Patch Compliance On Windows

Patch Information
Get-Hotfix

Patch-Velocity
Counts the number of patches applied per day

Get-Hotfix | Sort-Object InstalledOn -Descending

Patch-Age
Patch age of a system is the number of days since the last patch was applied:

```
$lastPatchDate = (Get-HotFix | Sort-Object InstalledOn -Descending |
Select-Object -First 1).InstalledOn
$lastPatchDate
(New-TimeSpan -Start $lastPatchDate -End (Get-Date)).TotalDays
```

Patch Compliance on Debian-based Linux Distributions

Change shell to Powershell Core
Pwsh

Patches installed by the Apt package manager are logged in:
/var/log/dkpg.log

Patch-Velocity
Counts the number of patches applied per day

```
Get-Content /var/log/dpkg.log* | Select-String " install " -NoEmphasis
Get-Content /var/log/dpkg.log* |
   Select-String " install " -NoEmphasis |
   Out-File ./patches.txt -Encoding ascii
$lines = Get-Content ./patches.txt
($lines | Where-Object { $_ -match "^[0-9]" }) -replace " .*$"
```

Patch-Age
Patch age of a system is the number of days since the last patch was applied:

```
$lastPatchDate = ($lines |
   Where-Object { $_ -match "^[0-9]" }) -replace " .*$"  |
   Select-Object -last 1
$patchAge = (New-TimeSpan -Start (Get-Date -date $lastPatchDate) `
   -End (Get-Date)).TotalDays
"Last Patch Date: $lastPatchDate"
"Patch Age: $patchAge"
```

Windows Compliance Measurements

Check that the Administrator account is disabled:
Get-LocalUser -Name Administrator

Check that the Guest account is disabled:
Get-LocalUser -Name Guest

Save the list of local users to a variable and then test to see if both Guest and Administrator are disabled:

```
$disabledUsers = Get-LocalUser | Where-Object Enabled -eq $False
($disabledUsers.Name -contains 'Administrator') -And
($disabledUsers.Name -contains 'Guest')
```

Enumerate the members of local groups:

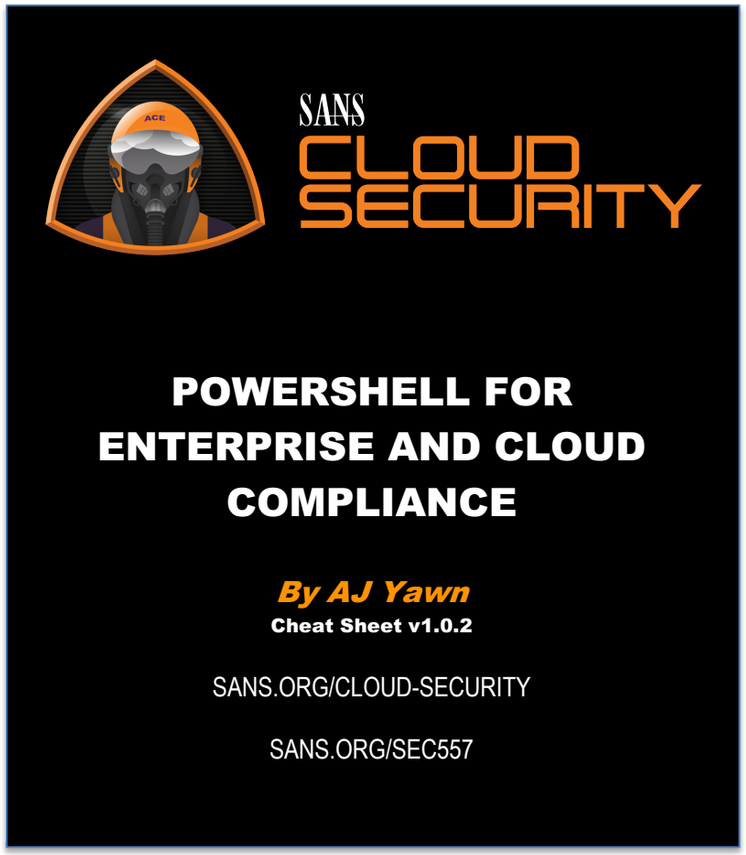
```
(Get-LocalGroupMember -Name Administrators | Measure-
Object).Count
(Get-LocalGroupMember -Name 'Power Users').Count
```

Check that a Windows services is installed, enabled and running:

