The SQL Server Experts
Discover. Optimise. Mentor.

Troubleshooting SQL Server with PowerShell

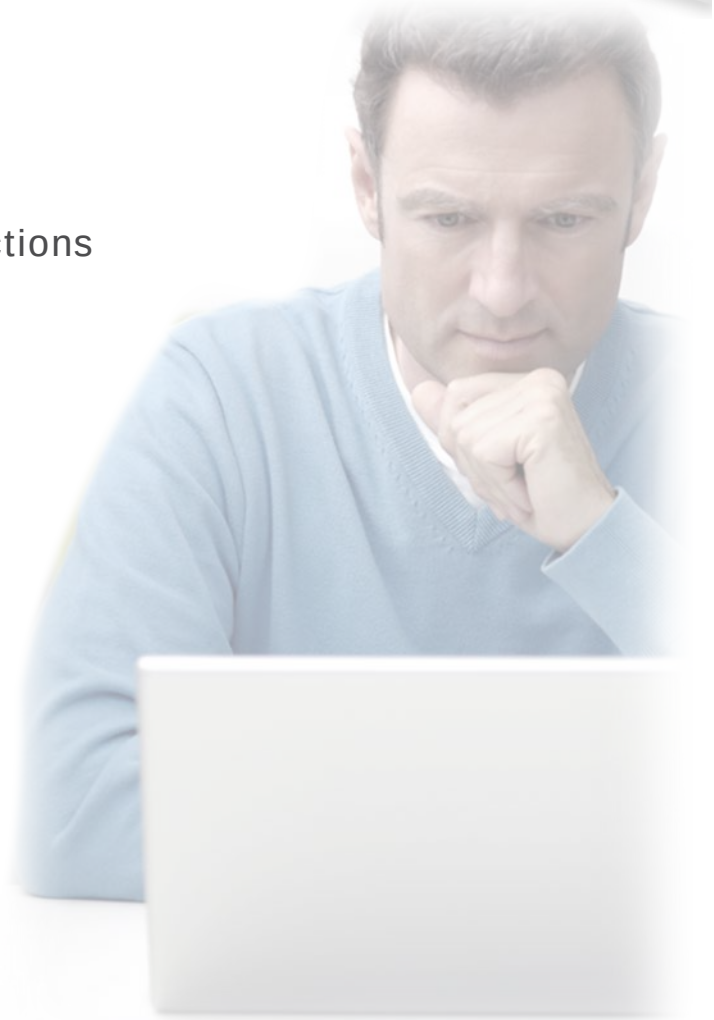
James Boother
james@coeo.com
@jimmyboo

Agenda

- PowerShell
- SQLPSX
- Conclusions
- Questions

Why PowerShell?

- Powerful Scripting Environment
  - Automate regularly executed tasks
  - Extend the framework with new modules and functions
- Access to WMI
- Access to File System
- Access to COM
- Access to the .NET Framework
- Access to Specialised Storage



Access to Windows Management Instrumentation (WMI)

```
Get-WmiObject Win32_logicaldisk `
    | Where-Object { $_.DriveType -eq 3 } `
    | Out-GridView
```

Access to the File System

```
Get-ChildItem . -Include *.trn -Recurse `
| Where-Object { $_.LastWriteTime -lt (get-date).AddDays(-8) } `
| Remove-Item


Get-ChildItem . -Include *.dif -Recurse `
| Where-Object { $_.LastWriteTime -lt (get-date).AddDays(-31) } `
| Remove-Item


Get-ChildItem . -Include *.bak -Recurse `
| Where-Object { $_.LastWriteTime -lt (get-date).AddDays(-91) } `
| Remove-Item
```

Access to COM

```
$a = New-Object -comobject Excel.Application

$a.Visible = $False

$b = $a.Workbooks.Add()
$c = $b.Worksheets.Item(1)

$c.Cells.Item(1,1) = "Hello Cambridge"
$b.SaveAs("C:\Presentations\SQLSaturday162\Demo.xls")

$a.Quit()
```

