DSC resources such as File, Archive, Registry, Service and User, and concludes with pull and push server models, the Local Configuration Manager, configuration drift and debugging. An appendix reviews PowerShell basics including the pipeline, loops, scripting and functions.

WHO THIS COURSE IS FOR

System Administrators

Infrastructure Engineers

DevOps Engineers

IT Operations Staff

PowerShell Scripters

LEARNING OBJECTIVES

- Explain the concepts and metaphor behind Desired State Configuration
- Describe DSC features introduced in PowerShell versions 4 and 5
- Compare push and pull management models used in DSC architecture
- Identify the stages of the MOF file creation workflow
- Develop DSC configuration files using the Configuration keyword
- Apply DSC resources such as File, Registry and Service
- Configure pull and push servers for distributing configurations
- Analyse configuration drift and debug DSC in PowerShell 5.0

7 Modules, 47 Topics

01

Lab

Course Overview

This module explains how the class will be structured and introduces course materials and additional administrative information.

TOPICS

Introduction · Course Materials · Facilities · Prerequisites · What We'll Be Discussing

02

Lab

PowerShell 5.0 Desired State Configuration Introduction

In this module, we explain Desired State Configuration (DSC), the concepts needed to understand the basics of how it works and discuss the features added in the two latest versions.

TOPICS

- 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

03

4 Labs

DSC Architecture

DSC utilizes DSC resources to determine whether or not the current state of the node matches the expected state, and those resources know how to change the current state to the expected state. Before we start to write configuration files and utilize resources, we are going to explore the two models of management, review MOF file creation workflows, and look at different methods of configuring data.

TOPICS

- 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

04**5 Labs**

DSC Configuration Files

In this module, we will examine the process to create configuration files and utilize them.

TOPICS

Preparing the Environment · Defining a DSC Configuration Script · Configuration Keyword

05**12 Labs**

DSC Resources

In this module, we will discuss and utilize DSC Resources.

TOPICS

- 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

06**6 Labs**

DSC Pull and Push Servers

In this module, we will discuss parameters, examine both push and pull models, and explore configurations and debugging.

TOPICS

- 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

07**Lab**

Appendix: 752552 PowerShell 5.0 Basics

This appendix is a subset of BlueBuffaloPress course 752552 with all of the labs removed. It is intended as a basic tutorial, or refresher for students attending the course it is attached to. You will find this appendix in many of our PowerShell courses.

TOPICS

Introduction to PowerShell · Utilizing PowerShell · The Pipeline · Processing Data with Loops · Scripting and Functions

Practise What You Learn

#	MODULE	ACTIVITY
01	Course Overview	Course Overview
02	PowerShell 5.0 Desired State Configuration Introduction	PowerShell 5.0 Desired State Configuration Introduction
03	DSC Architecture	■ DSC Architecture ■ Let's Allow PowerShell to Help Us! ■ Create A Sample Configuration File and Compile it into an MOF ■ Simple Deployment of MOF File to Change LCM Settings
04	DSC Configuration Files	■ DSC Configuration Files ■ Getting IntelliSense for the Parameters Working ■ Using Resources ■ Examine Node Filtering ■ Expand Filtering in Your Configuration File
05	DSC Resources	■ DSC Resources ■ Utilize the DSC File Resource ■ Utilize the DSC Archive Resource ■ Utilize the DSC Environment Resource ■ Utilize the DSC Group Resource ■ Enable the Analytic Log ■ Utilize the DSC Log Resource ■ Utilize the DSC Registry Resource ■ Utilize the DSC Script Resource ■ Utilize the DSC Service Resource ■ Utilize the DSC User Resource ■ Utilize the DSC WindowsFeature Resource
06	DSC Pull and Push Servers	■ DSC Pull and Push Servers ■ Create a Pull Server ■ Set Up the LCM ■ Distribute an MOF Via the Pull Server ■ DSC Fixes Things! ■ Test the Debug Feature
07	Appendix: 752552 PowerShell 5.0 Basics	Appendix: 752552 PowerShell 5.0 Basics

WHAT IS INCLUDED

Everything You Need to Succeed

- Koenig course material for every module
- Delivery by certified instructors and subject matter experts
- Hands-on exercises throughout the course
- Course completion certificate from Koenig

ABOUT KOENIG

Who We Are

Established in 1993, Koenig Solutions is a globally recognised training provider with 35+ technology partnerships, 5,000+ training programmes and a network of certified instructors and subject matter experts, supporting individuals and enterprise teams worldwide.

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