

SQL Server PowerShell Course Content
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What Is Windows PowerShell:

- Command-Line Interfaces versus Graphical User Interfaces
- Prerequisites for Installing Windows PowerShell 2.0 2
 - Installing the Microsoft .NET Framework
 - Installing Windows Remote Management
- Installing Windows PowerShell
- Launching Windows PowerShell
- Using the Command console
- Using All Programs
- Using Start Run

Windows PowerShell Command Types, Snap-ins, and cmdlets:

- PowerShell Command Types
 - Native Commands
 - PowerShell cmdlets
 - Shell Function Commands
 - Script Commands
 - Calling PowerShell cmdlets or Scripts from the Command Shell
- PowerShell Snap-ins
 - Core
 - Host
 - PowerShell.Management
 - Security
 - Utility
 - Diagnostics
 - WsMan.Management
- PowerShell cmdlet Syntax
 - Named Parameter

- Positional Parameter
- Command Chaining

- Filtering
- Sorting
- Formatting

Windows PowerShell Programming, Scripting, Error Handling and Debugging:

- PowerShell Scripts
- PowerShell Variables
- Arrays
- Expressions
 - Operators
- Conditional Expressions
 - IF Statement
- Loop Construct
 - For Loop
 - While Loop
 - Do-While Loop
 - Do-Until Loop
 - Foreach Statement
- Input
- PowerShell Scripting
- Text File as Input
- Output
 - Writing to the Console
 - Writing to a File
- Error Handling
- Debugging

Windows PowerShell Functions, Parameters, Sourcing Scopes and User Profiles:

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- Functions
 - Arguments in Functions
 - Returning Values
- Script Parameters
- Sourcing
- Variable Scope
 - Function Scope
 - User Profiles
- Transcripts

Working with the File System, Registry and Variables:

- Using Get-PSDrive and Get-PSProvider
- Working with File System
 - Navigating the File System
 - Managing Files and Directories
 - Managing File Contents
- Working with the Registry
- Working with Variables
 - Automatic Variables
 - Preference Variables
 - User-Created Variables
- Working with Environment Variables

Working with Event Logs:

- Event Log Service
- Event Viewer
- Event Logs
- Log Entry Types
- Exporting the event logs
 - PowerShell cmdlets Related to event log

Working with Windows Services and Processes:

- What is a Windows Service?
- Windows PowerShell and Windows Services
 - Get-Service
 - Stop-Service
 - Start-Service
 - Set-Service
- Working with Windows Processes
- Get-Process
- Stop-Process

Working with WMI:

- Permission Issues and WMI
- The WMI Model
- Working with Event Log
- Working with Services
- Working with Processes
- Working with Environment Variables
- Working with the Registry

WMI Provider for Configuration

Management:

- Managing SQL Server Services
- Managing Client Network Protocols
- Managing SQL Server Client Aliases
- Managing Server Network Protocols
- Changing FILESTREAM Settings
- Changing SQL Server Advanced Properties

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WMI Provider for Server Events:

- WMI Provider for Server Events
- WMI Query Language (WQL)
- Event handling with Windows PowerShell 2.0
- Monitoring Errors from the SQL Server Error Log
- Monitoring Deadlocks
- Monitoring Blockings
- Monitoring Login Changes and Failed Login Attempts
- Monitoring Databases
- Monitoring Database Objects

Windows PowerShell in SQL Server 2008 Environment and SQL Server PowerShell Provider:

- sqlps Utility
- SQLSERVER: Drive and Invoke-Sqlcmd cmdlet
- SQL Snap-ins
- Encoding and Decoding Uniform Resource Name (URN)

Managing Policies through SQLSERVER:

\SQLPolicy:

- SQLSERVER:\SQLPolicy Folder
- Conditions
- Policies

Windows PowerShell and SMO:

- PowerShell and the SqlConnection .NET Class
- Working with SQL Server using SMO

- Methods and Properties
- Getting Version Information
- SQL Server SPID Information
- SQL Server Server-Related Information
- SQL Server Database-Related Information
- Changing the Login Mode
- Host Information
- Performance Counters
- Working with Databases using SMO
- Working with Tables using SMO
 - Creating Tables
 - Listing Columns
 - Removing Columns
 - Adding Columns
 - Dropping a Table
- Backup and Restore with SMO
 - Database Backup
 - Transaction Log Backup
 - Differential Backup
 - Restoring Full Backup
 - Restoring a Full Backup and Transaction Log Backup

Building SQL Server Standards and PowerShell Coding Standards:

- SQL Server Standards
- SQL Server Development Standards
 - Naming Conventions
 - General Rules
- Stored Procedure Standards
 - Keep Them Small
 - “DBO” As Object Owner

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- Use Comments Generously
 - Select *
 - Cursors
 - Temporary Tables
 - Things to Avoid
 - Things to Use
 - Check @@ERROR
 - Use SQL Server Date Data Types
 - DML Statements
 - ANSI-Standard Join Clauses
 - Deprecated Features
 - Database Design Standard and Best Practices
 - User-Defined Tables
 - Logs
 - Split tempdb
 - Databases
 - Security and Roles
 - Auto Create and Auto Update
 - Size
 - Auto Shrink and Auto Close
 - Design and Performance
 - Store Unstructured Data
 - More Performance Guidelines
 - Data Protection Standards and Best Practices
 - Backup Policy
 - SQL Server Production Standards
 - High Availability and Disaster Recovery
 - The Administration Database
 - The Scratch Database
 - Centralized Inventory Server
 - Database File Location and RAID
 - Segregation
 - Features
 - PowerShell Coding Standard
 - Default Parameters
 - Log File
 - Log Format
 - Comments
 - Display
 - Variable Naming Convention
 - Exception Handling
- Building SQL Server Inventory:**
- SQL Server Inventory
 - Hosts
 - Clusters
 - Cluster Nodes
 - Servers
 - Databases
 - Supplementary Tables
- SQL Server Installation:**
- Installation Procedure and Template
 - SQL Server Installation Template
 - Standalone Installation Example
 - Cluster Installation Example
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Collecting SQL Server Performance and Host Performance Data:

- SQL Server Performance Data Collection
- SQL Server Host Performance Data Collection
- Scripting Tables
- Scripting User Views
- Scripting Stored Procedures
- Scripting Functions
- Scripting XML Schemas
- Scripting Users

Monitoring SQL Server:

- Pinging SQL Server Hosts
- Checking SQL Server–related Services on SQL Server Hosts
- Checking Uptime of SQL Server Hosts
- Monitoring Windows Event Logs
- Monitoring SQL Server Error Log
- Monitoring Blockings
- Monitoring Deadlocks

Monitoring Disk Space Usage, Database Files, and Backups:

- Monitoring Disk Space Usage
- Monitoring Database Files
- Monitoring Backups

Defining Policies:

- Stored Procedure Naming Convention Policy
- Auto_Close and Auto_Shrink off Policy

Generating Database Scripts:

- Scripting Databases
 - Scripting Schemas
 - Scripting User-Defined Data Types
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