

# **Chapter 1: Getting Started with Windows PowerShell**

Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

Untitled1.ps1\* X

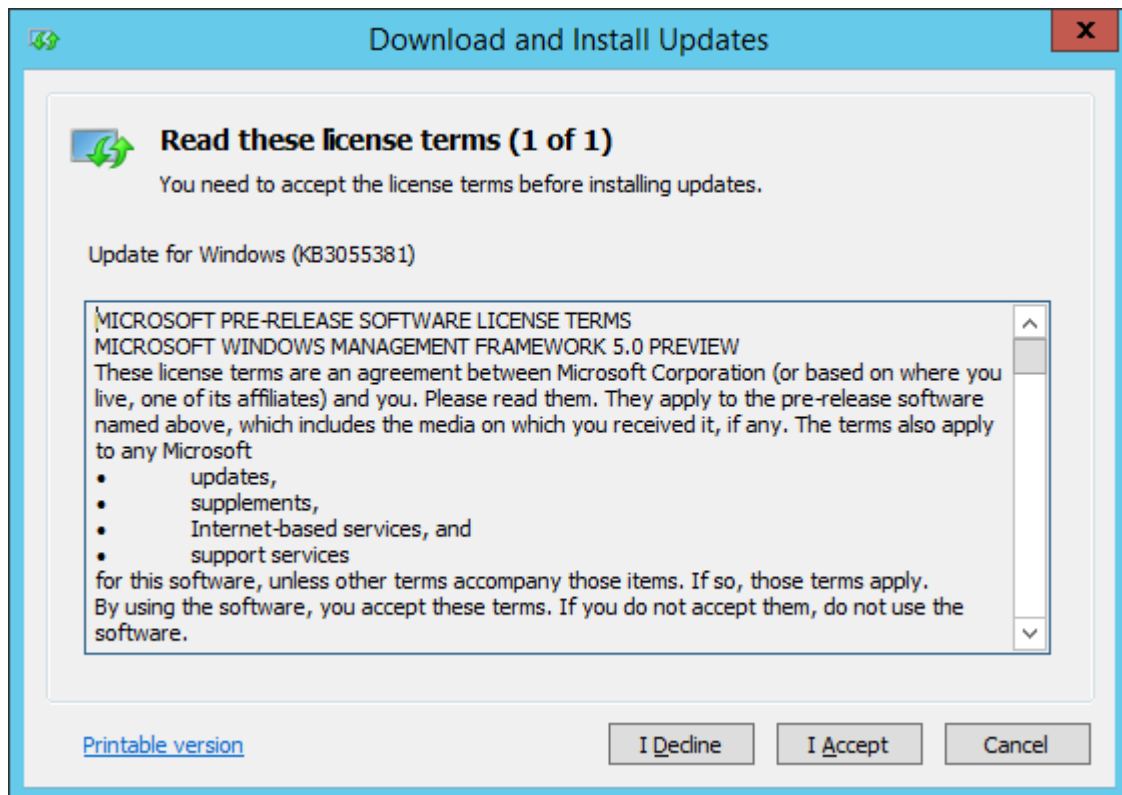
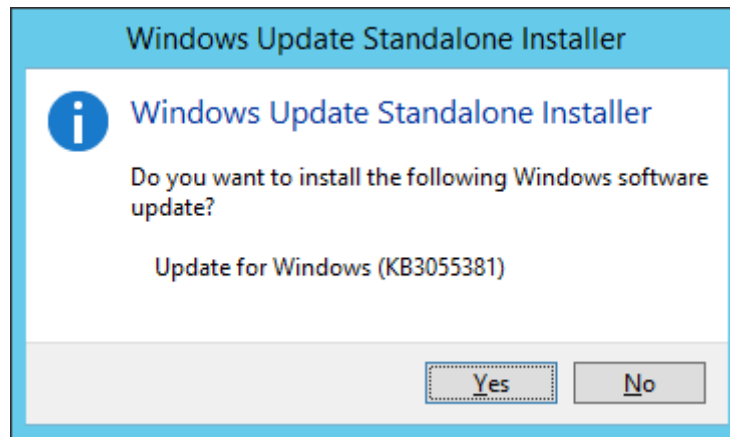
```
1 $PSVersionTable|
```

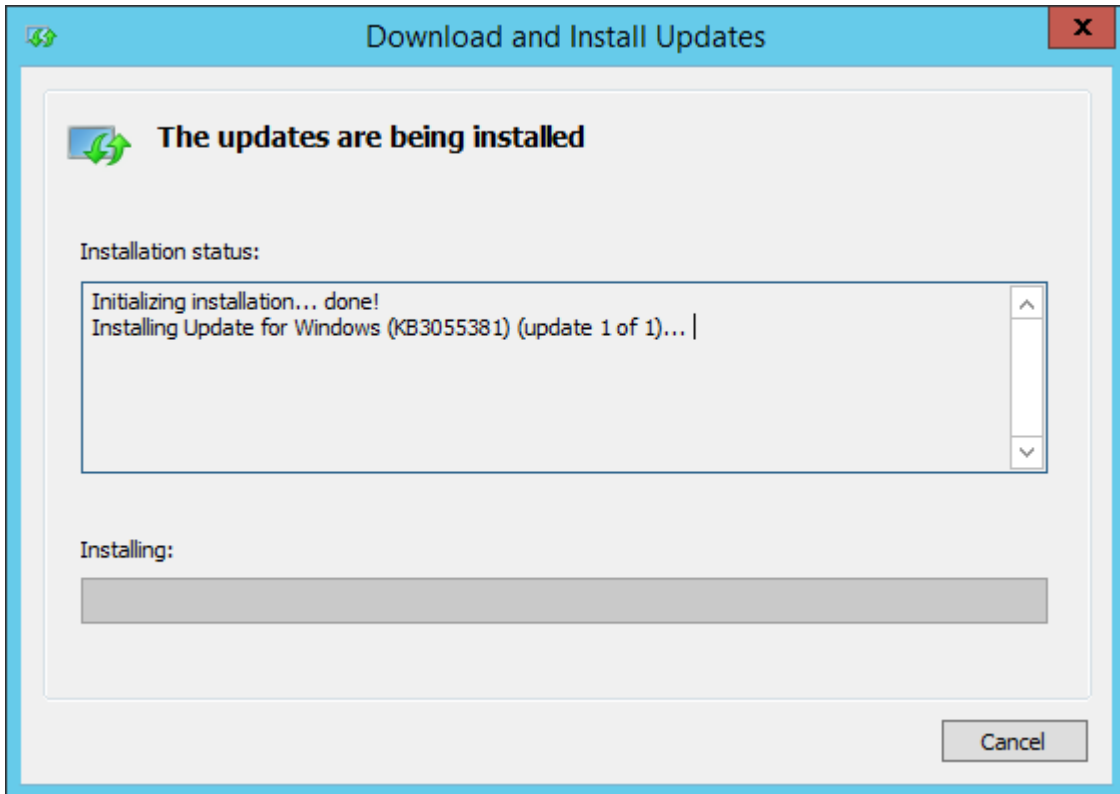
---

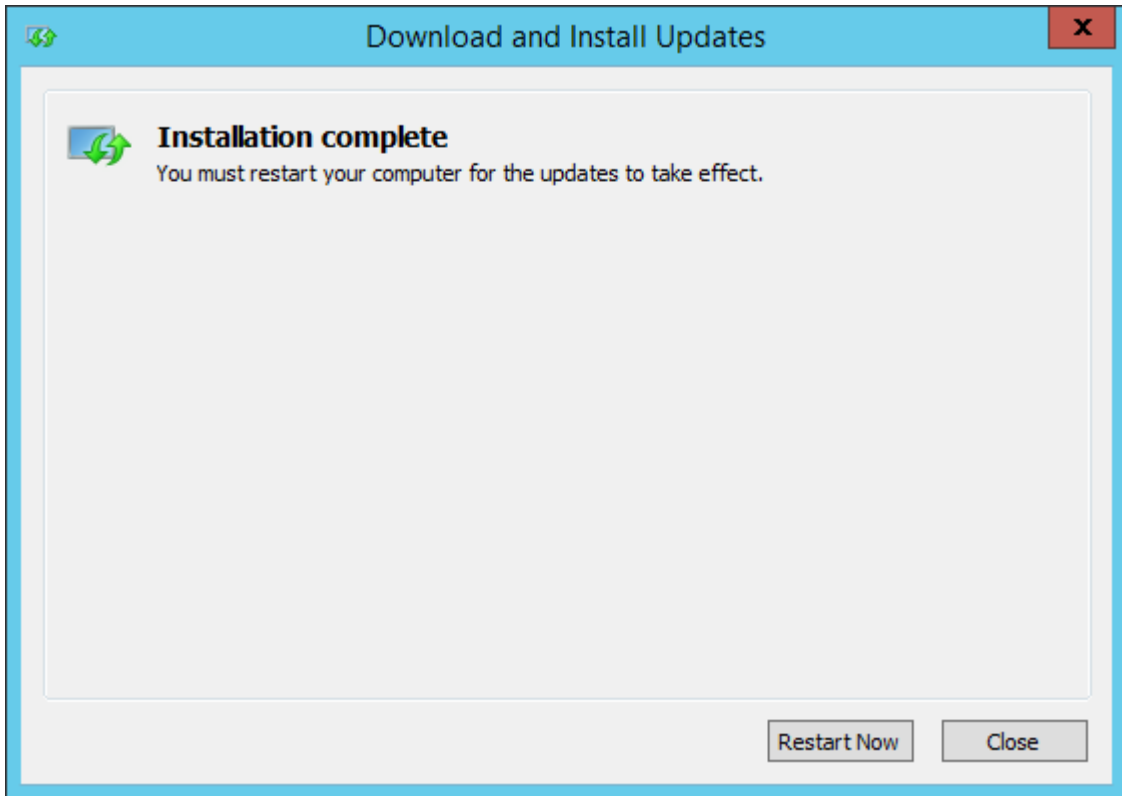
```
PS C:\Users\ChenV> $PSVersionTable
```

Name	Value
PSVersion	4.0
WSManStackVersion	3.0
SerializationVersion	1.1.0.1
CLRVersion	4.0.30319.34014
BuildVersion	6.3.9600.17400
PSCompatibleVersions	{1.0, 2.0, 3.0, 4.0}
PSRemotingProtocolVersion	2.2

```
PS C:\Users\ChenV>
```







Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

Untitled1.ps1\*(Recovered) X

```
1 ($PSVersionTable).PSVersion
```

PS C:\Users\ChenV> (\$PSVersionTable).PSVersion

Major	Minor	Build	Revision
5	0	10105	0

PS C:\Users\ChenV>

Commands X

Modules: All Refresh

Name:

A:

- Add-AppxPackage
- Add-AppxProvisionedPackage
- Add-BCDataCacheExtension
- Add-BitsFile
- Add-CertificateEnrollmentPolicyServer
- Add-ClusterSCSITargetServerRole
- Add-Computer
- Add-Content
- Add-DnsClientNrptRule
- Add-DtcClusterTMMapping
- Add-History
- Add-InitiatorIdToMaskingSet
- Add-iscsiVirtualDiskTargetMapping
- Add-JobTrigger
- Add-KdsRootKey
- Add-Member
- Add-NetEventNetworkAdapter
- Add-NetEventPacketCaptureProvider
- Add-NetEventProvider
- Add-NetEventVmNetworkAdapter
- Add-NetEventVmSwitch
- Add-NetIPHttpsCertBinding
- Add-NetLbfoTeamMember
- Add-NetLbfoTeamNic
- Add-NetNatExternalAddress
- Add-NetNatStaticMapping
- Add-NetSwitchTeamMember
- Add-OdbcDsn
- Add-PartitionAccessPath
- Add-PhysicalDisk
- Add-Printer
- Add-PrinterDriver
- Add-PrinterPort
- Add-SSnapin

Run Insert Copy

Completed Ln 1 Col 28 100%

# Search

Everywhere ▾

PowerShell



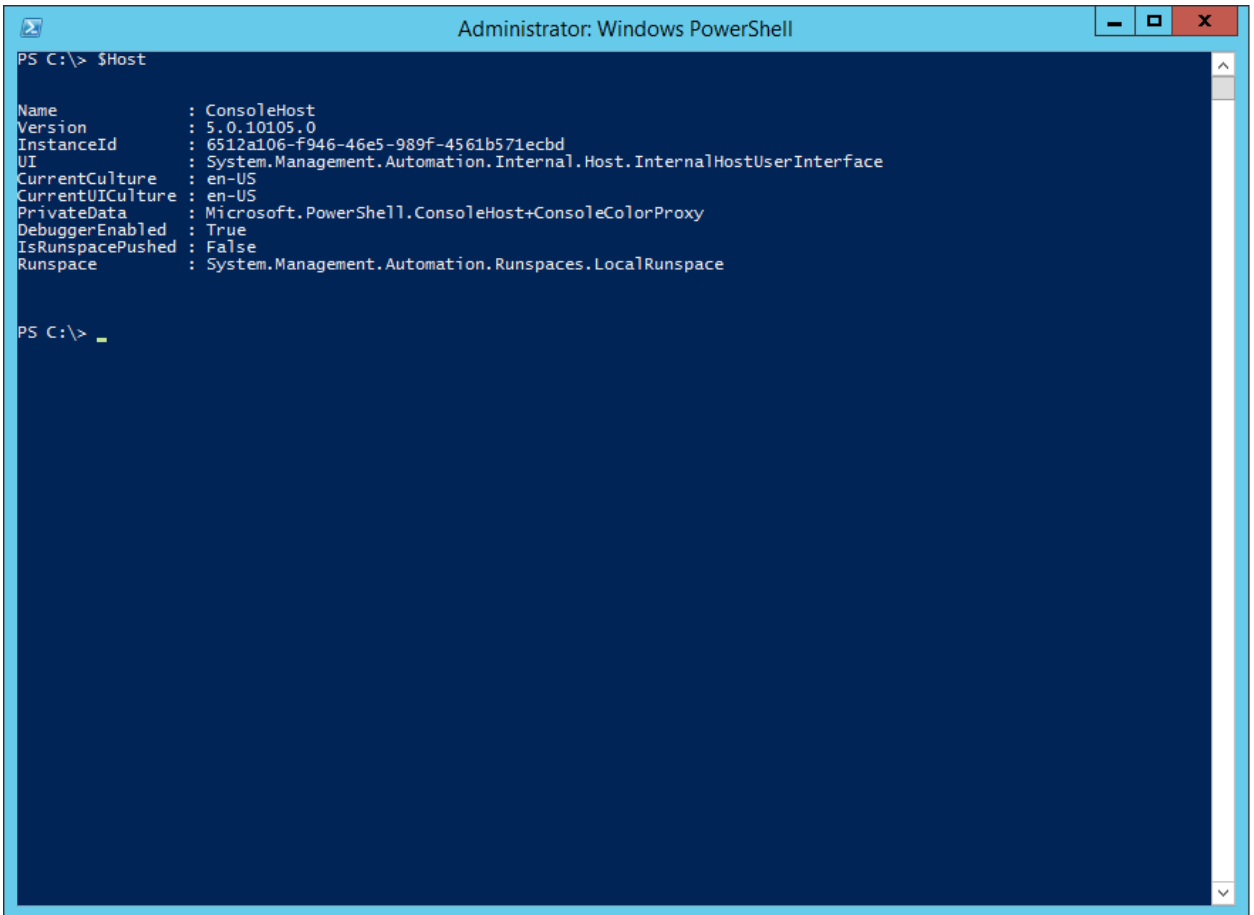
Windows PowerShell ISE



PowerShell



Windows PowerShell ISE (x86)

