PowerShell Background Jobs

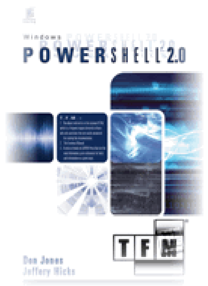
Jeffery Hicks
Windows PowerShell MVP
jhicks@jdhitsolutions.com

Agenda

- What is a job?
- Job Requirements
- Creating local jobs
- Creating remote jobs
- Managing Jobs
- Working with Job Results
- Troubleshooting Jobs
- What to do next
- 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
- IT trainer and consultant
- http://jdhitsolutions.com/blog
- http://twitter.com/jeffhicks



A NOTE…

- All demos and transcripts will be made available
- Demos are written mostly as one-liners.
- Focus on results not language

What is a Job?

- PowerShell is single threaded
- Running a command at the prompt “blocks” PowerShell until complete
- A background job “pushes” a PowerShell command to the “background” via a new runspace.

What is a Job?

- Jobs consist of one parent or executive job and one or more child jobs
- When you are ready, you can retrieve the results, if any
- No job notification process

Job Requirements

- PowerShell 2.0
- PowerShell Remoting (WinRM) configured, even if running jobs locally.
- PowerShell Remoting enabled and configured on remote computers for remote jobs.

Creating Local Jobs

- Start-Job
  - Script block
  - PowerShell script
  - Script blocks and scripts can accept parameters
- Cmdlet –AsJob parameter
  - Get-WMIObject
  - Invoke-Command
- Optionally, you can define a job name and/or save job to a variable

DEMO #1

CREATING REMOTE JOBS

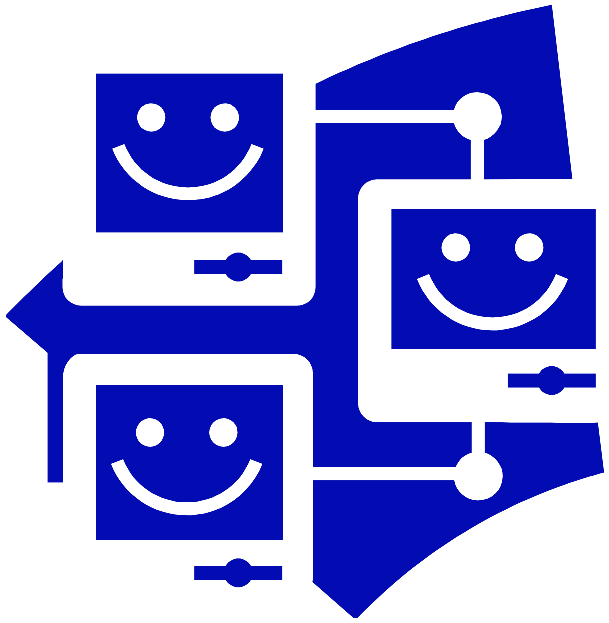
- Use the Invoke-Command cmdlet
  - Computername
  - AsJob
  - Credential
- You can create background jobs on multiple remote machines
  - Computernames
  - PSSessions
- Job is created locally but command runs remotely

Demo #2

Windows POWERSHELL 2.0

TFM

Don Jones
Jeffery Hicks



Managing Jobs

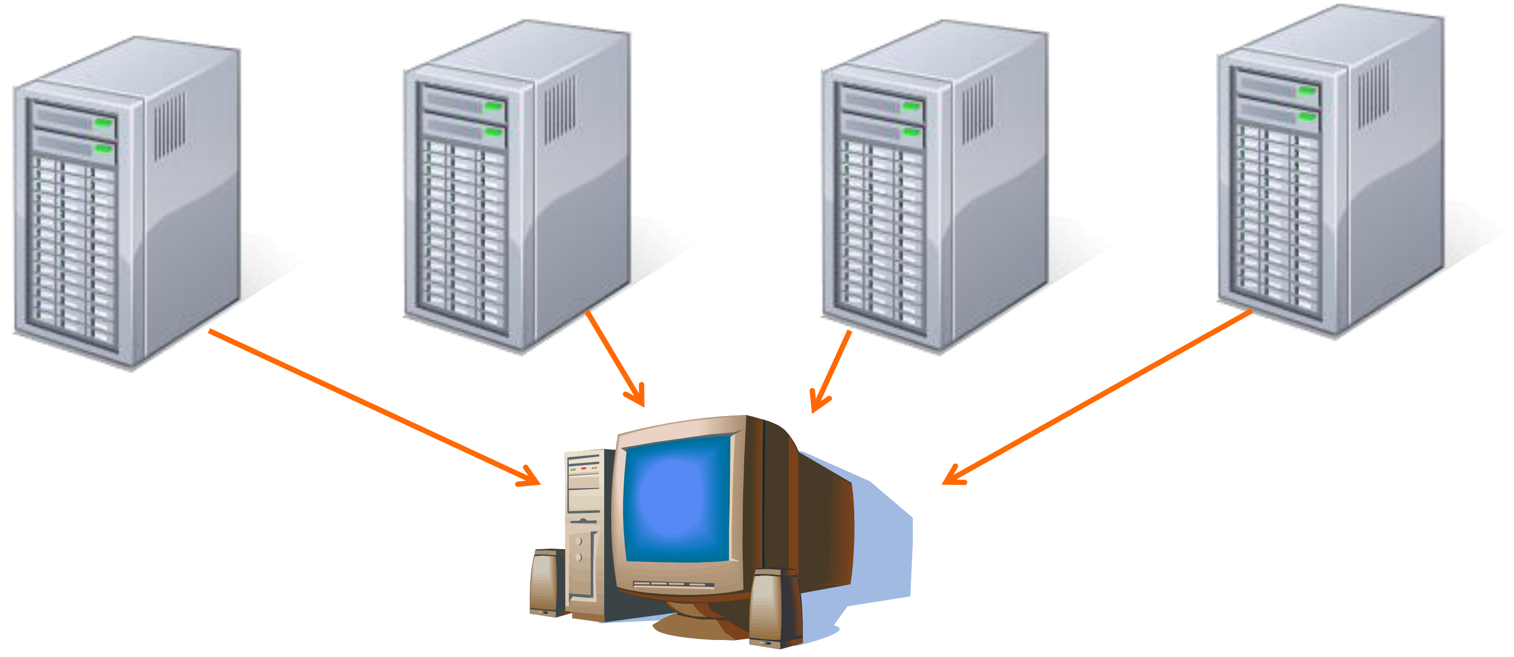
- Use Get-Job to retrieve one or more jobs
- Use Wait-Job to wait for a given job to complete. More useful in a PowerShell script
- Use Stop-Job to terminate a job
- Jobs cache ends when PowerShell session ends
- Use Remove-Job to manually clear one or more jobs

