SQL 2012 and PowerShell for the bleeding edge DBA

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About Dave

0 Computer consultant since 1996
  0 Background in technical support, web application design, network administration
  0 Primarily Windows, SQL Server
  0 Dabble in Linux, Opensource
0 Microsoft Certified SQL Trainer since 2002
0 MCITP, MCAD, MCSE 2000(I like taking tests.)
0 Lead I.T. Engineer with CheckAlt Payment Solutions providing Check21 Remote Deposit Capture solutions.
0 Enjoy helping my clients solve their I.T. problems
0 PowerShell Student and Fan ☺
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Who's my audience?

0 SQL Pros!
- 0 Using SQL 2012, at least in dev
- 0 No PowerShell experience OK
- 0 Some PowerShell or batch programming background.
- 0 Advanced users should learn something too
- 0 Bleeding edge: ☺ Eager to learn the latest tools, search for the answers, and share what you know.

Overview

0 PowerShell 3 Quick Overview
- 0 PowerShell basics
- 0 New PowerShell 3 features
- 0 PowerShell 3 Integrated Scripting Environment (ISE)

0 SQL 2012
- 0 PowerShell Cmdlets
- 0 SMO / SQL Management Objects

0 Resources
- 0 Script Explorer
- 0 PowerShell Community Resources

What's PowerShell?

0 PowerShell is a scripting environment which provides one interface to Windows technologies like WMI, COM and .NET.

0 Cmd.exe on steroids!

0 Windows management tool of the future and today ☺

0 It doesn't replace TSQL, SSIS, .Net or command line, but it works with all of them. Another tool in your toolbox.

PowerShell 101

- 3 commands you need to know *
  - Get-Help
  - Get-Command
  - Get-ChildItem
- 3 concepts you need to know *
  - Cmdlets (Verb-Noun)
  - Variables ($myvariable)
  - Piping (Get-ChildItem | Where Name -Like "*.txt")

- Everything else is on the web ☺

*I'm vastly oversimplifying for the purposes of this slide. Learning PowerShell is a journey, not a destination. ☺

PowerShell 3 Tools

- From Microsoft
    - Windows Management Framework 3
      aka PowerShell 3
    - Integrated Scripting Environment (ISE) for PowerShell 3
    - Microsoft Script Explorer for Windows PowerShell
- Community Resources
    - PowerShell Community Resources
      http://bit.ly/ScdUYn
- PowerShell Tool Vendors
    - Sapien
    - Idera
    - -???

Windows Management Framework 3.0
aka PowerShell 3

0 Out of RC Sep 4, 2012
http://bit.ly/Q2ya3M

0 Built in to Windows 8 and Server 2012

0 Tons of Cmdlets http://bit.ly/KGbtQ9

   0 PowerShell Core

   0 SQL, Sharepoint, SystemCenter, Azure, Hyper-V, Exchange, Lync, many others

0 Can install to Server 2008 R2 SP1 and 2008 SP2 to manage downlevel servers from Server 2012

   0 Needs Framework 4.0

   0 http://bit.ly/QDBkZS

PowerShell changes from 2 to 3

0 Mostly backward compatible, use the same scripts.

0 Use $PSVersionTable to see current version

0 If your V2 scripts break, can still run in V2

    0 PowerShell.exe –version 2

    0 Invoke-V2Script

Cool PowerShell 3 Features

O Module Auto-Loading

O PowerShell Web Access

O WinRM Improvements

   O PSEXEC for PowerShell, Like Screen in Unix

   O Enable-PSRemoting -SkipNetworkProfileCheck

O Syntax Improvements

   O Where-Object

   O $PSDefaultParameterValues

   O Hash tables as objects

O Update-Help

O PowerShell 3 What's New Page
   http://bit.ly/HlfsRo

PowerShell ISE

O Integrated Scripting Environment

O The IDE for PowerShell

O New features in 3.0

    O Intellisense

    O Zoom

    O Command Add-On

SQL 2012 PowerShell Extensions

0 Microsoft® Windows PowerShell Extensions for Microsoft® SQL Server® 2012

    0 Part of Microsoft® SQL Server® 2012 Feature Pack

    0 http://bit.ly/K27cnf

    0 Requires PoSH 2, works with PoSH 3

0 Requires SMO

0 Backward Compatible to SQL 2005

What about SQLPSX?