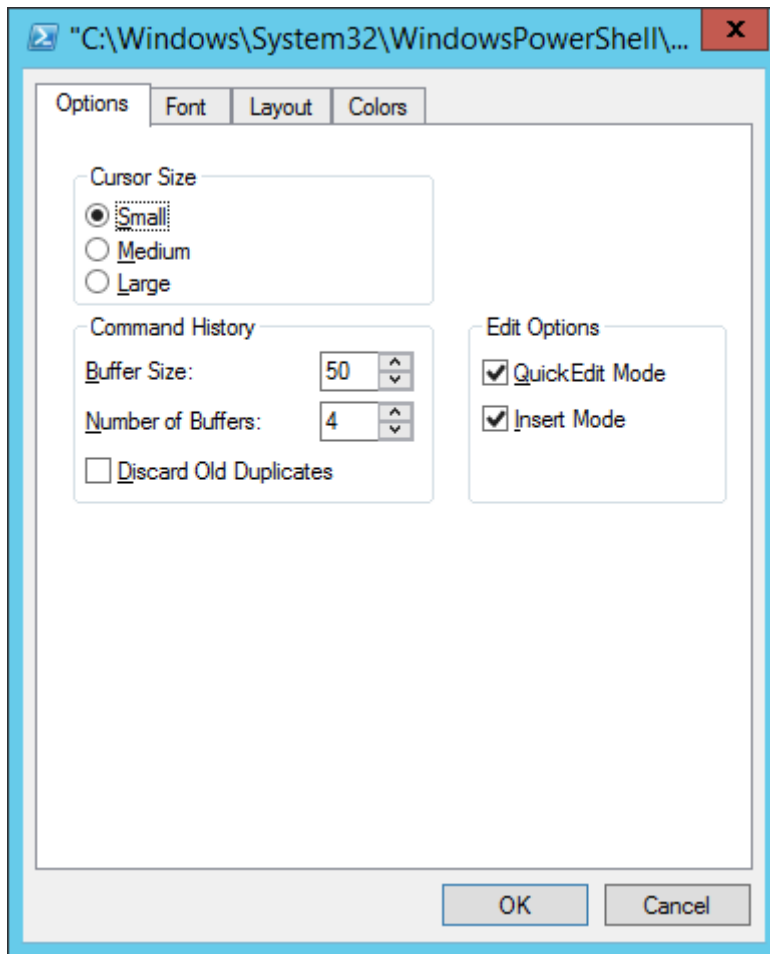


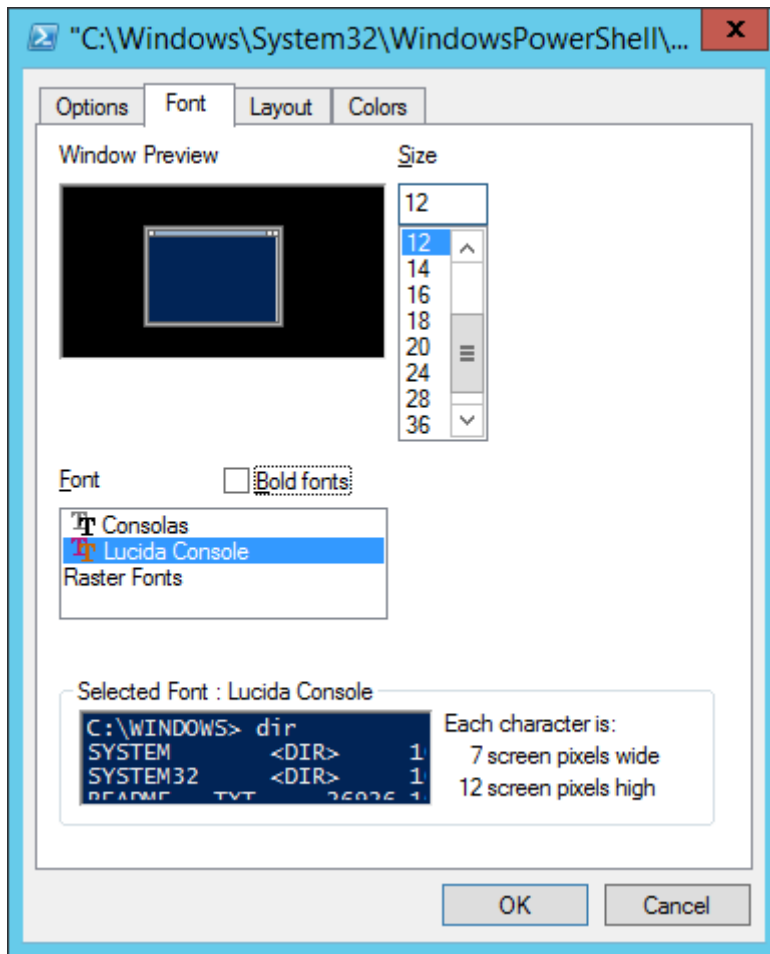
```
Administrator: Windows PowerShell
PS C:\> $Host

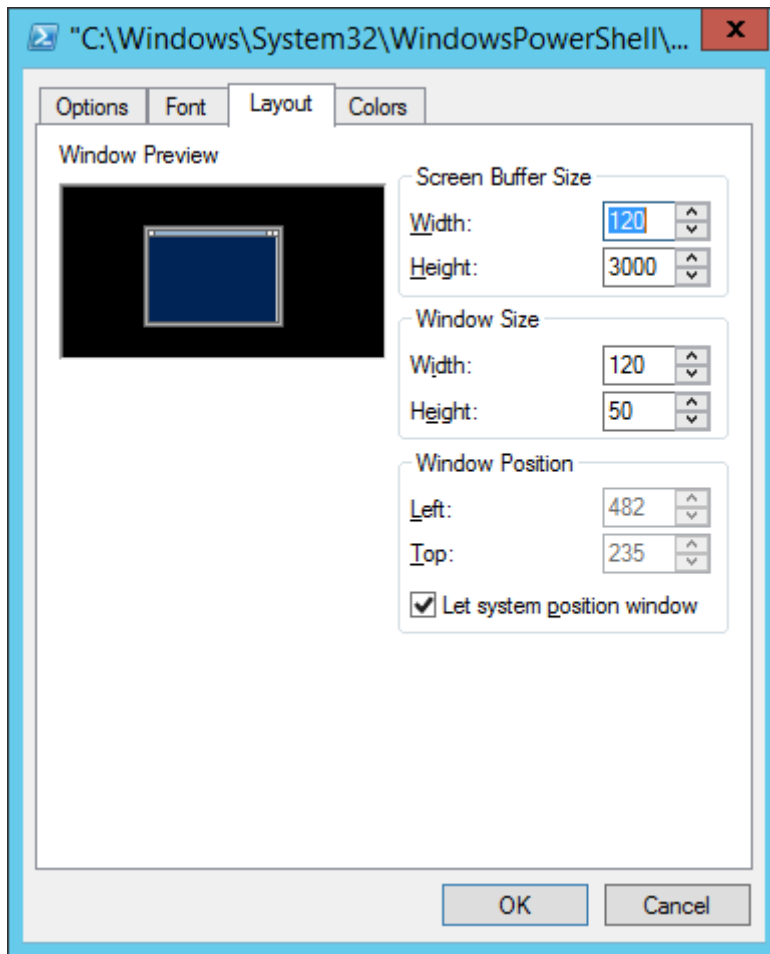
Name           : ConsoleHost
Version        : 5.0.10105.0
InstanceId     : 6512a106-f946-46e5-989f-4561b571ecbd
UI             : System.Management.Automation.Internal.Host.InternalHostUserInterface
CurrentCulture : en-US
CurrentUICulture : en-US
PrivateData    : Microsoft.PowerShell.ConsoleHost+ConsoleColorProxy
DebuggerEnabled : True
IsRunspacePushed : False
Runspace      : System.Management.Automation.Runspaces.LocalRunspace

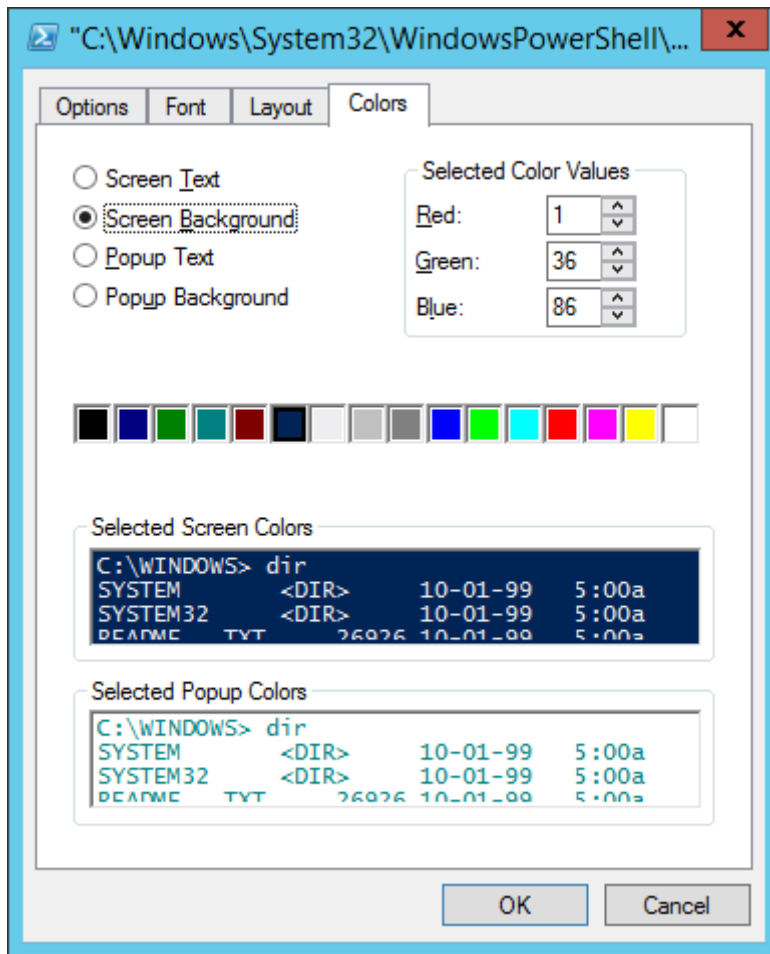
PS C:\> _
```











Select Administrator: Windows PowerShell

```

855 18 3788 10016 ...88 0.52 508 lsass
158 12 2296 6808 ...93 0.03 2684 msdtc
440 29 80636 92548 ...88 3.03 3288 powershell
214 10 3848 8700 ...35 0.17 1812 rdpcclip
119 9 2688 2340 ...12 0.00 1788 rundll32
198 9 2224 5220 ...72 0.63 500 services
55 2 280 1000 4 0.05 268 smss
431 22 4112 10992 ...37 0.16 1084 spoolsv
387 14 3348 9592 ...94 0.19 564 svchost
382 34 9532 11908 ...10 0.20 576 svchost
327 14 3632 6832 ...79 0.64 592 svchost
490 20 11920 15208 ...17 1.86 720 svchost
1224 45 14116 29720 ...85 2.92 768 svchost
435 24 5080 10828 ...30 0.22 836 svchost
572 24 6456 15388 ...80 0.41 968 svchost
453 28 9796 14464 ...20 4.42 1180 svchost
708 27 68804 81580 ...49 3.55 1916 svchost
255 15 2632 7460 ...98 0.27 1936 svchost
685 0 108 268 3 4.89 4 System
156 11 1600 6116 ...
117 9 1420 5788 ...
340 37 37216 44520 5
566 40 37400 51656 6
399 42 45904 56424 6
79 8 780 3620 ...
119 7 1360 5568 ...
141 7 1204 5000 ...
249 13 6160 12440 ...

```

```

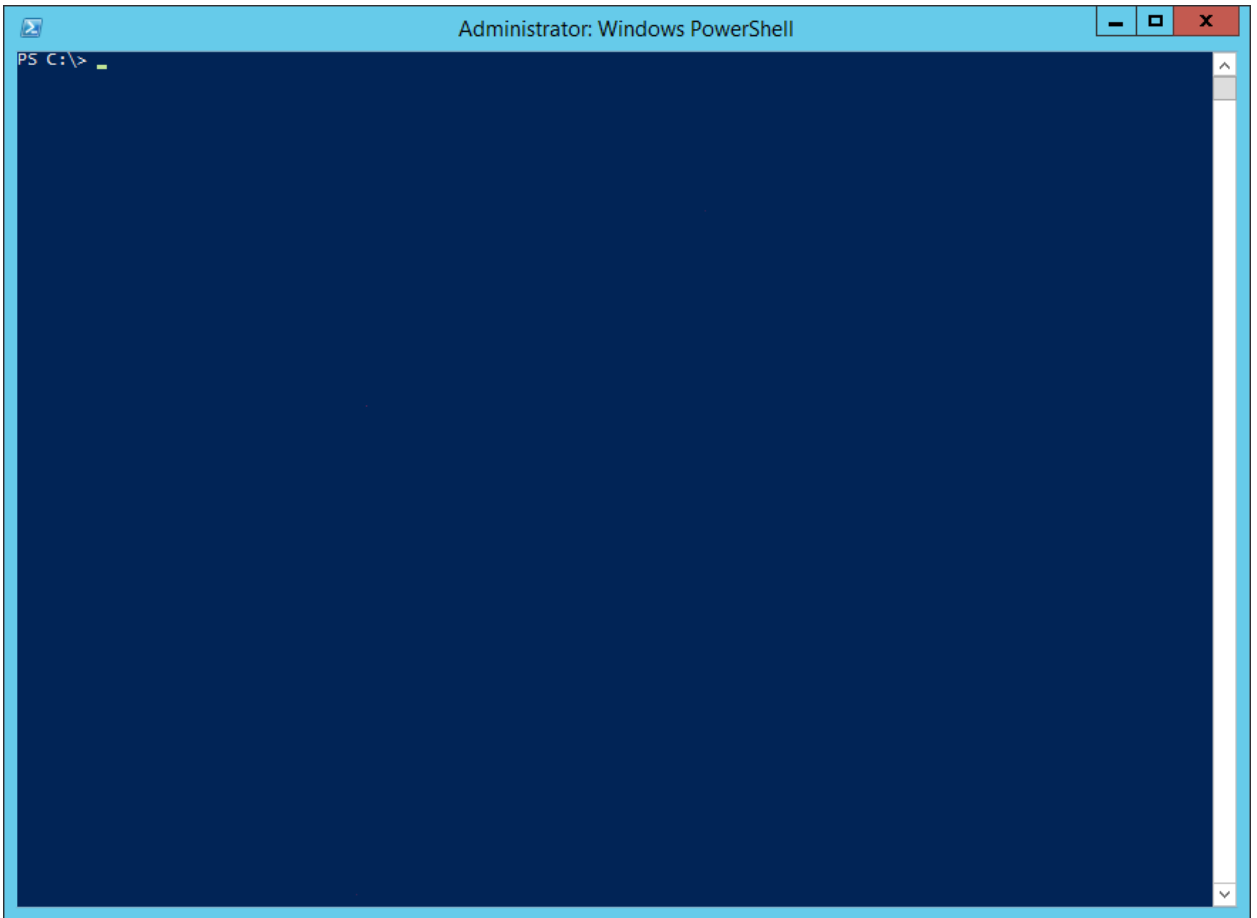
8: $host.UI.RawUI.CursorSize
9: $host.UI.RawUI.CursorSize = 25
10: Clear-History
11: Get-Service
12: Get-WmiObject -Class *
13: Get-WmiObject -Class Win32_Bios
14: cls
15: get-Service
16: Get-Process
17: Get-Volume

```

PS C:\> Get-Volume

DriveLetter	FileSystemLabel	FileSystem	DriveType	HealthStatus	SizeRemaining	Size
C		NTFS	Fixed	Healthy	117.48 GB	127 GB
D	Temporary Storage	NTFS	Fixed	Healthy	48.59 GB	50 GB
A			Removable	Healthy	0 B	0 B
E			CD-ROM	Healthy	0 B	0 B