Access to the .NET Framework

```
[System.Guid]::NewGuid()
```

Troubleshooting SQL Server

PowerShell Troubleshooting Techniques

Finding Failed Jobs

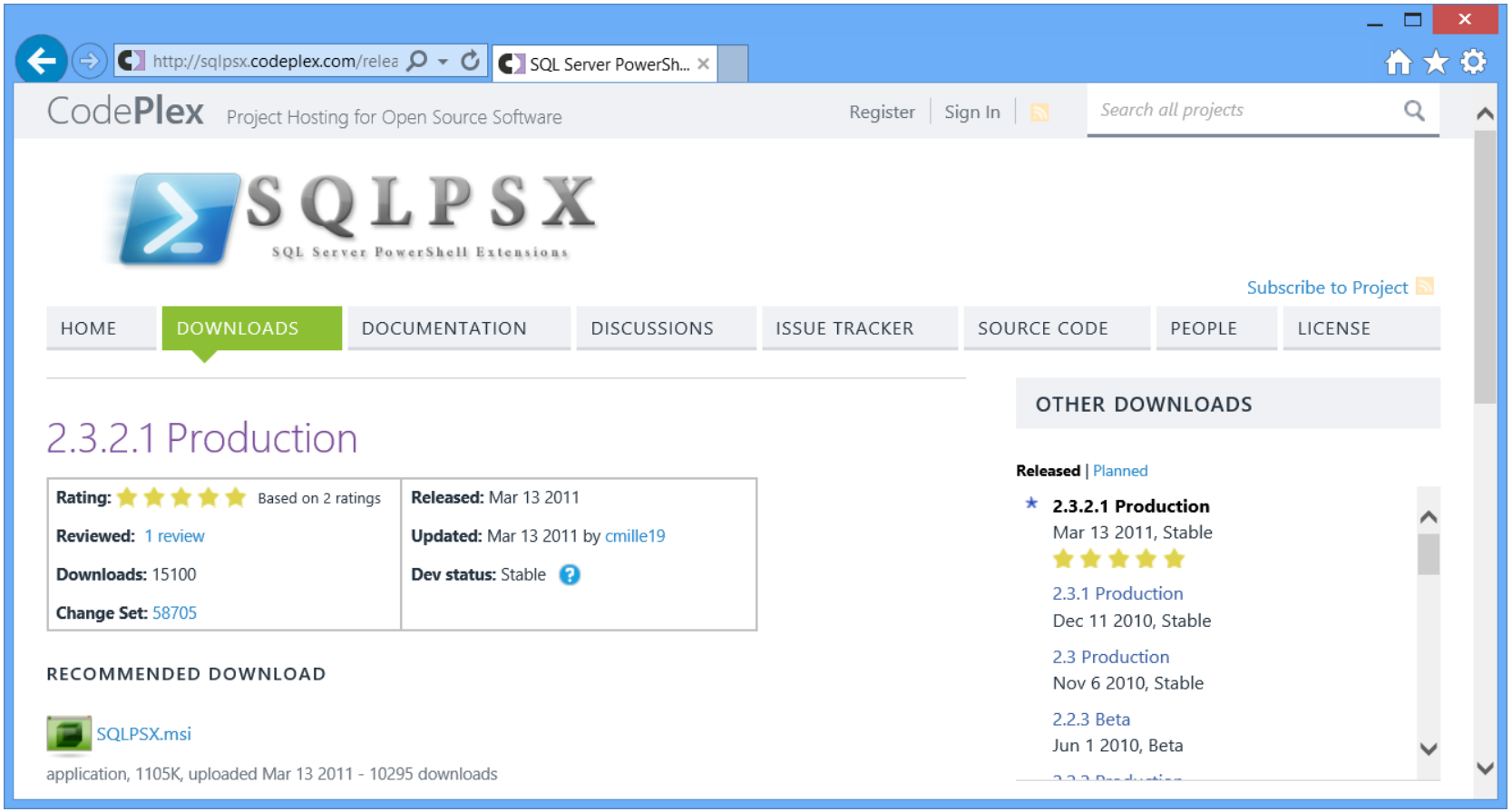
```powershell
[reflection.assembly]::LoadWithPartialName("Microsoft.SqlServer.Smo")

$Server = New-Object "Microsoft.SqlServer.Management.Smo.Server"
$Server.jobserver.jobs |
    where-object {$_.lastrunoutcome -eq "Failed" -and $_.isenabled -eq $true}
```

