Microsoft | Solution Accelerators

PowerShell Support in SCAP 1.2

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Topics

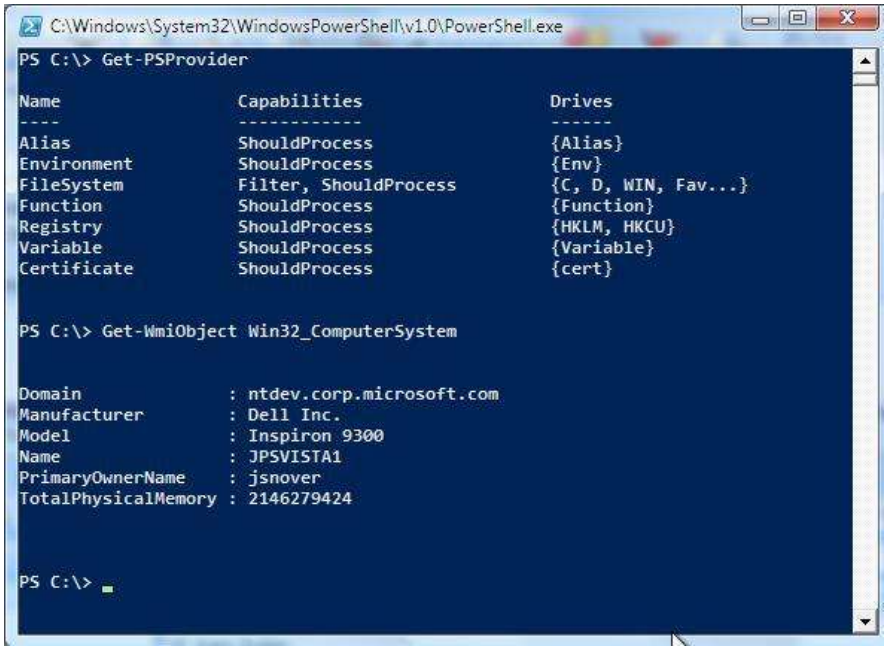
- Problems and Business Needs
- PowerShell Overview
- PowerShell configuration in SCAP 1.2
- Demo
- Q/A

Problems and Business Needs

- Some new Microsoft security baselines are using PowerShell Cmdlets as the only method for security configuration automation (e.g. Exchange, SQL and soon to be Windows 8)
- Microsoft Common Engineering Criteria requires the use of PowerShell Cmdlets for all administrative tasks, including configuration management
- SCAP1.1 does not support scripting or more specifically PowerShell

Windows PowerShell

New command-line shell and scripting language



- As interactive and composable as BASH/KSH
- As programmatic as Perl/Python/Ruby
- As production oriented as AS400 CL/VMS DCL
- Allows access to data stores as easy to access as filesystem
- Consistent interface to access configurations

Demo

Usage in Microsoft

- Common Engineering Criteria
  - *Deliver a complete set of task-oriented cmdlets which cover:* ***Configuration (read/write),*** *Operational verification tests, Lifecycle, Security, Diagnostics, and Data Management.*
- Broad, enthusiastic product adoption
  - Customer feedback and move to services
- Strong momentum and investment stream

PowerShell Openness

- Used IEEE Std 1003.2-1992 Posix Shell as a starting point for the language and VMS DCL syntax for CLI
- Submitted to the DMTF SMASH committee to standardize CLI and scripting for ALL Oses and HW management
  - Converted from VMS to UNIX CLI syntax to increase probably of standardization
- PASH – Open Source PowerShell
- PowerShell Remoting Protocol [MS-PSRP] published as an Open Specification
  - http://msdn.microsoft.com/en-us/library/dd357801(PROT.10).aspx
- Language licensed under the Community Promise
  - http://blogs.msdn.com/b/powershell/archive/2011/04/16/powershell-language-now-licensed-under-the-community-promise.aspx

Q/A

PowerShell Support in SCAP 1.2

- OVAL Requirements
- Design Considerations
- Samples
- Demo

Requirement Considerations

- Establishing a framework allows mixing of different check approaches
- Providing built in support for value parameterization
- Leveraging an industry proven model for interactions with XCCDF
- Requiring the simplest possible statements based upon the cmdlet needed, the input parameters, and expected output
- Leading to atomic checks that focus on single low-level configuration statements

Design Considerations

- Build OVAL definitions using a constrained PowerShell interface instead of allowing arbitrary scripting
- The new PowerShell identifiers must be similar to the existing OVAL type identifiers
- Keep the initial design/schema simple and cover major scenarios
- Build the initial definition with future extension in mind
- Complete data model and structure covers both GET (security check/monitoring) and SET (deployment), not format dependent

Demo

- Configuration Management through PowerShell

Microsoft Proposal with sample (1)

User scenario: collect Exchange server anti-spam update configuration

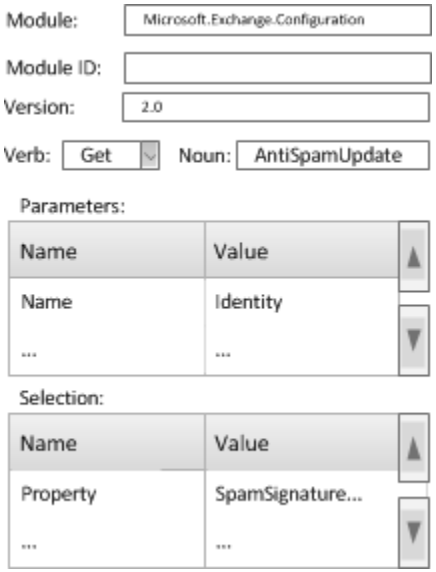
Proposed PowerShell Cmdlet

```
> Get-AntiSpamUpdates -Identity contoso-server | Select-Object -Property
SpamSignatureUpdatesEnabled
```

Proposed SCAP

```
<win-def:cmdlet_object  id="oval:sample:obj:14" version="1" comment="check the
type of Microsoft Forefront Security for Exchange Server anti-spam updates that are
retrieved.">
  <modulename>Microsoft.Exchange.Configuration</modulename>
  <moduleid></moduleid>
  <moduleversion>1.0</moduleversion>
  <verb>Get</verb>
  <noun>AntiSpamUpdates</noun>
  <parameters>
    <field name="Identity">contoso-server</field>
  </parameters>
  <select>
    <field name="Property">SpamSignatureUpdatesEnabled</field>
  </select>
</win-def:cmdlet_object>
```

Data model UI



Benefits of proposed design

- Structuralized data/model
- Simple and precise format
- Scalable
- Extendable

Microsoft Proposal with sample (2)

User Scenario: "Check all service hosts resource usage."

Proposed PowerShell Cmdlet

```
  > Get-Process -Name svchost | Select-Object -Property
NonpagedSystemMemorySize,PagedSystemMemorySize,PeakPagedMemorySize,PeakWorkingSet
```

Proposed SCAP

```
    <win-def:cmdlet_object xmlns="http://oval.mitre.org/XMLSchema/oval-definitions-6#PowerShell"
id="oval:sample:obj:2" version="1" comment="Check all service hosts resource usage.">
      <modulename>Microsoft.PowerShell.Management</modulename>
      <moduleversion>2.0</moduleversion>
      <verb>Get</verb>
      <noun>Process</noun>
      <parameters>
        <field name="Name">svchost</field>
      </parameters>
      <select>
        <field name="Property">
NonpagedSystemMemorySize,PagedSystemMemorySize,PeakPagedMemorySize,PeakWorkingSet</field>
      </select>
    </win-def:cmdlet_object>
```

SCM Prototype Demo

Q/A

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