PS C:\> \_



```
Administrator: Windows PowerShell

PS C:\> (Get-Host).UI.RawUI

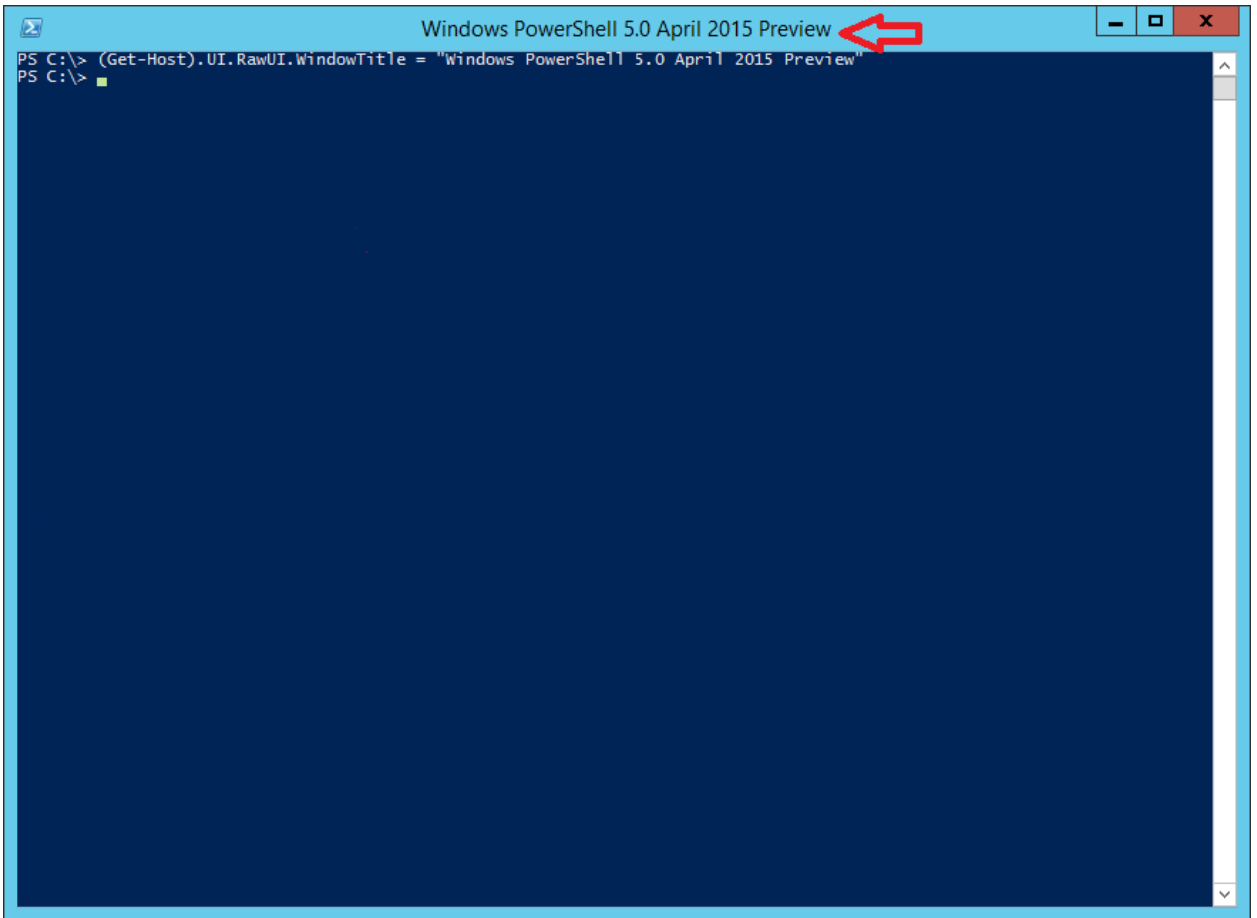
ForegroundColor      : DarkYellow
BackgroundColor      : DarkMagenta
CursorPosition       : 0,8
WindowPosition      : 0,0
CursorSize           : 50
BufferSize           : 120,3000
WindowSize           : 120,50
MaxWindowSize        : 120,84
MaxPhysicalWindowSize : 274,84
KeyAvailable         : False
WindowTitle          : Administrator: Windows PowerShell

PS C:\> (Get-Host).UI.RawUI | GM

      TypeName: System.Management.Automation.Internal.Host.InternalHostRawUserInterface

Name      MemberType Definition
-----
Equals    Method      bool Equals(System.Object obj)
FlushInputBuffer Method      void FlushInputBuffer()
GetBufferContents Method      System.Management.Automation.Host.BufferCell[,] GetBufferContents(System.Management...
GetHashCode Method      int GetHashCode()
GetType   Method      type GetType()
LengthInBufferCells Method      int LengthInBufferCells(string str), int LengthInBufferCells(string str, int offset...
NewBufferCellArray Method      System.Management.Automation.Host.BufferCell[,] NewBufferCellArray(string[] content...
ReadKey   Method      System.Management.Automation.Host.KeyInfo ReadKey(System.Management.Automation.Host...
ScrollBufferContents Method      void ScrollBufferContents(System.Management.Automation.Host.Rectangle source, System...
SetBufferContents Method      void SetBufferContents(System.Management.Automation.Host.Coordinates origin, System...
ToString  Method      string ToString()
BackColoror Property    System.ConsoleColor BackgroundColor {get;set;}
BufferSiz Property    System.Management.Automation.Host.Size BufferSize {get;set;}
CursorPos Property    System.Management.Automation.Host.Coordinates CursorPosition {get;set;}
CursorSiz Property    int CursorSize {get;set;}
Foregrou Property    System.ConsoleColor ForegroundColor {get;set;}
KeyAvaila Property    bool KeyAvailable {get;}
MaxPhysic Property    System.Management.Automation.Host.Size MaxPhysicalWindowSize {get;}
MaxWindow Property    System.Management.Automation.Host.Size MaxWindowSize {get;}
WindowPos Property    System.Management.Automation.Host.Coordinates WindowPosition {get;set;}
WindowSiz Property    System.Management.Automation.Host.Size WindowSize {get;set;}
windowTit Property    string WindowTitle {get;set;}

PS C:\>
```



The image shows a screenshot of a Windows PowerShell console window. The title bar at the top reads "Windows PowerShell 5.0 April 2015 Preview" and includes standard window control buttons (minimize, maximize, close). A red arrow points to the title bar text. The console content shows the following commands and output:

```
PS C:\> (Get-Host).UI.RawUI.WindowTitle = "Windows PowerShell 5.0 April 2015 Preview"
PS C:\> █
```

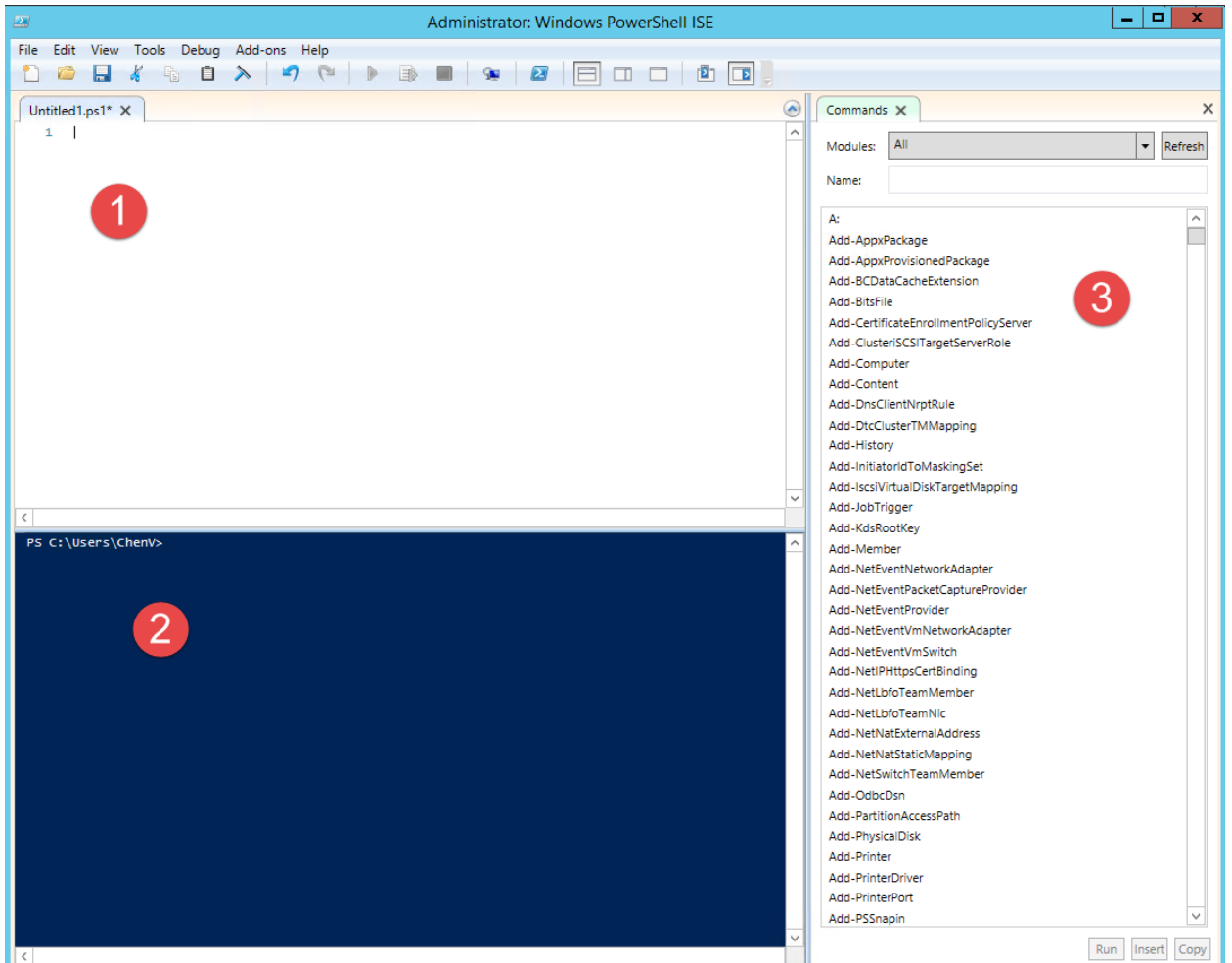




The image shows a screenshot of a Windows PowerShell console window titled "Windows PowerShell 5.0 April 2015 Preview". The window has a light blue title bar with standard Windows window controls (minimize, maximize, close) on the right. The main area has a dark blue background. The command history is as follows:

```
PS C:\> (Get-Host).UI.RawUI.CursorSize = 72
PS C:\> (Get-Host).UI.RawUI.CursorSize
72
PS C:\> █
```

A red arrow points to the cursor (a small green square) at the end of the last command line.



Script Browser | Script Analyzer | **Commands** X

Modules: All Refresh

Name: Get-Service **1**

Get-Service **2**

Parameters for "Get-Service": **4** **3** ?

Default | **DisplayName** | InputObject

ComputerName:

DependentServices

Exclude:

Include:

Name:

RequiredServices

Common Parameters **5**

Debug

ErrorAction:

ErrorVariable:

InformationAction:

InformationVariable:

OutBuffer:

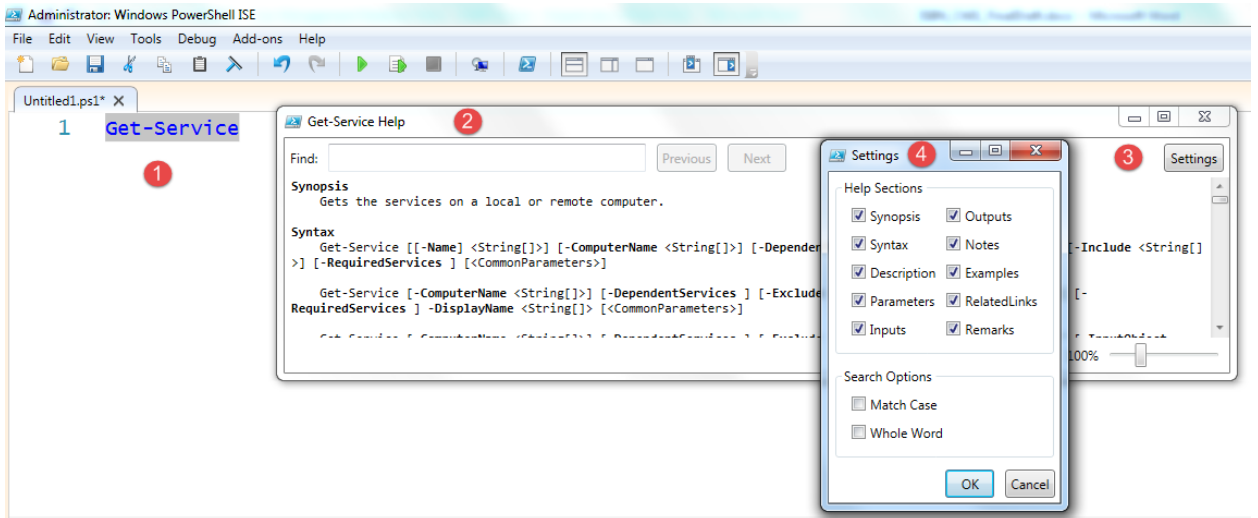
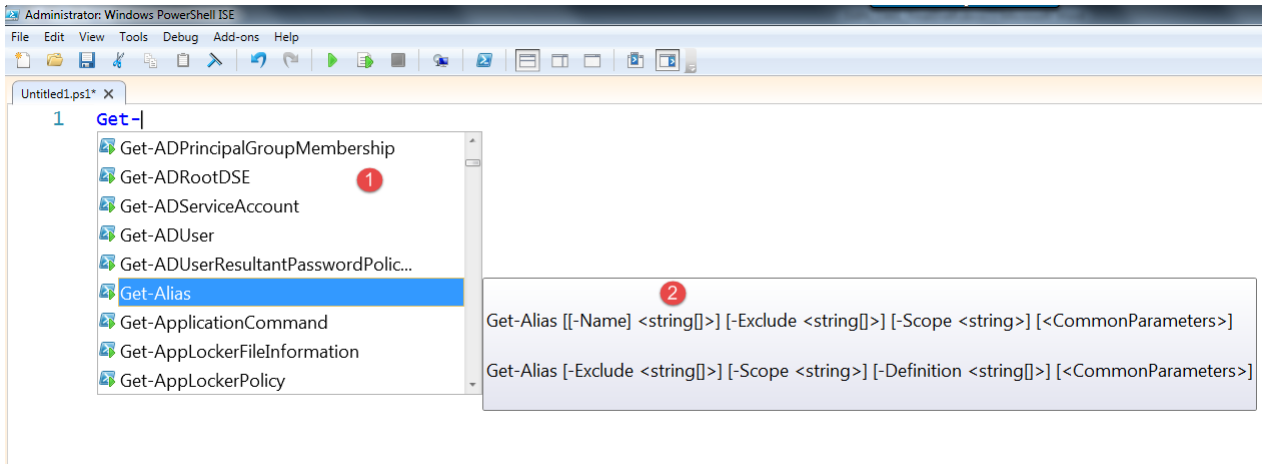
OutVariable:

PipelineVariable:

Verbose

WarningAction:

**6** Run Insert Copy



Script Analyzer Commands Script Browser X

TechNet Favorites (0) Downloads (0)

SharePoint Export User Profile CSV 1

Filters ▾ : None applied 5

Sort By : Relevance 6

Search Results ( 4 / 4 ) Download All

**Export SharePoint User Profile Information values in CSV or...**  
★★★★★ ( 7 ) By Chen V 4  
**Summary:** Export User Profile Information values in Excel and HTML

**Export users Information per synchronization connection**  
☆☆☆☆☆ ( 0 ) By Dipti Chhatrapati  
**Summary:** This PowerShell script fetches the user profiles information per synchronization connection from SharePoint UPS....