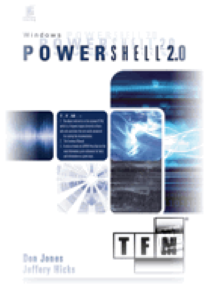
Working with Job Results

- Results stored in a local job cache
- Use Receive-Job to get results
- Results cleared unless you use –Keep

```
PS C:\> $data=Receive-Job 3 -keep
```

Demo #3



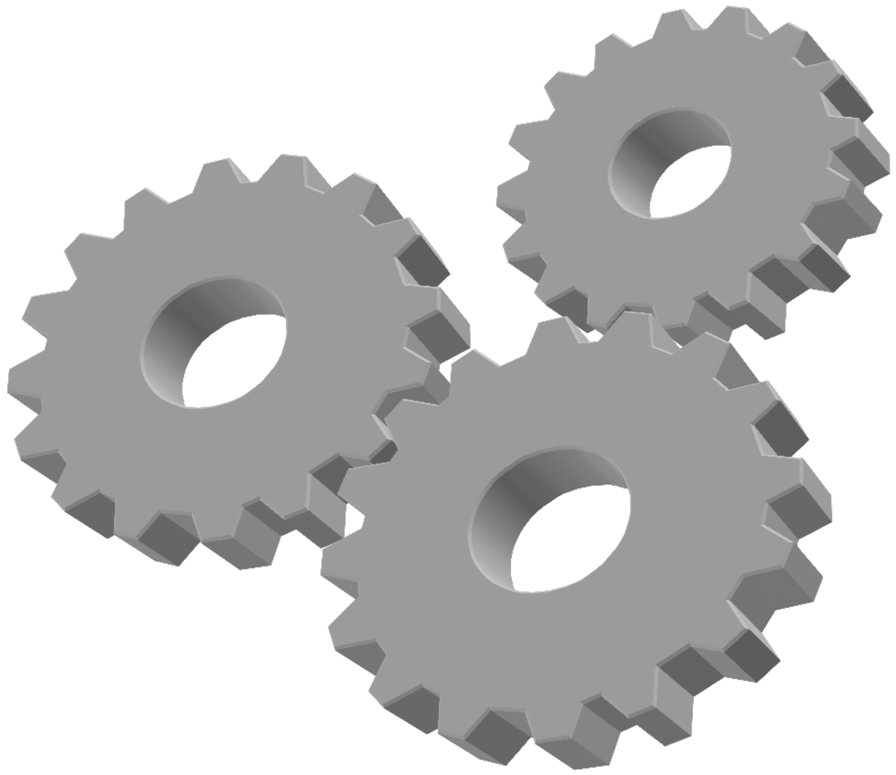


Troubleshooting Jobs

- Verify your command runs locally and interactively
- Verify WinRM and credentials with Test-WSMan
- Look at the JobStateInfo property on child jobs

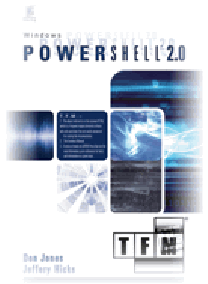
```
PS C:\> (get-job 9).childjobs[0].jobstateinfo.reason
Access is denied. (Exception from HRESULT:
0x80070005 (E_ACCESSDENIED))
```

Demo #4



Questions

RESOURCES



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

SUMMARY

- Jobs require remoting
- Use Start-Job to create local background jobs with either script blocks or script files.
- Look for the –AsJob parameter in cmdlets
- Use Invoke-Command to create jobs for remote systems
- Keep job results
- Use Remove-Job to manually clear jobs
- Look at help and examples for all the job cmdlets

Thank You

- http://jdhitsolutions.com/blog
- jhicks@jdhitsolutions.com