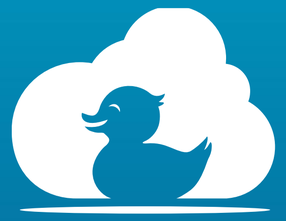

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DataTune Conference

Adding PowerShell to your DBA Toolbox

Ben Miller, Principal Consultant

Microsoft CERTIFIED Master

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DBADuck
ben miller

ben@benmiller.net
https://www.dbaduck.com

www.linkedin.com/in/dbaduck

www.twitter.com/DBAduck

www.facebook.com/DBAduck

SQL Server Certified Master

The first MCM in Utah. Has been working with SQL Server since 4.2, even on O/S2.

Microsoft Data Platform MVP

Awardee since 2009 for SQL Server. Contributes to Experts-Exchange and SQLServerCentral forums. Speaker at many SQL Saturdays around the country. I have led local PASS Chapters as well as founded the Virtual PowerShell Group.

PowerShell DBA

I have always loved automation and have used PowerShell since v1.0 I have spent many years using SMO and love to automate anything that I can to get the computer to do my work. I even wrote a chapter for the PowerShell Deep Dives book. On the Quest to become a PowerShell DBA.

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Agenda

- Introduction to PowerShell
- EcoSystem
- Versions of PowerShell
- Let’s See Some PowerShell

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Intro to PowerShell

- Verb-Noun is the command format (Get-Verb)
- $var instead of @var int
  - PowerShell infers the data type when assigned and is dynamic which means that the variable does not need to be declared
- Case Insensitive
- $Profile and Start-Transcript
- String manipulation in PowerShell (single)' or (double)"

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Syntax

- **Commenting in PowerShell**
  - -- is a single line comment in SQL Server
  - # is the single line comment in PowerShell
  - /* */ is the multi-line comment in SQL Server
  - <# #> is the multi-line comment in PowerShell

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Aliases

Select is an Alias for Select-Object

- Query objects for certain properties to output
- Sort is an Alias for Sort-Object
- Allows sorting of a collection of objects by properties
- Dynamic ones are accomplished by using HashTables @{ }

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Ecosystem of PowerShell

- Console vs. IDE
- ExecutionPolicy of user or Computer
  - RemoteSigned is the normal one to use
- Windows 2016 / Windows 10+
- TLS 1.2 as the default protocol
  - [System.Net.ServicePointManager]::SecurityProtocol = [System.Net.SecurityProtocolType]::Tls12;
- .NET is at the core of PowerShell (core or Framework)

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EcoSystem of PowerShell

- Modules – PowerShell Gallery
  - Set-PsRepsitory
- SMO – Programmatically using objects to manage SQL Server
- $env:PSModulePath is the governor of what PowerShell sees for modules

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Versions of PowerShell

- WinRM 5.1 (Windows Remote Management)
  - Windows 10, 11, Server 2016, 2019, 2022
  - Windows Only
- PowerShell 7.x (cross-platform)
  - Windows or Linux
  - Uses .NET and not .NET Framework so some things may not be present like they are in Windows

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PowerShell Demo

Let's See Some PowerShell

Review

- PowerShell is a great tool for DBAs
- Modules make the magic happen
- SMO is at the heart of all things DBA in PowerShell
- Practice is SUPER important to master this tool
- Do NOT give up. Keep at it and it will become your best tool

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Thank You for attending!

Contact Information:
Ben Miller - DBADuck
Email: ben@benmiller.net
Web: https://www.dbaduck.com

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