**SharePoint Online : Export User Profiles using CSOM**  
★★★★★ ( 1 ) By Geetanjali Arora  
**Summary:** With SharePoint 2013, Microsoft has provided the ability to fetch User Profile information client side using CSOM AP...

**Retrieve all SharePoint Online profiles and their properties us...**  
★★★★★ ( 1 ) By Arleta Wanat  
**Summary:** Console application creates a .csv report with all SharePoint Online user profiles.

Settings

**LANGUAGE SETTINGS** Language

**DOWNLOAD SETTINGS** Sample Download Location:  
Please choose the default folder for downloaded script samples. For example, D:\Samples. Script Browser will help you manage the script samples.

**NETWORK SETTINGS** Configure the proxy to access the internet

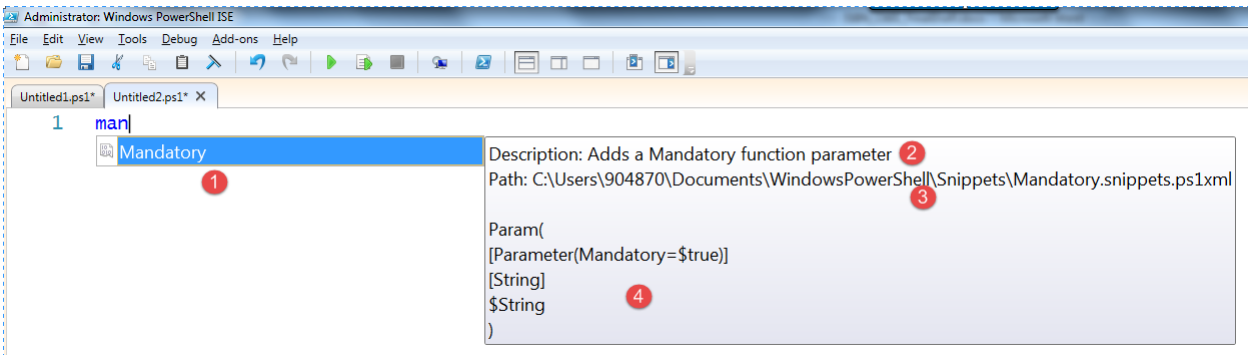
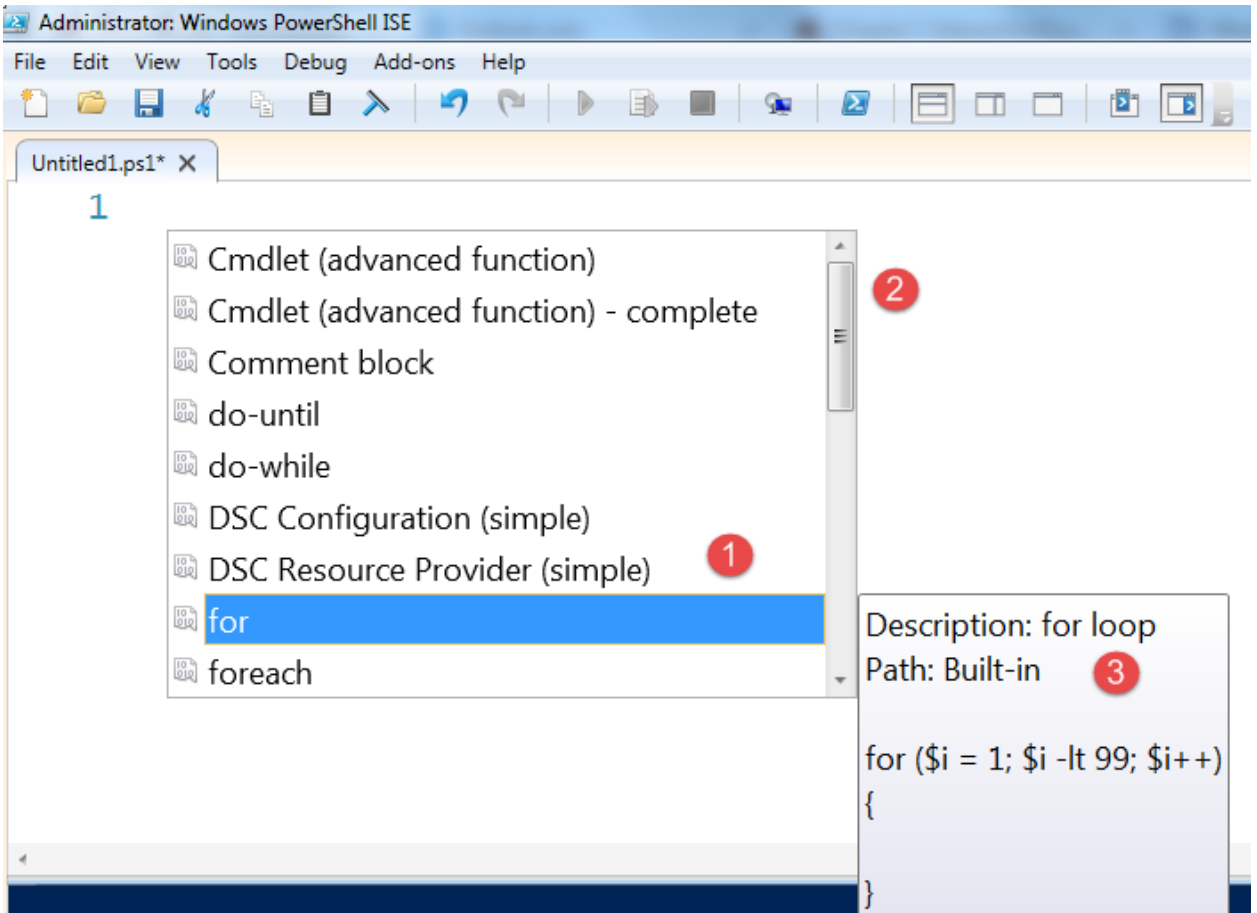
Do not use proxy  
 Use Internet Explorer proxy setting  
 Custom proxy setting

Server  Port

Type  Http  Socks5  Ftp

User Name

Password





```

Administrator: Windows PowerShell
PS C:\> Get-Command

CommandType      Name                                     Version      Source
-----
Alias            Add-WAPackEnvironment                 0.8.7        Azure
Alias            Begin-WebCommitDelay                 1.0.0.0      WebAdministration
Alias            Disable-WAPackWebsiteApplicationDiagnostic 0.8.7        Azure
Alias            Enable-WAPackWebsiteApplicationDiagnostic 0.8.7        Azure
Alias            End-WebCommitDelay                   1.0.0.0      WebAdministration
Alias            Fix-It                                1.2.0.132    pspx
Alias            Get-AzureStorageContainerAcl         0.8.7        Azure
Alias            Get-WAPackEnvironment                0.8.7        Azure
Alias            Get-WAPackPublishSettingsFile        0.8.7        Azure
Alias            Get-WAPackSBLocation                 0.8.7        Azure
Alias            Get-WAPackSBNamespace                0.8.7        Azure
Alias            Get-WAPackSubscription                0.8.7        Azure
Alias            Get-WAPackWebsite                    0.8.7        Azure
Alias            Get-WAPackWebsiteDeployment          0.8.7        Azure
Alias            Get-WAPackWebsiteLocation            0.8.7        Azure
Alias            Get-WAPackWebsiteLog                 0.8.7        Azure
Alias            Import-WAPackPublishSettingsFile     0.8.7        Azure
Alias            Invoke-Hive                           0.8.7        Azure
Alias            New-WAPackSBNamespace                0.8.7        Azure
Alias            New-WAPackWebsite                    0.8.7        Azure
Alias            Remove-WAPackEnvironment              0.8.7        Azure
Alias            Remove-WAPackSBNamespace              0.8.7        Azure
Alias            Remove-WAPackSubscription             0.8.7        Azure
Alias            Remove-WAPackWebsite                 0.8.7        Azure
Alias            Restart-WAPackWebsite                 0.8.7        Azure
Alias            Restore-WAPackWebsiteDeployment        0.8.7        Azure
Alias            Save-WAPackWebsiteLog                0.8.7        Azure
Alias            Select-WAPackSubscription             0.8.7        Azure
Alias            Set-WAPackEnvironment                0.8.7        Azure
Alias            Set-WAPackSubscription                0.8.7        Azure
Alias            Set-WAPackWebsite                    0.8.7        Azure
Alias            Show-WAPackPortal                     0.8.7        Azure
Alias            Show-WAPackWebsite                   0.8.7        Azure
Alias            Start-CopyAzureStorageBlob           0.8.7        Azure
Alias            Stop-WAPackWebsite                   0.8.7        Azure

```

```

Administrator: Windows PowerShell
PS C:\> Get-Command Get-Service

CommandType      Name          Version      Source
-----
Cmdlet           1 Get-Service  2           3.1.0.0     3 Microsoft.PowerShell.Management 4
PS C:\>

```

```
Administrator Windows PowerShell
PS C:\> Get-Help Get-Service

NAME
    Get-Service 1

SYNOPSIS
    Gets the services on a local or remote computer. 2

SYNTAX 3
    Get-Service [-Name <String[]>] [-ComputerName <String[]>] [-DependentServices] [-Exclude <String[]>] [-Include <String[]>] [-RequiredServices] [<CommonParameters>]
    Get-Service [-ComputerName <String[]>] [-DependentServices] [-Exclude <String[]>] [-Include <String[]>] [-RequiredServices] -DisplayName <String[]> [<CommonParameters>]
    Get-Service [-ComputerName <String[]>] [-DependentServices] [-Exclude <String[]>] [-Include <String[]>] [-InputObject <ServiceController[]>] [-RequiredServices] [<CommonParameters>]

DESCRIPTION 4
    The Get-Service cmdlet gets objects that represent the services on a local computer or on a remote computer, including running and stopped services.
    You can direct Get-Service to get only particular services by specifying the service name or display name of the services, or you can pipe service objects to Get-Service.

RELATED LINKS 5
    Online Version: http://go.microsoft.com/fwlink/?linkid=290503
    New-Service
    Restart-Service
    Remove-Service
    Set-Service
    Start-Service
    Stop-Service
    Suspend-Service

REMARKS 6
    To see the examples, type: "get-help Get-Service -examples".
    For more information, type: "get-help Get-Service -detailed".
    For technical information, type: "get-help Get-Service -full".
    For online help, type: "get-help Get-Service -online".
```

```
Administrator Windows PowerShell

NAME
    Get-Service

SYNOPSIS
    Gets the services on a local or remote computer.

SYNTAX
    Get-Service [-Name <String[]>] [-ComputerName <String[]>] [-DependentServices] [-Exclude <String[]>] [-Include <String[]>] [-RequiredServices] [<CommonParameters>]
    Get-Service [-ComputerName <String[]>] [-DependentServices] [-Exclude <String[]>] [-Include <String[]>] [-RequiredServices] -DisplayName <String[]> [<CommonParameters>]
    Get-Service [-ComputerName <String[]>] [-DependentServices] [-Exclude <String[]>] [-Include <String[]>] [-InputObject <ServiceController[]>] [-RequiredServices] [<CommonParameters>]

DESCRIPTION
    The Get-Service cmdlet gets objects that represent the services on a local computer or on a remote computer, including running and stopped services.
    You can direct Get-Service to get only particular services by specifying the service name or display name of the services, or you can pipe service objects to Get-Service.

PARAMETERS
    -ComputerName <String[]>
        Gets the services running on the specified computers. The default is the local computer.
        Type the NetBIOS name, an IP address, or a fully qualified domain name of a remote computer. To specify the local computer, type the computer name, a dot (.), or "localhost".
        This parameter does not rely on Windows PowerShell remoting. You can use the ComputerName parameter of Get-Service even if your computer is not configured to run remote commands.

    -DependentServices [<SwitchParameter>]
        Gets only the services that depend upon the specified service.
        By default, Get-Service gets all services.

    -DisplayName <String[]>
        Specifies the display names of services to be retrieved. Wildcards are permitted. By default, Get-Service gets all services on the computer.

    -Exclude <String[]>
        Omits the specified services. The value of this parameter qualifies the Name parameter. Enter a name element or pattern, such as "s*". Wildcards are permitted.

    -Include <String[]>
        Retrieves only the specified services. The value of this parameter qualifies the Name parameter. Enter a name element or pattern, such as "s*". Wildcards are permitted.

    -InputObject <ServiceController[]>
        Specifies ServiceController objects representing the services to be retrieved. Enter a variable that contains the objects, or type a command or expression that gets the objects. You can also pipe a service object to Get-Service.

    -Name <String[]>
        Specifies the service names of services to be retrieved. Wildcards are permitted. By default, Get-Service gets all of the services on the computer.

    -RequiredServices [<SwitchParameter>]
        Gets only the services that this service requires.
        This parameter gets the value of the ServicesDependedOn property of the service. By default, Get-Service gets all services.

    <CommonParameters>
        This cmdlet supports the common parameters: HelpBase, Debug,
        ErrorAction, ErrorVariable, WarningAction, WarningVariable,
        OutBuffer, PipelineForbids, and OutVariable. For more information, see
        about_CommonParameters (http://go.microsoft.com/fwlink/LinkID=113216).

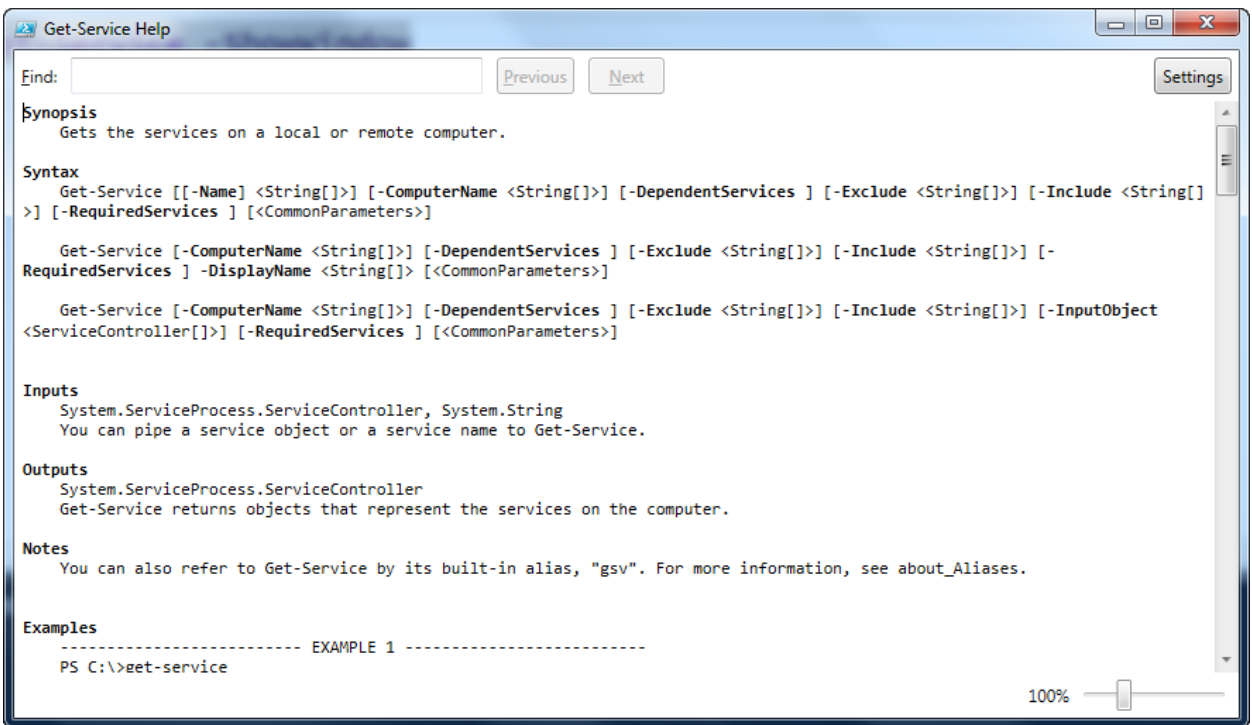
EXAMPLE 1
PS C:\> get-service
This command retrieves all of the services on the system. It behaves as though you typed "get-service *". The default display shows the status, service name, and display name of each service.

EXAMPLE 2
PS C:\> get-service wmi*
This command retrieves services with service names that begin with "WMI" (the acronym for Windows Management Instrumentation).

More
-----
EXAMPLE 3
-----

Page 13 of 14 | Words: 2709 | English (UK) | 10:51 AM 6/5/2011
```

```
Administration Windows PowerShell
PS C:\> Update-Help -Verbose
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=390785"
Updating Help for module Microsoft.PowerShell.ODataFile:
Locating Help Content...
VERBOSE: Performing the operation "Update-Help" on target "Microsoft.PowerShell.Utility: The most current Help files are already installed.. Culture en-US Version 5.0.1.0".
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=390784"
VERBOSE: Your connection has been redirected to the following URI: "http://download.microsoft.com/download/0/1/C/01CC0594-2F13-40E8-98FE-185486288F4/"
VERBOSE: Performing the operation "Update-Help" on target "CimCmdlets: The most current Help files are already installed.. Culture en-US Version 5.0.0.0".
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=390780"
VERBOSE: Your connection has been redirected to the following URI: "http://download.microsoft.com/download/0/0/6/006012C9-2862-4670-8D2C-FA0A876FE934/"
VERBOSE: Performing the operation "Update-Help" on target "ISE: Current Version: 5.0.1.0. Available Version: 5.0.1.0. UI Culture: en-US".
VERBOSE: ISE: The most current Help files are already installed.. Culture en-US Version 5.0.1.0
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=392254"
VERBOSE: Your connection has been redirected to the following URI: "http://download.microsoft.com/download/1/3/2/132FD122-B8E0-4E90-8D88-445811576628/"
VERBOSE: Performing the operation "Update-Help" on target "Microsoft.PowerShell.Archive: Current Version: 5.0.0.0. Available Version: 5.0.0.0. UI Culture: en-US".
VERBOSE: Microsoft.PowerShell.Archive: The most current Help files are already installed.. Culture en-US Version 5.0.0.0
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=390783"
VERBOSE: Your connection has been redirected to the following URI: "http://download.microsoft.com/download/E/5/4/E54620B-P065-4C76-91E4-3C1958EC1694/"
VERBOSE: Performing the operation "Update-Help" on target "Microsoft.PowerShell.Diagnostics: Current Version: 5.0.1.0. Available Version: 5.0.1.0. UI Culture: en-US".
VERBOSE: Microsoft.PowerShell.Diagnostics: The most current Help files are already installed.. Culture en-US Version 5.0.1.0
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=390784"
VERBOSE: Your connection has been redirected to the following URI: "http://download.microsoft.com/download/7/7/0/7702985075-0003-410F-8A33-9422D05P9E30/"
VERBOSE: Performing the operation "Update-Help" on target "Microsoft.PowerShell.Host: Current Version: 5.0.1.0. Available Version: 5.0.1.0. UI Culture: en-US".
VERBOSE: Microsoft.PowerShell.Host: The most current Help files are already installed.. Culture en-US Version 5.0.1.0
VERBOSE: Resolving URI: "http://go.microsoft.com/fwlink/?linkid=509916"
VERBOSE: Your connection has been redirected to the following URI: "http://download.microsoft.com/download/2/2/2/229913309-5B20-4E00-8E99-8FE8D0654545/"
VERBOSE: Performing the operation "Update-Help" on target "Microsoft.PowerShell.ODataFile: Current Version: 5.0.1.0. Available Version: 5.0.1.0. UI Culture: en-US".
VERBOSE: Microsoft.PowerShell.ODataFile: The most current Help files are already installed.. Culture en-US Version 5.0.1.0
```



```

Administrator: Windows PowerShell
PS C:\> Get-Command -Module Microsoft.PowerShell.Management

CommandType Name Version Source
-----
Cmdlet Add-Computer 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Add-Content 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Checkpoint-Computer 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Clear-Content 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Clear-EventLog 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Clear-Item 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Clear-ItemProperty 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Clear-RecycleBin 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Complete-Transaction 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Convert-Path 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Copy-Item 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Copy-ItemProperty 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Debug-Process 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Disable-ComputerRestore 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Enable-ComputerRestore 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-ChildItem 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Clipboard 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-ComputerRestorePoint 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Content 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-ControlPanelItem 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-EventLog 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-HotFix 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Item 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-ItemProperty 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-ItemPropertyValue 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Location 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Process 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-PSDrive 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-PSProvider 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Service 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-Transaction 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Get-WmiObject 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Invoke-Item 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Invoke-WmiMethod 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Join-Path 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Limit-EventLog 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Move-Item 3.1.0.0 Microsoft.PowerShell.Management
Cmdlet Move-ItemProperty 3.1.0.0 Microsoft.PowerShell.Management