SQL PSX

Open Source SQL PowerShell Extensions

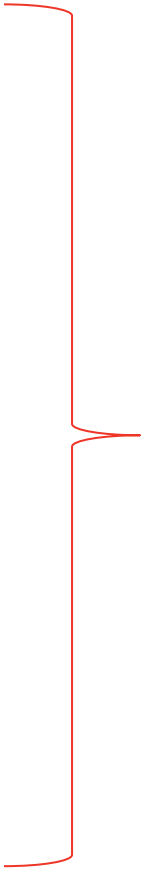
Download from Codeplex



http://sqlpsx.codeplex.com/releases/view/62503

SQLPSX Modules

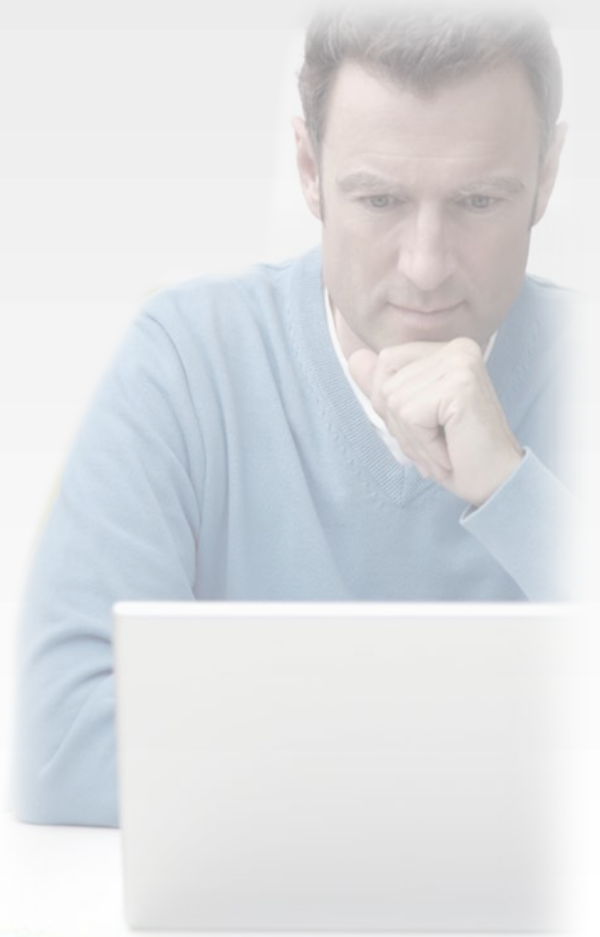
- import-module adolib
- import-module SQLServer
- import-module Agent
- import-module Repl
- import-module SSIS
- import-module SQLParser
- import-module Showmbrs
- import-module SQLMaint
- import-module SQLProfiler
- import-module PerfCounters



import-module SQLPSX

Demo

Gathering Performance Counter Data with PowerShell & SQLPSX



Setting up PerfCounters

```
Import-Module PerfCounters

Get-PerfCounterCategory -CategoryName "SQLServer*" | Sort-Object Category_Name `
| Get-PerfCounterInstance -InstanceName 'MSSQL' `
| Get-PerfCounterCounters `
| Save-ConfigPerfCounter -PathConfigFile 'C:\PowerShell\SQLServerPerfcounter.xml' -NewFile

Get-PerfCounterCategory -CategoryName "*Buffer*" `
| Get-PerfCounterInstance `
| Get-PerfCounterCounters -CounterName "*Hit Ratio*" `
| Save-ConfigPerfCounter -PathConfigFile 'C:\PowerShell\SQLServerPerfcounter_[ComputerName].xml'

Get-PerfCounterCategory -CategoryName "Process" `
| Get-PerfCounterInstance -InstanceName "sqlservr" `
| Get-PerfCounterCounters -CounterName "% Processor Time" `
| Save-ConfigPerfCounter -PathConfigFile 'C:\PowerShell\SQLServerPerfcounter_[ComputerName].xml'
```