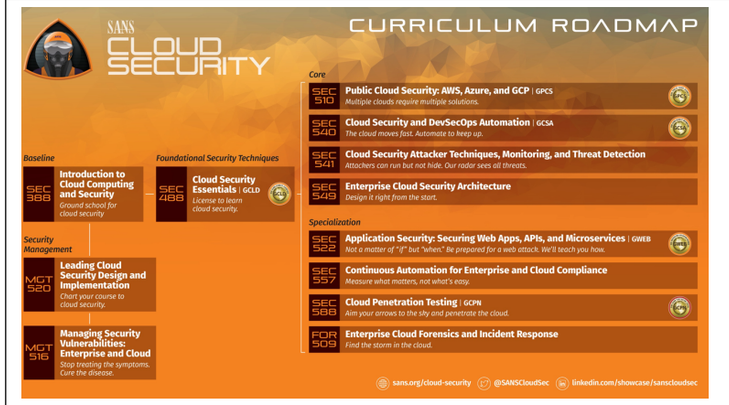
```
((Get-Service -Name '<service name>').Count -ge 1 ) -And
((Get-Service -Name '<service name>').Status -eq 'running') -And
((Get-Service -Name '<service name>').StartType -like 'Automatic*')
```

All commands, unless stated otherwise, have been tested in the **SEC557: Continuous Automation for Enterprise and Cloud Compliance** course VMs using PowerShell Core.

SANS Cybersecurity Leadership Curriculum



SANS Cloud Security Curriculum



AWS Compliance Measurements

Make sure current version AWS PowerShell module is available for use.
Install-Module -name AWSPowerShell.NetCore -Scope CurrentUser -Force

Load AWS Module
Import-Module AWSPowerShell.NetCore

Authenticate to AWS
Set-AWSCredential -StoreAs <name of profile> **-AccessKey YourAccessKeyHere -SecretKey YourSecretKeyHere**

CIS AWS Benchmark Control 1.4
(Get-IAMAccountSummary).AccountAccessKeysPresent

CIS AWS Benchmark Control 1.5
(Get-IAMAccountSummary).AccountMFAEnabled

CIS AWS Benchmark Control 1.8
Get-IAMAccountPasswordPolicy

CIS AWS Benchmark Control 1.13
```
Get-IAMUserList | ForEach-Object {  Get-IAMAccessKey -UserName $_.UserName }
```

CIS AWS Benchmark Control 1.15
```
(Get-IAMUserList | ForEach-Object  {
   Get-IAMUserPolicies -UserName $_.UserName | Select-Object PolicyName
   Get-IAMAttachedUserPolicies -UserName $_.UserName | Select-Object PolicyName
}
```

CIS AWS Benchmark Control 3.1
Get-CTTrail

Measure VMWare host configuration

Gather information about the VMWare host system and configuration
Get-VMHost -Server <name>

Validate common hypervisor settings
(Get-VMHost).ExtensionData
Leverage the Config property in ExtensionData to get in depth config settings (example DNS resolver configuration below)
(Get-VMHost).ExtensionData.Config.Network.DNSConfig
Measure if DNS settings are configured correctly:
```
$dnsservers = (Get-VMHost).ExtensionData.Config.Network.DNSConfig | Select-Object -ExpandProperty address
$dnsservers -contains '8.8.8.8'
$dnsservers -contains '8.8.4.4'
```
Validate the NTP server(s) configured on VMWare host
Get-VMHost -Server <name> **| Get-VMHostNtpServer**
Validate that the NTP service is running and is configured to run at startup
Get-VMHost | Get-VMHostService | Where-Object {$_.key -eq "ntpd"} | Select-Object VMHost, Label, Key, Policy, Running, Required

Patch Data
(Get-ESXCli -Server esxi1).software.vib.list()
Patch velocity
(Get-ESXCli -Server esxi1).software.vib.list() | Group-Object InstallDate
Patch Age
```
$lastPatchDate = ((Get-ESXCli -Server esxi1).software.vib.list() | Sort-Object InstallDate -Descending | Select-Object -First 1).InstallDate
$patchAge = (New-TimeSpan -Start $lastPatchDate -End (Get-Date)).TotalDays
$patchAge
```

Review Nessus Vulnerability Scan Details

Navigate and set the location of the Nessus files
Set-Location C:\user\Desktop\2021Scans

View what files exist in the directory
Get-ChildItem

Let's assume there are a lot of Nessus files to process, save them to a variable
```
$scanResults = Import-Csv -path (Get-ChildItem *.csv |
  Select-Object -ExpandProperty FullName)
```

Group the results by Risk
```
$scanResults | Group-Object Risk
$scanResults | Group-Object Risk | Where-Object Name -eq 'Critical'
```

Identify hosts with largest numbers of critical vulnerabilities
```
$scanResults |
  Where-Object Risk -eq 'critical' |
  Group-Object Host |
  Select-Object Count, Name |
  Where-Object Count -gt 5 |
  Sort-Object Count -Descending
```

Identify percent of vulnerabilities marked as critical
```
$criticalCount =
 ($scanResults |
   Group-Object Risk |
    Where-Object Name -eq 'Critical'
 ).Count
$totalCount = ($scanResults |  Where-Object Risk -ne 'None').Count
$criticalCount/$totalCount
```