```

```

Select Administrator: Windows PowerShell
PS C:\> Get-Command -Name '*Alias*'

CommandType Name Version Source
-----
Function Set-PbElementAliases 1.2.3 PoshBoard
Cmdlet Export-Alias 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet Get-Alias 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet Import-Alias 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet New-Alias 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet Set-Alias 3.1.0.0 Microsoft.PowerShell.Utility

PS C:\>


```

Ignore this!

```
PS C:\windows\system32> Get-Alias -Name W | Select *

HelpUri           : http://go.microsoft.com/fwlink/p/?linkid=290505
ResolvedCommandName : Get-WmiObject
DisplayName        : W -> Get-WmiObject
ReferencedCommand  : Get-WmiObject
ResolvedCommand    : Get-WmiObject
Definition         : Get-WmiObject2
Options            : None
Description        : Learning PowerShell3
OutputType         : {}
Name               : W1
CommandType        : Alias4
Source             :
Version            :
Visibility         : Public5
ModuleName         :
Module             :
RemotingCapability : OwnedByCommand
Parameters         : {[Class, System.Management.Automation.ParameterMetadata], [Recurse,
System.Management.Automation.ParameterMetadata], [Property,
System.Management.Automation.ParameterMetadata], [Filter,
System.Management.Automation.ParameterMetadata]...}
ParameterSets     :
```

```
PS C:\> New-Alias -Name W -Value Get-Service -Description Learning
New-Alias : The alias is not allowed, because an alias with the name 'w' already exists.
At line:1 char:1
+ New-Alias -Name W -Value Get-Service -Description Learning
+ ~~~~~
+ CategoryInfo          : ResourceExists: (W:String) [New-Alias], SessionStateException
+ FullyQualifiedErrorId : AliasAlreadyExists,Microsoft.PowerShell.Commands.NewAliasCommand
```



about\_Operators Help

Find:  Previous Next Settings

TOPIC  
about\_Operators

SHORT DESCRIPTION  
Describes the operators that are supported by Windows PowerShell.

LONG DESCRIPTION  
An operator is a language element that you can use in a command or expression. Windows PowerShell supports several types of operators to help you manipulate values.

**Arithmetic Operators**  
Use arithmetic operators (+, -, \*, /, %) to calculate values in a command or expression. With these operators, you can add, subtract, multiply, or divide values, and calculate the remainder (modulus) of a division operation.

You can also use arithmetic operators with strings, arrays, and hash tables. The addition operator concatenates elements. The multiplication operator returns the specified number of copies of each element.

For more information, see [about\\_Arithmetic\\_Operators](#).

**Assignment Operators**  
Use assignment operators (=, +=, -=, \*=, /=, %=) to assign one or more values to variables, to change the values in a variable, and to append values to variables. You can also cast the variable as any Microsoft .NET Framework data type, such as string or DateTime, or Process variable.

For more information, see [about\\_Assignment\\_Operators](#).

**Comparison Operators**  
Use comparison operators (-eq, -ne, -gt, -lt, -le, -ge) to compare values and test conditions. For example, you can compare two string values to determine whether they are equal.

The comparison operators include the match operators (-match, -notmatch), which find patterns by using regular expressions; the replace operator (-replace), which uses regular expressions to change input values; the like operators (-like, -notlike), which find patterns using wildcard characters (\*); and the containment operators (-in, -notin, -contains, -notcontains), which determine whether a test value appears in a reference set.

They also include the bitwise operators (-bAND, -bOR, -bXOR, -bNOT) to manipulate the bit patterns in values.

For more information, see [about\\_Comparison\\_Operators](#).

**Logical Operators**  
Use logical operators (-and, -or, -xor, -not, !) to connect conditional statements into a single complex conditional. For example, you can use a logical -and operator to create an object filter with two different conditions.

For more information, see [about\\_Logical\\_Operators](#).

100%

EN 4:23 PM 6/1/2015

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PS C:\> #Given Name : FirstName LastName
#Required Output: LastName, FirstName
"FirstName LastName" -replace "([a-z]+\s([a-z]+))" , '$2, $1'

#Given Name : FirstName12345 LastName
#Required Output: LastName, FirstName
'FirstName12345 LastName' -replace "\d+" -replace "([a-z]+\s([a-z]+))" , '$2, $1'
LastName, FirstName
LastName, FirstName

PS C:\> |
```

Output

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PS C:\> [Regex]::Replace
OverloadDefinitions
-----
static string Replace(string input, string pattern, string replacement)
static string Replace(string input, string pattern, string replacement, System.Text.RegularExpressions.RegexOptions options)
static string Replace(string input, string pattern, string replacement, System.Text.RegularExpressions.RegexOptions options, TimeSpan matchTimeout)
static string Replace(string input, string pattern, System.Text.RegularExpressions.MatchEvaluator evaluator)
static string Replace(string input, string pattern, System.Text.RegularExpressions.MatchEvaluator evaluator, System.Text.RegularExpressions.RegexOptions options)
static string Replace(string input, string pattern, System.Text.RegularExpressions.MatchEvaluator evaluator, System.Text.RegularExpressions.RegexOptions options, TimeSpan matchTimeout)

Arguments Type
```

```
PS C:\> $Date.GetType()

IsPublic IsSerial Name BaseType
-----
True True DateTime System.ValueType

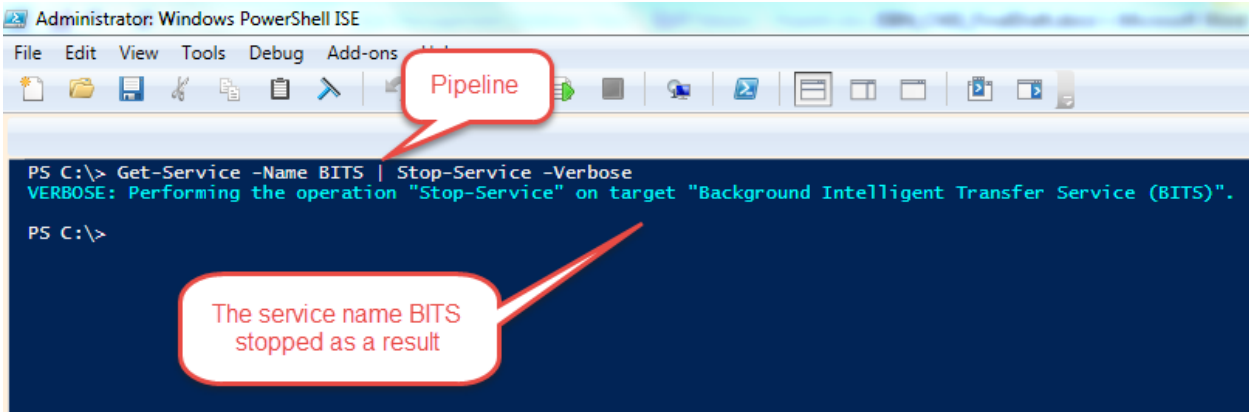
Output
```



```
PS C:\> Get-Date | Get-Member -MemberType Property -Force

TypeName: System.DateTime

Name      MemberType Definition
----      -
Date      Property  datetime Date {get;}
Day        Property  int Day {get;}
DayOfWeek Property  System.DayOfWeek DayOfWeek {get;}
DayOfYear  Property  int DayOfYear {get;}
Hour       Property  int Hour {get;}
Kind       Property  System.DateTimeKind Kind {get;}
Millisecond Property  int Millisecond {get;}
Minute     Property  int Minute {get;}
Month      Property  int Month {get;}
Second     Property  int Second {get;}
Ticks      Property  long Ticks {get;}
TimeOfDay  Property  timespan TimeOfDay {get;}
Year       Property  int Year {get;}
```



The screenshot shows the Windows PowerShell ISE interface. The command prompt contains the command: `PS C:\> Get-Service -Name BITS | Stop-Service -Verbose`. The output is: `VERBOSE: Performing the operation "Stop-Service" on target "Background Intelligent Transfer Service (BITS)".` A red arrow points from the `Stop-Service` command in the pipeline to a callout box that says "Pipeline". Another red arrow points from the output text to a callout box that says "The service name BITS stopped as a result".

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons
Pipeline
PS C:\> Get-Service -Name BITS | Stop-Service -Verbose
VERBOSE: Performing the operation "Stop-Service" on target "Background Intelligent Transfer Service (BITS)".
PS C:\>
```



```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
[Icons]

PS C:\> help Get-Service -Parameter * | Select name , PipelineInput

name           pipelineInput
-----
ComputerName   true (ByPropertyName)
DependentServices false
DisplayName    false
Exclude        false
Include        false
InputObject    true (ByValue)
Name           true (ByPropertyName, ByValue)
RequiredServices false

PS C:\> |
```

Result!