Capture Data

```
Import-Module PerfCounters

Set-CollectPerfCounter -DateTimeStart "09/08/2012 08:00:00" -DateTimeEnd `
"09/08/2012 22:00:00" -Interval 10 -PathConfigFile `
C:\PowerShell\SQLServerPerfcounter_[ComputerName].xml -PathOutputFile `
C:\PowerShell\SQLServerPerfcounterData.txt  -RunAsJob
```

Load the data captured

```
Save-PerfCounterSQLTable -DatabaseName Master -NewTable `
-PathConfigFile C:\PowerShell\SQLServerPerfcounter_[ComputerName].XML -PathOutputFile `
C:\PowerShell\SQLServerPerfcounterData_[ComputerName].txt
```

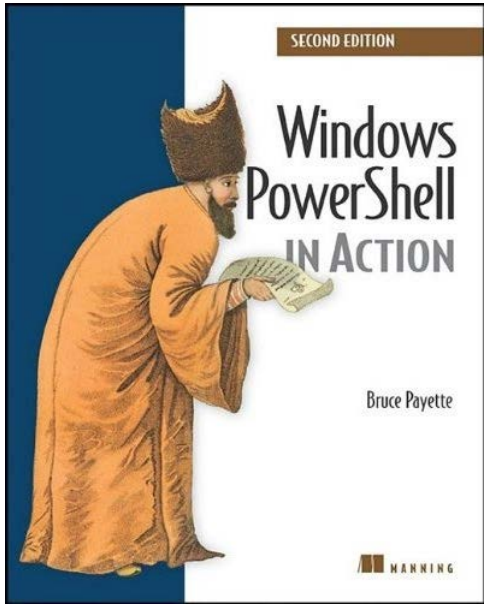
Conclusions

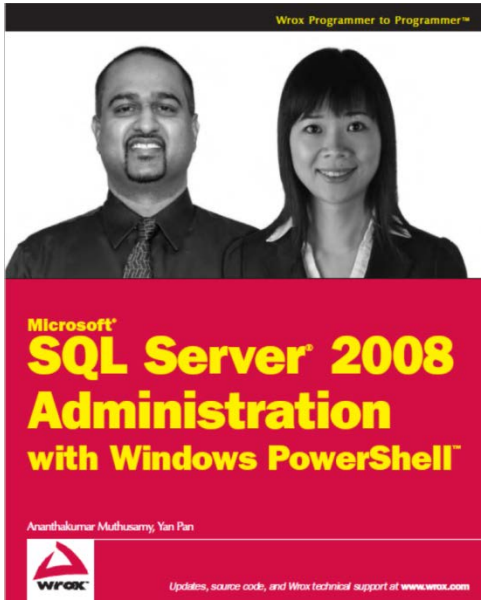
PowerShell is a modern object based scripting engine can be used to automate recurring tasks

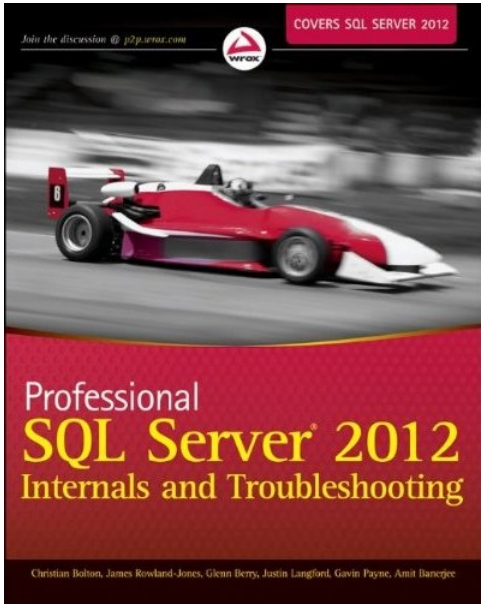
PowerShell provides access to File System; Registry; WMI; COM; .NET Objects and Specialist Data Stores such as SQL Server

SQL PSX – Extends PowerShell by adding 13 modules with 163 advanced functions, 2 cmdlets and 7 scripts to help with SQL Related tasks

Further Reading







Questions

Thank you – Please feel free to contact me

James Boother
james@coeo.com
@jimmyboo

The SQL Server Experts
Discover. Optimise. Mentor.