0 Opensource library of dozens of SQL Cmdlets, before Microsoft provided SQLPS.

0 Still much more extensive that SQLPS

0 Wraps calls to SMO in PowerShell Cmdlets Backward compatible to SQL 2000

0 Last update March 2011

0 Still very useful for prior SQL versions

0 Partial PowerShell 3 support
   http://sqlpsx.codeplex.com/discussions/393377

SQL Management Objects

0 Access all aspects of SQL Server programmatically

0 You'll use this extensively in your PowerShell scripts

0 Developer's Reference: http://bit.ly/RyqCkb

0 SQLPS Cmdlets wrap this functionality for basic functions

0 SQLPSX takes it a step further http://www.sqlpsx.com/

Microsoft Script Explorer for Windows PowerShell

- Find community PowerShell scripts, modules and import them to your environment.
- (Release Candidate) Aug 9 2012 http://bit.ly/IjHkpd

Uses PowerShell Script Repositories

- Technet Script Center
  http://gallery.technet.microsoft.com/ScriptCenter/
- PoshCode
  http://poshcode.org/
- Extendable

- PowerShell Community Resources
  http://bit.ly/ScdUYn

Demo Topics

0 Explore SQLPS Cmdlets

0 Where-Object Syntax Enhancement

0 Get SQL Server Instances

0 Manage SQL Windows Services

0 Read SQL Error Logs

0 Query Disk Space on SQL Servers

0 Use WebClient, sp_Blitz and Export-CSV

0 Script SQL Tables

0 RestoreMultipleDBs SQL Job

Resources

O Whatever it is you're doing with PowerShell, someone has probably done it before and blogged about it!

O Take advantage of the excellent free resources out there for learning PowerShell.

O Read other people's code, and adapt for your needs.

O Use the tools!

SQL 2012 PowerShell Bloggers

0 Donabel Santos

   0 http://www.sqlmusings.com/

   0 Check out her webcast for Idera http://www.idera.com/Education/PowerShell-Webcasts/

   0 Wrote the book on SQL 2012 and PowerShell http://bit.ly/MsFi6Q

0 Laerte Junior

   0 http://www.simple-talk.com/author/laerte-junior/

Cool Tools for PowerShell

0 SPADE – SQL installation and configuration
http://sqlspade.codeplex.com/

0 PowerShell WMI Explorer
http://bit.ly/cAlOfP

0 PowerShell Scriptomatic
http://bit.ly/PIf0LG

0 PowerGUI – Wrap your scripts in a GUI
http://powergui.org

PowerShell Help

O Stackoverflow.com
http://stackoverflow.com/questions/tagged/PowerShell

O PowerShell Community Resources
http://bit.ly/ScdUYn

O Just search the web ☺ many great bloggers, may great resources

Call to Action

O Learn PowerShell 3!
  O Tons of free resources on the web
  O Play and learn
O Use SQL 2012 with PowerShell Cmdlets from the feature pack
O Explore scripts available on the web
  O You're probably not the first one with that problem, find their solution and adapt it for your environment.
O Share what you learn

References

- Dr Tobias Weltner's Mastering PowerShell
  http://PowerShell.com/Mastering-PowerShell.pdf
- PowerShell V2 Owners Manual
  http://bit.ly/P0s0g4
- Windows PowerShell 3.0 and Server Manager Quick
  Reference Guides
  http://bit.ly/LaojTT
- Stairway to SQL PowerShell
  http://bit.ly/MkM62G
- Running PowerShell 2 and 3 side by side
  http://bit.ly/tPkfAq