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
[Icons]

PS C:\> (65..90).ForEach({[char][int]$_})
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
Q
R
S
T
U
V
W
X
Y
Z
```

Using Range Operators

Using dereference operator

Outputs ASCII Characters

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug
PS C:\> (1..10).Where({$_ -ge 5})
5
6
7
8
9
10
PS C:\> |
```

Using Where Object

Condition

Result >= 5

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PS C:\> (1..10).Where({$_ -ge 5}, 'First', 3)
5
6
7
PS C:\> |
```

>=5

Select First

Number to return

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PS C:\> Get-Command -Noun Object
```

CommandType	Name	Version	Source
Cmdlet	Compare-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	ForEach-Object	3.0.0.0	Microsoft.PowerShell.Core
Cmdlet	Group-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Measure-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	New-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Select-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Sort-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Tee-Object	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Where-Object	3.0.0.0	Microsoft.PowerShell.Core

List of Commands with Object as Noun

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PS C:\> (help Where-Object).Syntax
Where-Object [-Property] <String> [[-Value] <Object>] [-EQ] [-InputObject <PSObject>] [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -Contains [<CommonParameters>]
Where-Object [-FilterScript] <ScriptBlock> [-InputObject <PSObject>] [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -GE [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -GT [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -In [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CContains [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CEQ [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CGE [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CGT [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CIn [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CLE [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CLike [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CLT [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CMatch [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CNE [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CNotContains [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CNotIn [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CNotLike [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -CNotMatch [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -Is [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -IsNot [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -LE [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -Like [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -LT [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -Match [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -NE [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -NotContains [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -NotIn [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -NotLike [<CommonParameters>]
Where-Object [-Property] <String> [[-Value] <Object>] [-InputObject <PSObject>] -NotMatch [<CommonParameters>]
```

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
Untitled1.ps1* X
1 1 Get-Process | Export-csv C:\Temp\Process.csv
2 -NoTypeInformation -Encoding UTF8
```

```
Process.csv - Notepad
File Edit Format View Help
"__NounName", "Name", "Handles", "VM", "WS", "PM", "NPM", "Pat
"Process", "ADUService", "47", "18706432", "204800", "925696
"Process", "anymeeting", "578", "271294464", "12451840", "22
"Process", "anymeeting", "347", "237506560", "3563520", "355
"Process", "armsvc", "77", "43577344", "94208", "1290240", "7
"Process", "audiodg", "354", "73715712", "23023616", "233676
"Process", "BbDevMgr", "150", "81186816", "2469888", "372326
"Process", "Box Edit", "592", "238809088", "12005376", "2469
"Process", "CcmExec", "6467", "174956544", "24657920", "2541
"Process", "ccSvcHst", "1781", "711610368", "16838656", "528
"Process", "ccSvcHst", "343", "112685056", "4636672", "68198
"Process", "CISVC", "74", "41590784", "184320", "1880064", "6
"Process", "concentr", "146", "90742784", "2752512", "256409
"Process", "conhost", "31", "26247168", "212992", "1191936",
"Process", "conhost", "55", "233234432", "2494464", "1648599
"Process", "csrss", "1156", "64081920", "2269184", "4390912"
```

```
Process.xml - Notepad
File Edit Format View Help
<Objs Version="1.1.0.1"
xmlns="http://schemas.microsoft.com/powershell/2004/04
">
  <Obj RefId="0">
    <TN RefId="0">
      <T>System.Diagnostics.Process</T>
      <T>System.ComponentModel.Component</T>
      <T>System.MarshalByRefObject</T>
      <T>System.Object</T>
    </TN>
    <ToString>System.Diagnostics.Process (ADUService)
  </ToString>
  <Props>
    <I32 N="BasePriority">8</I32>
    <B N="HasExited">>false</B>
    <Obj N="Handle" RefId="1">
```

```

Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PS C:\> Import-Clixml C:\Temp\Process.xml

Handles  NPM(K)  PM(K)  WS(K) VM(M)  CPU(s)  Id ProcessName
-----  -
47        5       904    204   18     0.30    1800 ADUService
576       45     22084  12132 257    149.99  6092 anymeeting
347       33     34668  3484  227    3.37    6160 anymeeting
77        8       1260   96    42     0.03    1632 armsvc
353       12     22800  22480 70     0.75    15464 audiodg
150       16     3636   2416  77     2.14    6740 BbDevMgr
592       35     24060  11700 226    82.93  5812 Box Edit
6464      43     25028  24180 167    549.65  3260 CcmExec
1783      84     51784  16384 679    4,306.10 2632 ccSvcHst
345       28     6660   3820  107    94.58  4412 ccSvcHst
74        6       1836   180   40     0.09    2032 CISVC
146       13     2504   2696  87     0.61    6216 concentr
31        4       1164   212   25     0.08    2356 conhost
55        7     160996  2440  222    5.29    7320 conhost
1133      17     4288   2228  61    47.74  476  csrss
1109      30     4452  114232 317   934.95  588  csrss
410       25     17692  7168  98    195.87  1336 DcaSvc
414       29     24676  10052 206    3.56    148 DcaTray
160       22     70984  76804 317   ...22.91 4052 dwm
1730     135    191384 108476 623  1,506.74 3740 explorer
142       14     5280   6556  92   ...16.56 5620 FAHwindow
136       10     3140   940   38    0.53    1348 fdhost
53        6     1572   144   25    0.12    3296 fdlauncher
1328     187    764972 691556 1554  ...37.20 11660 firefox

```

Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

```
PS C:\> Get-Process | Select -First 5
```

Handles	NPM(K)	PM(K)	WS(K)	VM(M)	CPU(s)	Id	ProcessName
293	22	9652	19296	114	2.22	7528	AcroRd32
420	44	146604	157744	368	9.55	7740	AcroRd32
47	5	904	204	18	0.30	1800	ADUService
578	45	22136	12168	259	150.31	6092	anymeeting
347	33	34668	3484	227	3.37	6160	anymeeting

```

        <PropertyName>Filename</PropertyName>
      </TableColumnItem>
    </TableColumnItems>
  </TableRowEntry>
</TableRowEntries>
</TableControl>
</View>
<View>
  <Name>process</Name>
  <ViewSelectedBy>
    <TypeName>System.Diagnostics.Process</TypeName>
  </ViewSelectedBy>
  <TableControl>
    <TableHeaders>
      <TableColumnHeader>
        <Label>Handles</Label>
        <Width>7</Width>
        <Alignment>right</Alignment>
      </TableColumnHeader>
      <TableColumnHeader>
        <Label>NPM(K)</Label>
        <Width>7</Width>
        <Alignment>right</Alignment>
      </TableColumnHeader>
      <TableColumnHeader>
        <Label>PM(K)</Label>
        <Width>8</Width>
        <Alignment>right</Alignment>
      </TableColumnHeader>
      <TableColumnHeader>
        <Label>WS(K)</Label>

```

```

PS C:\> Get-Command -Verb Format
-----
CommandType      Name                               Version      Source
-----
Function         Format-Hex                         3.1.0.0     Microsoft.PowerShell.Utility
Cmdlet           Format-Custom                       3.1.0.0     Microsoft.PowerShell.Utility
Cmdlet           Format-List                         3.1.0.0     Microsoft.PowerShell.Utility
Cmdlet           Format-Table                       3.1.0.0     Microsoft.PowerShell.Utility
Cmdlet           Format-Wide                        3.1.0.0     Microsoft.PowerShell.Utility

```

```

PS C:\> (Get-Service).Where({$.Status -eq 'Running'},'First',5) | Format-Table -HideTableHeaders
Running AdobeARMService Adobe Acrobat Update Service
Running ADUServiceNSRT ADU Service (Nokia Software Recover...
Running AppHostSvc Application Host Helper Service
Running Appinfo Application Information
Running AudioEndpointBu... Windows Audio Endpoint Builder

```



```
PS C:\> Get-WmiObject -Class Win32_LogicalDisk -Filter "DriveType=3" | Format-Table Name,
@{n="Freespace(byte)";e="{0:N0}" -f $_.FreeSpace};a="right"}
```

```
Name Freespace(byte)
-----
c:    32,858,230,784
```

Right  
Alignment

```
PS C:\> Get-WmiObject -Class Win32_LogicalDisk -Filter "DriveType=3" | Format-Table Name,
@{n="Freespace(byte)";e="{0:N0}" -f $_.FreeSpace};a="left"}
```

```
Name Freespace(byte)
-----
c:    32,858,161,152
```

Left  
Alignment

```
PS C:\> Get-WmiObject -Class Win32_LogicalDisk -Filter "DriveType=3" | Format-Table Name,
@{n="Freespace(byte)";e="{0:N0}" -f $_.FreeSpace};a="center"}
```

```
Name Freespace(byte)
-----
c:    32,856,981,504
```

Center  
Alignment

```
class ServiceController
{
    Status = Running
    Name = wudfsvc
    DisplayName = Windows Driver Foundation - User-mode Driver Framework
}
```

Type Name

```
class ServiceController
{
    Status = Stopped
    Name = WwanSvc
    DisplayName = WWAN AutoConfig
}
```

Properties

```
class ServiceController
{
    Status = Stopped
    Name = Zoho Assist-Remote Support
    DisplayName = Zoho Assist-Remote Support
}
```



```
PS C:\Windows\system32> Update-FormatData -PrependPath C:\temp\myprocessview.format.ps1xml -Uerbose
UERBOSE: Performing operation "Update FormatData" on Target "FileName: C:\temp\myprocessview.format.ps1xml"
PS C:\Windows\system32> Get-Process
```

Handles	NPM(K)	PM(Testing)	WS(K)	UM(Modified)	CPU(s)	Id	ProcessName
267						660	c2wtshost
32487						2732	CcmExec
1502						1980	ccSvcHst
265						7384	ccSvcHst
30						1820	conhost
32						2452	conhost
35						10156	conhost
30						10720	conhost
1578						372	csrss
71						432	csrss
328						10596	csrss

Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

Code1.ps1 X

```
1 #Windows PowerShell Script to Retrieve Windows Services
2
3 Write-Host "Hello, World!" -ForegroundColor Green
```

PS C:\ScriptDemo> .\Code1.ps1  
Hello, World!  
PS C:\ScriptDemo> |

### General Information

Model	Manufacturer	Description	PrimaryOwnerName	SystemType
LIFEBOOK S761	FUJITSU	AT/AT COMPATIBLE	Windows User	x64-based PC

### Boot Configuration

Name	ConfigurationPath
BootConfiguration	C:\windows

### BIOS Information

PSComputerName	Manufacturer	Version
L06081	FUJITSU // Phoenix Technologies Ltd.	FUJ - 10e0000

### Operating System Information

Caption	CSDVersion	OSArchitecture	OSLanguage
Microsoft Windows 7 Enterprise	Service Pack 1	64-bit	1033

### Time Zone Information

Caption	StandardName
(UTC+01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna	W. Europe Standard Time

### Disk Information

SystemName	DeviceID	size(GB)	freespace(GB)
L06081	C:	297.6	30.6

The image shows a screenshot of the Windows PowerShell ISE (Integrated Scripting Environment) running as Administrator. The main window displays a script file named 'Code2.PS1' with the following code:

```
1 $value = Read-Host "Enter Value 1"
```

A red callout bubble points to the `Read-Host` cmdlet, containing the text: "Read-Host cmdlet to prompt user input".

Below the script editor, the PowerShell console shows the execution of the script:

```
PS C:\ScriptDemo> $value = Read-Host "Enter Value 1"  
Enter Value 1: 12  
  
PS C:\ScriptDemo> $value  
12  
  
PS C:\ScriptDemo>
```

Two red callout bubbles are present in the console output:

- A bubble pointing to the prompt "Enter Value 1:" contains the text "User Input Value".
- A bubble pointing to the output "12" contains the text "Output".

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
[Icons]

PS C:\ScriptDemo> . .\Code3.ps1 1
PS C:\ScriptDemo> Get-Help Add-Values 2

NAME
    Add-Values 3

SYNOPSIS
    To add two integer values 4

SYNTAX
    Add-Values [-Param1] <Int32> [-Param2] <Int32> [<CommonParameters>] 5

DESCRIPTION
    Windows PowerShell Script Demo to add two values
    This accepts pipeline values 6

RELATED LINKS 7

REMARKS
    To see the examples, type: "get-help Add-Values -examples".
    For more information, type: "get-help Add-Values -detailed". 8
    For technical information, type: "get-help Add-Values -full".

PS C:\ScriptDemo>
```

```
PS C:\ScriptDemo> Get-Help Add-Values -Examples 1
```

```
NAME
```

```
Add-Values 2
```

```
SYNOPSIS
```

```
To add two integer values
```

```
3
```

```
----- EXAMPLE 1 -----
```

```
PS C:\>Add-Values -Param1 20 -Param2 30
```

```
4
```

```
----- EXAMPLE 2 -----
```

```
PS C:\>12,23 | Add-Values
```

```
PS C:\ScriptDemo> Get-Help Add-Values -Parameter *
```

```
-Param1 <Int32>
```

```
Param1 help description 1  
Accepts Only Integer
```

```
Required?           true  
Position?          1  
Default value      0  
Accept pipeline input? true (ByValue, ByPropertyName)  
Accept wildcard characters? false
```

```
-Param2 <Int32>
```

```
Accepts only interger 2
```

```
Required?           true  
Position?          1  
Default value      0  
Accept pipeline input? true (ByValue, ByPropertyName)  
Accept wildcard characters? false
```

```
PS C:\> Import-Module C:\ScriptDemo\WindowsMangement\WindowsMangement\bin\Debug\WindowsMangement.dll -Verbose  
VERBOSE: Loading module from path 'C:\ScriptDemo\WindowsMangement\WindowsMangement\bin\Debug\WindowsMangement.dll'.  
VERBOSE: Importing cmdlet 'Clear-TemporaryInternetFiles'.  
VERBOSE: Importing cmdlet 'Clear-IEHistory'.  
VERBOSE: Importing cmdlet 'Clear-UserTemporaryFiles'.
```

```
PS C:\> Get-Command Clear-TemporaryInternetFiles
```

CommandType	Name	Version	Source
-----	----	-----	-----
Cmdlet	Clear-TemporaryInternetFiles	1.0.0.0	WindowsMangement

```
PS C:\> Get-Command Clear-TemporaryInternetFiles -Verbose
```

CommandType	Name	Version	Source
-----	----	-----	-----
Cmdlet	Clear-TemporaryInternetFiles	1.0.0.0	WindowsMangement

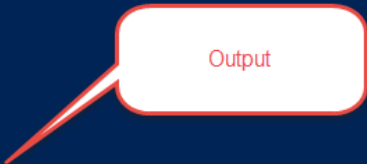
```
PS C:\> Clear-TemporaryInternetFiles -Verbose  
Clearing Temporary Internet Cache Files and Directories....C:\Users\904870\AppData\Local\Microsoft\Windows\Temporary Internet Files  
Done Processing!!!
```

```

BaseBoardManufacturer : Microsoft Corporation
Bootupsate            : Normal boot
BaseBoardSerialNumber : 0000-0012-0438-9235-0011-9062-41
Model                 : Virtual Machine
ComputerOwner         : Employee
ComputerName          : WMF5NODE01

BaseBoardManufacturer : Microsoft Corporation
Bootupsate            : Normal boot
BaseBoardSerialNumber : 0000-0012-0438-9235-0011-9062-41
Model                 : Virtual Machine
ComputerOwner         : Employee
ComputerName          : WMF5NODE01

```



Destination	IPv4Address	IPv6Address	Bytes	Time(ms)
localhost	127.0.0.1	::1	32	0
localhost	127.0.0.1	::1	32	0
localhost	127.0.0.1	::1	32	0
localhost	127.0.0.1	::1	32	0

```

PS C:\> Import-Alias C:\Temp\test.txt -Verbose 1
VERBOSE: Performing the operation "Import Alias" on target "Name: test Value: Test-Connection".

PS C:\> Get-Alias -Name Test 2

CommandType      Name                Version      Source
-----
Alias             test -> Test-Connection

PS C:\> test localhost 4

Source      Destination      IPv4Address      IPv6Address      Bytes      Time(ms)
-----
CHENWIN8   localhost        127.0.0.1        ::1               32         0
CHENWIN8   localhost        127.0.0.1        ::1               32         0
CHENWIN8   localhost        127.0.0.1        ::1               32         0
CHENWIN8   localhost        127.0.0.1        ::1               32         0

```

```

PS C:\> Get-Item Alias:\test

CommandType      Name                Version      Source
-----
Alias             test -> Test-Connection

```

```
PS C:\> Remove-Item Alias:\test -Verbose
VERBOSE: Performing the operation "Remove Item" on target "Item: test".

