PowerShell Management in a Nutshell

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Agenda

- What is PowerShell?
- Why does it Matter?
- Key Features
- Demos
- Resources
- Q&A

WHO AM I?

- Windows PowerShell MVP
- PowerShell Author
  - Windows PowerShell 2.0: TFM (with Don Jones)
  - Managing Active Directory with Windows PowerShell: TFM (2nd Ed.)
  - PowerShell in Depth (with Don Jones and Richard Siddaway) *in progress*
  - MCPMag.com Prof. PowerShell
- IT trainer and consultant
- http://jdhitsolutions.com/blog
- http://twitter.com/jeffhicks
- https://plus.google.com/109354722869529171746

WHAT IS POWERSHELL?

- Windows PowerShell is an object-oriented management *engine* built on the .NET Framework

- It is Microsoft's required server management tool.

- It is primarily exposed to IT Pros as a console.

- …but it can be "hosted" by other applications

- GUIs built on top of PowerShell

WHAT IS POWERSHELL?

- 1.0 2006 Windows XP and later
- 2.0 2009 Added remoting, background jobs
- 3.0 2012 (?) Will ship with Windows 8. Downlevel support of Windows 7 and Server 2008 R2.
- Requires .NET Framework 3.0 and later
- Now a core part of the operating system
- Growing adoption by Microsoft product teams
- Growing adoption by vendors

WHY DOES IT MATTER?

- In the past IT Pro's needed to learn different tools and techniques to manage different platforms
- GUIs good for one-off tasks but don't scale.
- Enterprise efficiency requires automation.
- PowerShell provides an interactive management console
- …that also supports batch like scripting.
- *It's not a matter of if you'll be using PowerShell only a matter of when.*

Key Features

- PowerShell uses objects, not text.
- Objects are passed through a pipeline.
- Cmdlets are single purpose commands designed to work with objects in the pipeline.
- At the end of the pipeline is your result.

PIPELINE EXAMPLE

```
PS C:\> Get-Service

Status      Name                DisplayName
------      ----                -----------
Stopped     AeLookupSvc         Application Experience
Stopped     ALG                 Application Layer Gateway Service
Stopped     AppIDSvc            Application Identity
Stopped     Appinfo             Application Information
Stopped     A                                    Management
Stopped     a                                 e Service
Running     A                              Endpoint Builder
Running     A
Stopped     A                               aller (AxInstSV)
Stopped     BDESVC             BitLocker Drive Encryption Service
Running     BFE                Base Filtering Engine
Running     BITS               Background Intelligent Transfer Ser...
```

Text based shells would need to parse this output

PIPELINE EXAMPLE

```
PS C:\> Get-Service | Where {$_.Status –eq "running"}
```

Get all Service objects

Only keep objects that are running

```
                        Displ
                        -----
                        Appli
Running  AudioEndpointBu...  Windows Audio Endpoint Builder
                        Windo
Running  BFE              Base Filtering Engine
Running  BITS             Background Intelligent Transfer Ser...
Running                   Bluetooth Support Ser
Running  cmd              COMODO Internet Security Helper Ser...
Running  Config         g...  ConfigFree Gadget Serv
Running  ConfigFree Service  ConfigFree Service
Running  CryptSvc          Cryptographic Services
...
```

running running running running

running stopped running stopped

stopped stopped

KEY FEATURES - REMOTE MANAGEMENT

- You can gather information and manage remote computers using .NET and WMI

- PowerShell v2.0 uses WinRM and the WSMAN protocol to execute commands *on* the remote machine

- You can run a command on your desktop that runs ***simultaneously*** on 1-1000 (more machines).
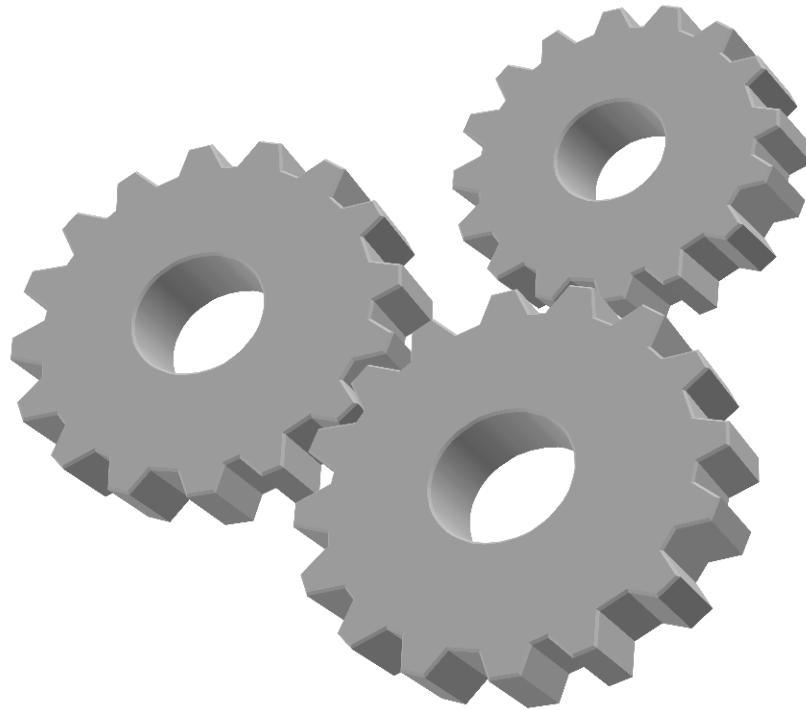
Key Features - More

- Background jobs
- Integrated help system
- Extended functionality through snapins and modules
- Simple scripting language
- Large and growing PowerShell community

Demos

- Demos are written mostly as one-liners.
- Focus on results not language or syntax

Resources - Books

- Windows PowerShell 2.0: TFM by Don Jones and Jeffery Hicks
- Learn PowerShell in a Month of Lunches by Don Jones
- Windows PowerShell Cookbook 2nd Ed. by Lee Holmes
- Windows PowerShell in Action 2nd Ed. by Bruce Payette

RESOURCES - WEB

- Windows PowerShell Team blog (http://blogs.msdn.com/powershell)
- The Lonely Administrator (http://jdhitsolutions.com/blog)
- Prof. PowerShell (http://mcpmag.com/articles/list/prof-powershell.aspx

RESOURCES - TRAINING

- Windows PowerShell Fundamentals Training (TrainSignal)
- Windows Server 2008 PowerShell Training (TrainSignal)
- Conferences: TechEd, TechMentor, The Experts Conference
- Private and public training

QUESTIONS

THANK YOU

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