Powershell für .NET

07.04.2016 Trivadis Late Lounge

Manuel Meyer, Trivadis AG
www.manuelmeyer.net
@manumeyer1
Agenda

1. Powershell Basics

2. Advanced Powershell
   - Remoting / WMI / COM / .NET

3. PS Integration
   - Windows / IIS / SQL Server / TFS / Azure / Sharepoint

4. Demo Twitter
Powershell Basics
Key Features

- Automation
- PS Remoting
- PS Workflow
- .NET, COM, WMI, Perfcounters, EventLog, etc.

Integration in Products
- Windows, IIS, SQL Server, TFS, Microsoft Azure, Sharepoint.
The Shell

- Powershell.exe
- ISE
Basics

Verb-Noun Commandlets

Get-Process
Get-NetFirewallProfile
Set-Acl
Set-AutenticodeSignature
Add-PhysicalDisk
Remove-BitLockerKeyProtector
Show-EventLog
Basics

- Help
- Objects
- Pipelining
- Output
More Basics

- Comparison: -eq, -ne, -lt, -gt, -le, -ge, -contains, -notcontains
- Arrays, HashTables
- If-else, switch
- For, foreach, while, do-while
- Functions

```powershell
Function Invoke-WMIQuery {
    $wmiClass = ($WMI_txtbx.Text).Trim()
    Try {
        $Data = Get-WmiObject -ComputerName $ComputerName $ComputerName
        $OutputBox.Foreground = "White"
        $OutputBox.Text = $Data | Out-String
    } Catch {
        $OutputBox.Foreground = "Red"
        $OutputBox.Text = $_.Exception.Message
    }
}
```
Demo Basics
Advanced Powershell
Powershell Remoting

- Enter-PSSession
- …-Computername LTMME02
- Invoke-Command –Computername LTMME01, LTMME02, LTMME03 – Scriptblock { <cmd>}
COM Interop

- Speech
- Excel Interop
Windows Management Instrumentation (WMI)

“...a set of extensions to the Windows Driver Model that provides an operating system interface...”
Basics: Providers

- Get-PSProviders
  - Environment
  - FileSystem
  - Function
  - Registry
  - Certificate
  - IIS
  - SqlServer
  - ...

.NET

- Access any class from .NET
- Web Services
- Load Assembly and Show UI
- WPF Samples
PS Workflows

- Based on .NET Workflow Foundation
- Long-running, persistable workflows
- Interrupt, suspend, resume
- Sequence, Parallel, Foreach
PS Integration
Working with Windows

Roles & Features

Get-WindowsFeature/Install-WindowsFeature/Uninstall-WindowsFeature

Install-WindowsFeature Web-Server
-IncludeAllSubFeature -IncludeManagementTools

'WebSrv01', 'WebSrv02', 'WebSrv03'
| ForEach-Object
{Install-WindowsFeature Web-Server
-IncludeAllSubFeature -IncludeManagementTools -ComputerName $($_)
Install-WindowsFeature -ConfigurationFilePath d:\WebServerConfigFile.xml
Working with IIS

Import-Module WebAdministration

- Add, change, remove
  - Application pools
  - Web Sites
  - Virtual Directories
  - Web Applications
  - Website Bindings
- Backup & Restore
  - Web Configuration
Working with SQL Server

- Import-Module SQLPS or launch from SSMS
- Execute T-SQL
- Backup & Restore DBs
- Generate Scripts for DB, Tables, Procedures
Working with TFS

- Get info
  - Work Items
  - Source Control

- Manage
  - Workspaces
  - Changesets, Shelvesets, Pending Changes
  - Build Definitions
  - …
Working with Sharepoint

- Install Sharepoint
- Manage
  - Site Collections
  - Lists
  - ...
- Import/Export
Working with Microsoft Azure

- Manage
  - Storage
  - VMs
  - WebSites
  - Resources
  - Active Directory
  - ...
- Create multi-tier IaaS environments
Demo KUDU
### Kudu Remote Execution Console

Type 'exit' then hit 'enter' to get a new powershell process.  
Type 'cls' to clear the console

```powershell
PS D:\home> get-process
```

<table>
<thead>
<tr>
<th>Processes</th>
<th>Handles</th>
<th>NPM(K)</th>
<th>PM(K)</th>
<th>WS(K)</th>
<th>VM(M)</th>
<th>CPU(s)</th>
<th>Id</th>
<th>ProcessName</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>58</td>
<td>8</td>
<td>4688</td>
<td>5164</td>
<td>32</td>
<td>0.03</td>
<td>51976</td>
<td>cmd</td>
</tr>
<tr>
<td></td>
<td>152</td>
<td>15</td>
<td>11520</td>
<td>16180</td>
<td>124</td>
<td>0.17</td>
<td>55252</td>
<td>DaaSRunner</td>
</tr>
<tr>
<td></td>
<td>245</td>
<td>21</td>
<td>36852</td>
<td>36616</td>
<td>196</td>
<td>1.27</td>
<td>51328</td>
<td>powershell</td>
</tr>
<tr>
<td></td>
<td>4694</td>
<td>115</td>
<td>142412</td>
<td>179084</td>
<td>761</td>
<td>6.5952</td>
<td>17788</td>
<td>w3wp</td>
</tr>
<tr>
<td></td>
<td>817</td>
<td>92</td>
<td>78196</td>
<td>88704</td>
<td>727</td>
<td>4.63</td>
<td>54100</td>
<td>w3wp</td>
</tr>
</tbody>
</table>
```
Demo Twitter