PS C:\> |
```

Alias

## Chapter 2: Unleashing Development Skills Using Windows PowerShell 5.0

```
PS C:\> Get-Command -Module Microsoft.PowerShell.Management -Name '*WMI*'
```

CommandType	Name	Version	Source
Cmdlet	Get-WmiObject	3.1.0.0	Microsoft.PowerShell.Management
Cmdlet	Invoke-WmiMethod	3.1.0.0	Microsoft.PowerShell.Management
Cmdlet	Register-WmiEvent	3.1.0.0	Microsoft.PowerShell.Management
Cmdlet	Remove-WmiObject	3.1.0.0	Microsoft.PowerShell.Management
Cmdlet	Set-WmiInstance	3.1.0.0	Microsoft.PowerShell.Management

WMI Available cmdlets

Version

Module - It's a source

```
PS C:\> |
```

```
PS C:\> [wmi]"root\cimv2:Win32_Service.Name='winRM'"
```

```
ExitCode : 0
Name      : WinRM
ProcessId : 1248
StartMode : Auto
State     : Running
Status    : OK
```

Service Name

```
PS C:\> |
```



```
PS C:\> Get-WmiObject -Query "select * from Win32_Service where Name='WinRM'"

ExitCode : 0
Name      : WinRM
ProcessId : 1248
StartMode : Auto
State     : Running
Status    : OK
```

Using Query Parameter

Administrator: Windows PowerShell ISE

```
1 $Obj = [WmiClass]"Win32_Process"
2
3 $Obj.Create('Notepad.exe')
```

Create

Untitled - Notepad

Created Process Notepad.exe using WMIclass

Opened Notepad

\$Obj.GetText('MOF') | Out-GridView

Filter

Add criteria

String

[Singleton: DisableOverride ToInstance ToSubClass, dynamic; ToInstance, provider("CIMWin32"): ToInstance, SupportsUpdate, Locale(1033); ToInstance, UUID("{8502C4DE-5FBB-11D2-AAC1-006008C78BC7}"): ToInstance] class Win32\_OperatingSystem : CIM\_OperatingSystem

[read: ToSubClass, write: ToSubClass, Override("Description"): ToSubClass, MappingStrings["WMI"]: ToSubClass] string Description = NULL;

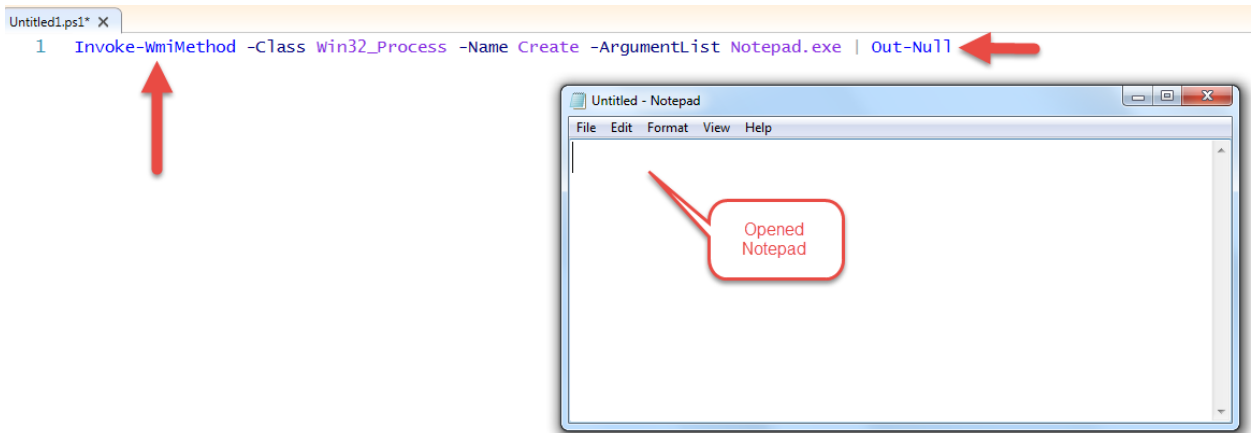
[read: ToSubClass, MappingStrings["Win32API\System Information Structures\OSVERSIONINFOEX\dwMajorVersion, dwMinorVersion"]: ToSubClass, Override("Version"): ToSubClass] string Version = NULL;

[read: ToSubClass, MappingStrings["Win32API\DRIVE\_MAP\_INFO\bdnt13Unit"]: ToSubClass] string BootDevice;

[read: ToSubClass, MappingStrings["WMI"]: ToSubClass] string MUILanguages[];

[read: ToSubClass, MappingStrings["Win32API\System Information Structures\OSVERSIONINFOEX\dwBuildNumber"]: ToSubClass] string BuildNumber;

[read: ToSubClass] string OSArchitecture;



```
PS C:\> $obj = [wmisearcher]"Select * from Win32_Process Where Name = 'Notepad.exe'"
$obj

Scope      : System.Management.ManagementScope
Query      : System.Management.ObjectQuery
Options    : System.Management.EnumerationOptions
Site       :
Container  :
```

Not useful result?

```
PS C:\> $obj = [wmisearcher]"Select * from Win32_Process Where Name = 'Notepad.exe'"
$obj.Get() | Select Caption , ExecutablePath , UserModeTime 1

Caption      ExecutablePath 2      UserModeTime
-----
notepad.exe  C:\windows\SYSTEM32\notepad.exe      1560010
notepad.exe  C:\windows\system32\notepad.exe      6708043
notepad.exe  C:\windows\system32\notepad.exe      312002
notepad.exe  C:\windows\system32\notepad.exe      624004

PS C:\> |
```

Output

```

1 Function Get-SystemInformation {
  param( 3
    [parameter(Mandatory = $true)] 2
    [String]$computername 5
  )
  $OS = Get-WmiObject -Class Win32_OperatingSystem -ComputerName $computername
6 $BIOS = Get-WmiObject -Class Win32_BIOS -ComputerName $computername
  $CS = Get-WmiObject -Class Win32_ComputerSystem -ComputerName $computername
  $properties = New-Object psobject -Property @{ 7
    "OSName" = $os.Caption
    "ServicePack" = $os.CSDVersion
    "SerialNumber" = $BIOS.SerialNumber 8
    "Manufacturer" = $BIOS.Manufacturer
    "Bootupstate" = $cs.BootupState
  }
  $properties 9
}

```

```
Get-SystemInformation -computername localhost 10
```

```

SerialNumber : DSCC007780
ServicePack  : Service Pack 1
Manufacturer  : FUJITSU // Phoenix Technologies Ltd.
BootUpState  : Normal boot
OSName       : Microsoft Windows 7 Enterprise

```

```

PS C:\> Get-Command -Module Microsoft.WSMan.Management

```

CommandType	Name	Version	Source
Cmdlet	Connect-WSMan	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Disable-WSManCredSSP	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Disconnect-WSMan	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Enable-WSManCredSSP	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Get-WSManCredSSP	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Get-WSManInstance	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Invoke-WSManAction	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	New-WSManInstance	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	New-WSManSessionOption	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Remove-WSManInstance	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Set-WSManInstance	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Set-WSManQuickConfig	3.0.0.0	Microsoft.WSMan.Management
Cmdlet	Test-WSMan	3.0.0.0	Microsoft.WSMan.Management

OSName 1	ServicePack 2	BIOSSerialNumber	BIOSReleaseDate 4
Microsoft Windows 7 Enterprise	Service Pack 1	3	4/27/2011 2:00:00 AM
Microsoft Windows 7 Enterprise	Service Pack 1		4/27/2011 2:00:00 AM

```
wsmid : http://schemas.dmtf.org/wbem/wsman/identity/1/wsmanidentity.xsd
ProtocolVersion : http://schemas.dmtf.org/wbem/wsman/1/wsman.xsd
ProductVendor : Microsoft Corporation
ProductVersion : OS: 0.0.0 SP: 0.0 Stack: 2.0
```

Version 2.0

```
$XML
<?xml version="1.0" encoding="utf-8"?>
<Custom>
<Computers>
  <Manufacturers>Fujitsu</Manufacturers>
  <Model>Lifebook S 700 Series</Model>
</Computers>
<Computers>
  <Manufacturers>Fujitsu</Manufacturers>
  <Model>Lifebook S 800 Series</Model>
</Computers>
</Custom>
```

Output of XML Content

```
xml 1 Custom 2
--- -----
version="1.0" encoding="utf-8" Custom

PS C:\windows\system32> |
```

```
$XML.Custom.Computers 1
  Manufacturers 2 Model 3
-----
Fujitsu Lifebook S 700 Series
Fujitsu Lifebook S 800 Series
```

Desired Output

```
PS C:\windows\system32> $XML | Get-Member -MemberType Methods

TypeName: System.Xml.XmlDocument

Name           MemberType Definition
-----
ToString       CodeMethod static string XmlNode(psoject instance)
AppendChild    Method     System.Xml.XmlNode AppendChild(System.Xml.XmlNode newChild)
Clone          Method     System.Xml.XmlNode Clone(), System.Object ICloneable.Clone()
CloneNode      Method     System.Xml.XmlNode CloneNode(bool deep)
CreateAttribute Method     System.Xml.XmlAttribute CreateAttribute(string name), System.Xml.XmlAttribute
CreateDataSection Method    System.Xml.XmlCDataSection CreateDataSection(string data)
CreateComment   Method     System.Xml.XmlComment CreateComment(string data)
CreateDocumentFragment Method    System.Xml.XmlDocumentFragment CreateDocumentFragment()
CreateDocumentType Method    System.Xml.XmlDocumentType CreateDocumentType(string name, string publicId, s
CreateElement   Method     System.Xml.XmlElement CreateElement(string name), System.Xml.XmlElement Creat
CreateEntityReference Method    System.Xml.XmlEntityReference CreateEntityReference(string name)
CreateNavigator Method     System.Xml.XPath.XPathNavigator CreateNavigator(), System.Xml.XPath.XPathNavi
CreateNode       Method     System.Xml.XmlNode CreateNode(System.Xml.XmlNodeType type, string prefix, str
CreateProcessingInstruction Method    System.Xml.XmlProcessingInstruction CreateProcessingInstruction(string target)
CreateSignificantWhitespace Method    System.Xml.XmlSignificantWhitespace CreateSignificantWhitespace(string text)
```

```
PS C:\windows\system32> Get-Command *XML

CommandType Name           Version Source
-----
Cmdlet      ConvertTo-Xml 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet      Export-Clixml 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet      Import-Clixml 3.1.0.0 Microsoft.PowerShell.Utility
Cmdlet      Select-Xml    3.1.0.0 Microsoft.PowerShell.Utility
```

Administrator: Windows PowerShell ISE

```
File Edit View Tools Debug Add-ons Help
B04702_02_02.ps1 X Untitled3.ps1*
1 $hash = @{
2   ServiceName = (Get-Service -Name Bits).Name
3   Status = (Get-Service -Name Bits).Status
4   CanStop = (Get-Service -Name Bits).CanStop
5   CanPauseandContinue = (Get-Service -Name Bits).CanPauseAndContinue
6 }
7
8 $value = New-Object PSObject -Property $hash
9 ($value | Convertto-xml -NoTypeInfoation).save("C:\Temp\Data.xml")
10
11 [xml]$xml = Get-Content C:\Temp\Data.xml
12 $xml.Objects.Object.Property
```

Created a hash table which retrieves basic information of BITS service

Converting to XML and invoking SAVE method

Explore the Output

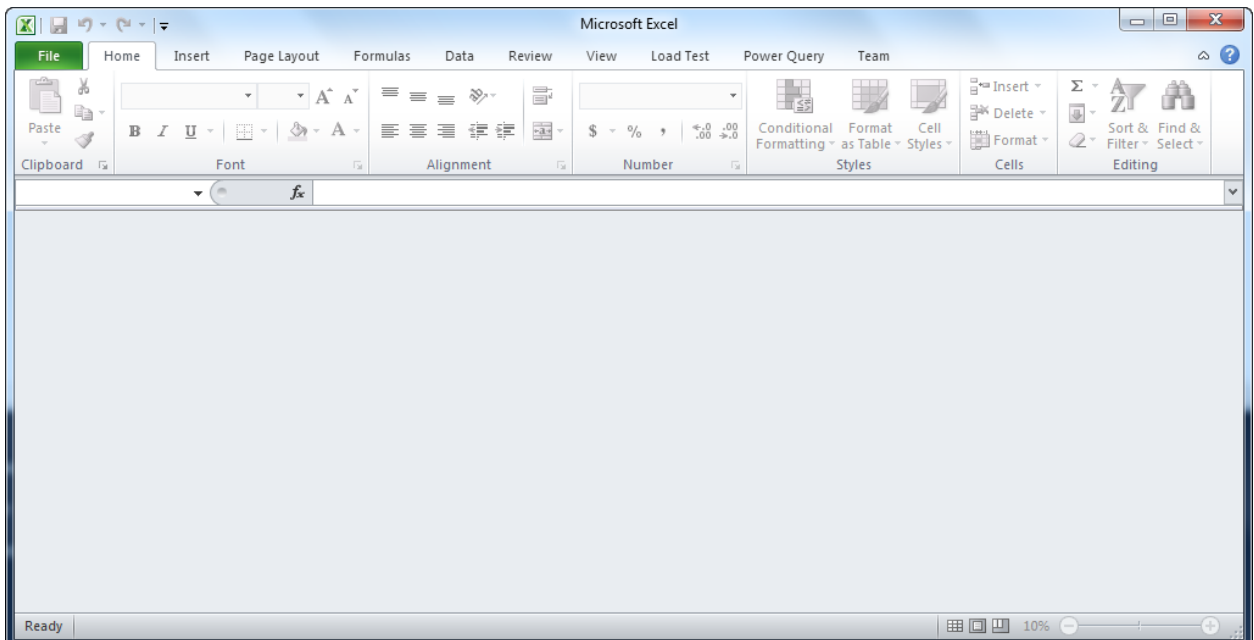
```
PS C:\> [xml]$xmlUsers='<Configuration Description="Users">
<Customers>
<User Surname="V" Firstname="Chen"></User>
<User Surname="Venkatesan" Firstname="Chendrayan"></User>
</Customers>
</Configuration>'
```

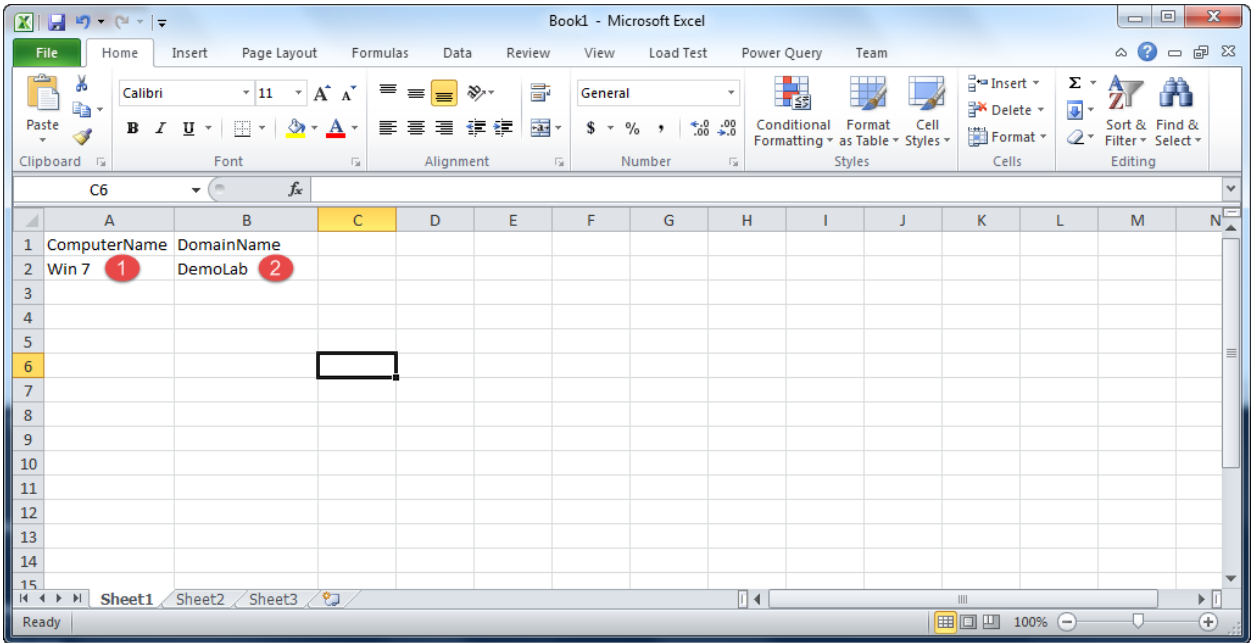
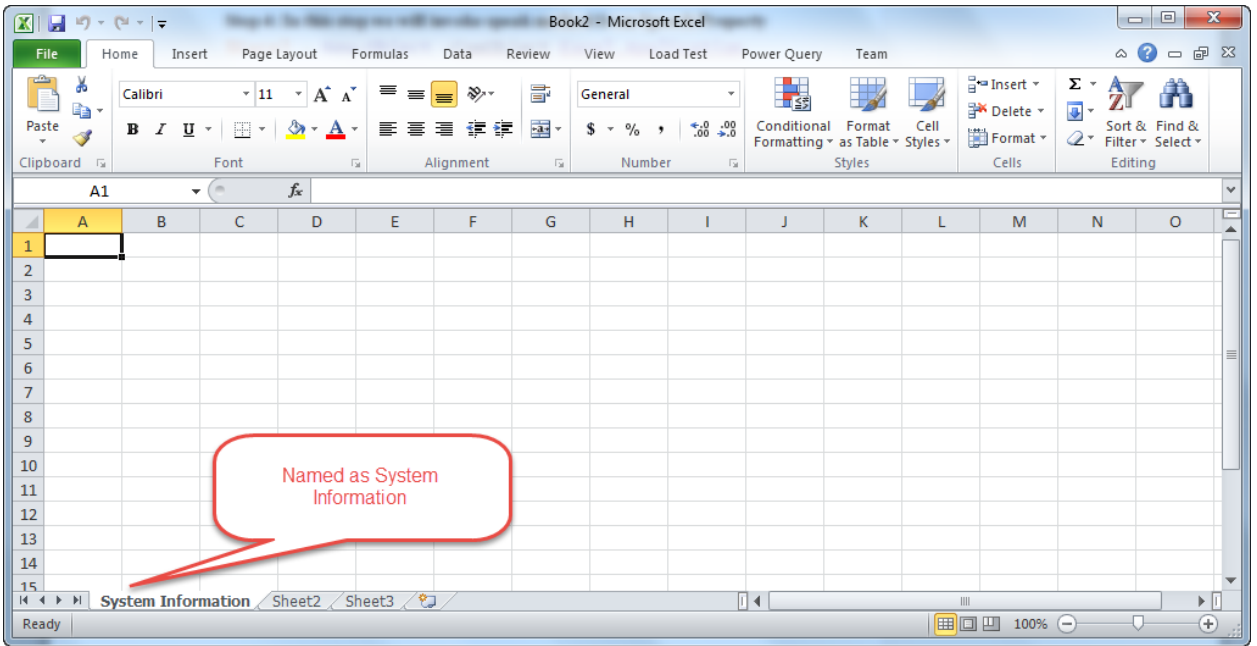
```
$xmlUsers.Configuration.Customers.user
```

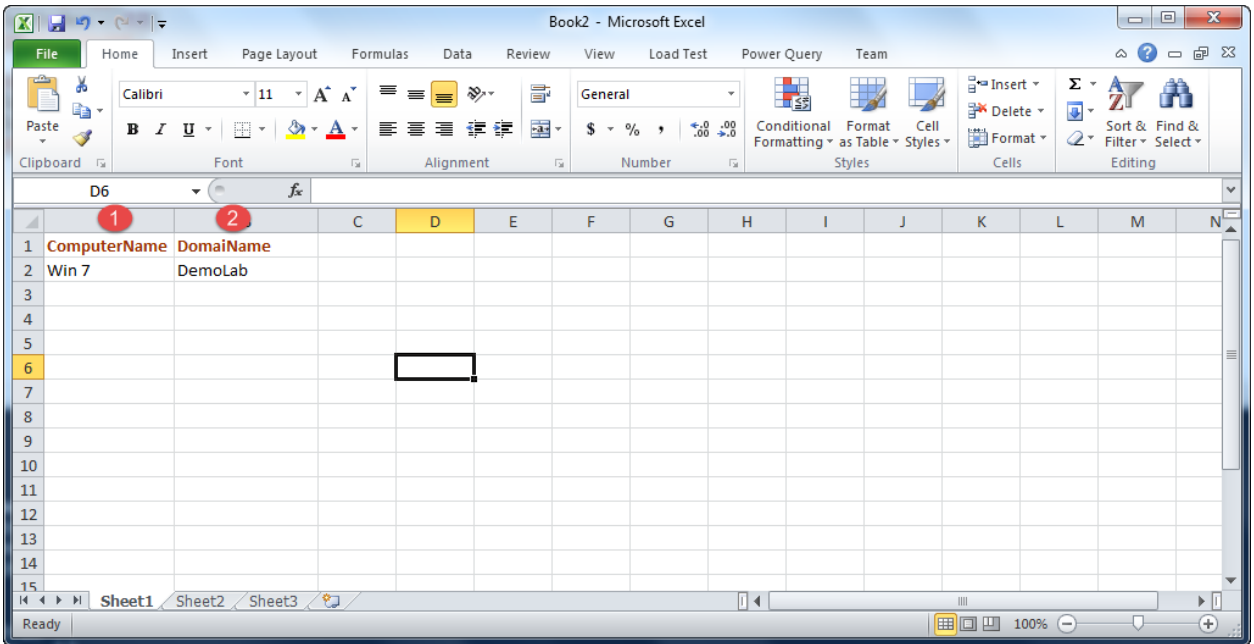
Surname	Firstname
V	Chen
Venkatesan	Chendrayan

Returns Properties

