WorkshopPLUS – Windows PowerShell Desired State Configuration

WorkshopPLUS

Target Audience: This is an advanced level course for Windows PowerShell versions 4.0 and 5.0. The course is ideally targeted at IT staff who have already attended "Windows PowerShell v4.0 for the IT Professional Part 1". Completion of "Windows PowerShell v4.0 for the IT Professional Part 2" is also strongly encouraged. Previous PowerShell scripting experience is required. Attendees should already possess knowledge of Windows Server 2012 R2.

Overview

The *WorkshopPLUS – Windows PowerShell Desired State Configuration (DSC)* course provides attendees with the deep knowledge and techniques needed to deploy and troubleshoot server configurations using Desired State Configuration. The training includes common scenarios that enable resilient, self-healing server configurations. Through presentations, demonstrations, discussions, and goal-based labs, this workshop covers the required steps, best practices, and troubleshooting tools required to implement DSC features.

Key Features and Benefits

- ✓ Automate server build and configuration processes to be consistent and repeatable.
- ✓ Prevent configuration drift.
- ✓ Eliminate manual deployments in agile and DevOps scenarios.
- ✓ Migrate existing PowerShell server build scripts into the DSC environment for advanced logging, reporting, and resiliency.
- ✓ Securely encrypt credentials used in server configurations.
- ✓ Execute change controls without logging into a target server.

Technical Highlights

After completing this course, you will be able to:

- • Understand the Feature Architecture
- • Write Simple to Advanced Configurations
- • Implement Push and Pull Servers
- • Secure Configuration Data
- • Use and Write Resources
- • Integrate with Azure Virtual Machines
- • Leverage Best Practices
- • Troubleshoot and Report Configurations

Syllabus

Cloud-based Virtual Environments:
Requires a local workstation with the following minimum requirements
• *Internet access*
• *Windows 7 or later OS*
• *Internet Explorer version 9.0 or later*
• *Office 2010 or later needed to review classroom content*

Locally installed virtual environment:
• *Windows Server 2012 R2*
• *Quad core AMD/Intel processor with virtualization extensions and 2 GHz or higher CPU*
• *12GB RAM or higher*
• *60GB Free disk space for VMs (SSD Preferred)*
• *Internet access*

This workshop runs for three full days. Students should anticipate consistent start and end times for each day. Early departure on any day is not recommended.

Module 1: Introduction. Get an overview of Windows PowerShell Desired State Configuration (DSC), the requirements, versions, terminology, and implementation considerations. Understand where this technology can assist in server deployment and configuration.

Module 2: Push. Begin working with MOF files and the Local Configuration Manager (LCM). Then learn how to write a configuration and push it to a target server. Finally, query the status of the server after configuration.

Module 3: Pull. Build a central server to host configurations. Configure target nodes (servers) to get their configuration from the central server. Verify configuration success remotely.

Module 4: Security. Understand the certificate requirements for securing DSC data. Encrypt configuration credentials at rest. Encrypt configuration data in transit. Compare security techniques against compliance requirements.

Module 5: Resources. Work with configuration resources that are both built-in and open source. Discover and use resources from the Microsoft DSC Resource Kit. Stage resources for node use via either push or pull.

Module 6: Custom Resources. Write resources for custom configuration scenarios. Use both script-based and class-based techniques. Learn how to manage reboots, test, and version custom resources. Understand best practices for designing and testing resources.

Module 7: Troubleshooting. Configure the LCM to assist in troubleshooting scenarios. Enable and use the DSC event logs for researching issues. Leverage the xDscDiagnostics module to trace configurations on remote nodes. Use remote debugging for configurations and resources.

Appendix 1: Advanced Configurations. Use PowerShell scripting to automate configuration creation. Scale configurations for multiple nodes and multiple role configurations using ConfigurationData. Abstract configuration resources using Composite Configurations.

Appendix 2: Advanced LCM Scenarios. Configure a node with configuration data from multiple sources. Build multi-node configuration scenarios with cross-node dependencies. Compare configurations across multiple nodes for analysis and reporting.

Appendix 3: Reporting. Use the built-in DSC reporting web service to report on desired state details of nodes. Configure nodes for central reporting. Integrate DSC status into other enterprise monitoring tools.

Appendix 4: Azure. Configure virtual machines directly in Azure using the Azure DSC Extension. Apply configurations to existing Azure virtual machines. Automate dev/test scenarios.

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