```
PS C:\> $Excel = New-Object -ComObject Excel.Application
"Excel Object has {0} events , {1} methods , {2} properties and {3} parameterizedproperty" -f (($Excel | GM -MemberType Event).Count ,
($Excel | GM -MemberType Method).Count , ($Excel | GM -MemberType Property).Count , ($Excel | GM -MemberType ParameterizedProperty).Count)
Excel Object has 43 events , 171 methods , 225 properties and 9 parameterizedproperty
PS C:\> |
```







```
PS C:\> Get-Process -Name WINWORD
```

Handles	NPM(K)	PM(K)	WS(K)	VM(M)	CPU(s)	Id	ProcessName
754	96	83284	101928	572	4.80	1832	WINWORD
749	74	69424	105144	555	1.78	3380	WINWORD
737	76	69704	106948	565	1.90	4664	WINWORD
740	76	66452	103424	565	1.83	6748	WINWORD
718	68	60880	82180	521	1.33	8148	WINWORD
853	112	122976	97560	714	1,085.77	11228	WINWORD
717	68	61188	82636	521	1.65	12024	WINWORD
714	68	61324	82872	521	2.11	12924	WINWORD
712	67	61084	55032	518	1.45	13108	WINWORD
740	76	69216	106416	562	2.31	13440	WINWORD
719	67	61312	55640	519	1.86	13884	WINWORD

Background chunks!



```

PS C:\> Stop-Process -Name WINWORD -Verbose 1
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (1832)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (3380)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (4664)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (6748)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (8148)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (10044)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (12024)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (12924)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (13108)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (13440)".
VERBOSE: Performing the operation "Stop-Process" on target "WINWORD (13884)".

```

```

PS C:\> $word = New-Object -ComObject Word.Application
$word.Quit() 1

```

```

PS C:\> Get-Process -Name WINWORD 2

```

Handles	NPM(K)	PM(K)	WS(K)	VM(M)	CPU(s)	Id	ProcessName
742	68	61120	82808	521	1.36	3552	WINWORD
956	111	92980	150068	644	9.92	8220	WINWORD

Still not removed from chunk!

```

PS C:\> Stop-Process -Name WINWORD

```

```

PS C:\> $word = New-Object -ComObject Word.Application
[System.Runtime.InteropServices.Marshal]::ReleaseComObject($word)
0 1

```

```

PS C:\> Get-Process -Name WINWORD 2

```

Handles	NPM(K)	PM(K)	WS(K)	VM(M)	CPU(s)	Id	ProcessName
829	73	66844	83664	551	1.40	11368	WINWORD

Report Executed on 6/22/2015 1

Computer Name is Win7 2

Domain Name is DemoLab 3



# Venkatesan, C. (Chendrayan)

---

Department: ICT, Office Phone: +31xxxxxxxxx, Email: <Email Address>

*Objective*

*Skills*

*Education*

*Projects*

*I hereby declare that the above written particulars are true to the best of my knowledge and belief.*

**Name : Venkatesan, C. (Chendrayan)**

**Date : 06/22/2015 14:45:12**

```
PS C:\> $service = New-Object System.ServiceProcess.ServiceController -ArgumentList BITS
#Invoking Start Method
$service.Start() 1

PS C:\> $Service.Status
Running 2

PS C:\>
```

```
PS C:\> $Version = New-Object -TypeName System.Version -ArgumentList 1.2.3.4
$Version
```

Major	Minor	Build	Revision
1	2	3	4

PS C:\> |

Output

```
PS C:\> $string = New-Object -TypeName System.String -ArgumentList "PowerShell Rocks!"
($string).GetType()
```

IsPublic	IsSerial	Name	BaseType
True	True	String	System.Object

PS C:\> |

Administrator: Windows PowerShell ISE

File Edit View Tools Debug Add-ons Help

```
PS C:\> $string = New-Object -TypeName System.String -ArgumentList "PowerShell Rocks!"
$string | Add-Member -MemberType NoteProperty "TotalCharacters" -Value $string.Length
$string.TotalCharacters
```

17
----

PS C:\> |

Result

Add-Member

Length

```
PS C:\> $string = New-Object -TypeName System.String -ArgumentList "PowerShell Rocks!"
$string | Add-Member -MemberType ScriptMethod -Name "ConcatCustom" -Value {[String]::Concat($this , " Demo")}
```

PowerShell Rocks! Demo
------------------------

PS C:\> |

```
Add-Type -TypeDefinition $sourcecode  
[Calculator]
```

IsPublic	IsSerial	Name	BaseType
True	False	Calculator	System.Object

```
PS C:\> |
```

```
1  
$var = New-Object -TypeName Demo  
$var  
2 3 4  
FirstName surname  
-----  
Chen 5 V 6
```

```
1  
$var = New-Object -TypeName Demo  
$var  
2 3 4  
FirstName surname  
-----  
Chen 5 V 6
```

```
PS C:\> $var | GM
```

```
TypeName: Demo
```

Name	MemberType	Definition
Equals	Method	bool Equals(System.Object obj)
GetHashCode	Method	int GetHashCode()
GetInformation	Method	void GetInformation()
GetType	Method	type GetType()
ToString	Method	string ToString()
FirstName	Property	System.Object FirstName {get;set;}
surname	Property	System.Object surname {get;set;}

```
FirstName  surname  
-----  
Chendrayan Venkatesan
```



SetInformation()

Status <b>1</b>	Name <b>2</b>	DisplayName <b>3</b>
Stopped	AdobeFlashPlaye...	Adobe Flash Player Update Service
Stopped	AeLookupSvc	Application Experience
Stopped	ALG	Application Layer Gateway Service
Stopped	AppIDSvc	Application Identity
Stopped	aspnet_state	ASP.NET State Service
Stopped	AxInstSV	ActiveX Installer (AxInstSV)
Stopped	BDESVC	BitLocker Drive Encryption Service
Stopped	Blackberry Devi...	Blackberry Device Manager
Stopped	Browser	Computer Browser
Stopped	c2wts	Claims to Windows Token Service
Stopped	clr_optimizatio...	Microsoft .NET Framework NGEN v2.0...
Stopped	clr_optimizatio...	Microsoft .NET Framework NGEN v2.0...
Stopped	clr_optimizatio...	Microsoft .NET Framework NGEN v4.0...
Stopped	clr_optimizatio...	Microsoft .NET Framework NGEN v4.0...
Stopped	COMSysApp	COM+ System Application
Stopped	cphs	Intel(R) Content Protection HECI Se...
Stopped	defragsvc	Disk Defragmenter
Stopped	dot3svc	Wired AutoConfig
Stopped	ehRecvr	Windows Media Center Receiver Service
Stopped	ehSched	Windows Media Center Scheduler Service

```

1  <#...#> 1
11 function Verb-Noun 3
12 { 2
13     [CmdletBinding()] 4
14     [Alias()]
15     [OutputType([int])]
16     Param
17     (...) 5
28
29     Begin 6
30     {...}
32     Process 7
33     {...}
35     End 8
36     {...}
38 }

```

## Report Executed On

Tuesday, June 23, 2015 8:31:16 AM

## General Information

Model	Manufacturer	Description	PrimaryOwnerName	SystemType
LIFEBOOK S761	FUJITSU	AT/AT COMPATIBLE	Windows User	x64-based PC

## Boot Configuration

Name	ConfigurationPath
BootConfiguration	C:\windows

```
1  <#...#> 1
15
16  #region - param ... 2
21
22  #region - Create CSS... 3
37  Write-Host "CSS File Created Successfully... Executing Inventory Report!!! Please Wait !!!" -ForegroundColor Yellow
38  #region ReportDate ... 4
41
42  #region General Information .. 5
46
47  #region Boot Configuration ... 6
51
52  #region BIOS Information .. 7
55
56  #region Operating System Information .. 8
59
60  #region Time Zone Information .. 9
64
65  #region Logical Disk Information .. 10
70
71  #region CPU Information .. 11
75
76  #region Memory Information .. 12
80
81  #region Software Inventory .. 13
85
86  #region HTML Body .. 14
98
99  #region Invoke the HTML file.. 15
```

```
PS C:\Temp> . .\B04702_02_06.ps1
```

```
PS C:\Temp> |
```

Dot  
Sourcing  
Operator

Script File Name

```
PS C:\Temp> Get-OSInformation  
cmdlet Get-OSInformation at command pipeline position 1  
Supply values for the following parameters:  
(Type !? for Help.)  
ComputerName[0]: |
```

Skipping Mandatory  
Parameter

```
PS C:\Temp> Get-OSInformation  
cmdlet Get-OSInformation at command pipeline position 1  
Supply values for the following parameters:  
(Type !? for Help.)  
ComputerName[0]: !?  
Please enter valid host name  
ComputerName[0]: |
```



```
PS C:\Temp> help Get-OSInformation

NAME 1
Get-OSInformation

SYNOPSIS 2
A script to retrieve OS information.

SYNTAX 3
Get-OSInformation [-ComputerName] <String[]> [<CommonParameters>]

DESCRIPTION 4
This PowerShell script will retrieve OS information like Name , OS Architecture, Serial Number and Last Bootup time.
This script use CIM instance.

RELATED LINKS 5

REMARKS 6
To see the examples, type: "get-help Get-OSInformation -examples".
For more information, type: "get-help Get-OSInformation -detailed".
For technical information, type: "get-help Get-OSInformation -full".
```

```
PS C:\> Import-Module C:\Temp\SysInformation.PSM1 -Verbose -Force
VERBOSE: Removing the imported "Get-OSInformation" function. 5
VERBOSE: Removing the imported "Get-DiskInformation" function.
VERBOSE: Loading module from path 'C:\Temp\SysInformation.PSM1'.
VERBOSE: Importing function 'Get-DiskInformation'. 6
VERBOSE: Importing function 'Get-OSInformation'.

PS C:\> |
```

```
PS C:\> Get-DiskInformation -ComputerName . 1
```

Label	FreeSpace(GB)	Size(GB)
L:	28.43	146.49
R:	16.75	20.12
C:	88.85	297.60
D:	0.00	0.00
L:	28.43	146.49
R:	16.75	20.12

PS C:\> Get-OSInformation -ComputerName. 2

Caption	OSArchitecture	SerialNumber	LastBootUptime
Microsoft Windows 7 Enterprise	64-bit	00392-918-5000002-85838	6/17/2015 10:31:43 AM

```

1 Configuration FileDemo 1
2 {
3     Node $env:COMPUTERNAME 2
4     {
5         File FileDemo 4
6         {
7             Ensure = 'Present'
8             DestinationPath = 'C:\Temp\Demo.txt'
9             Contents = 'PowerShell DSC Rocks!'
10            Force = $true
11        }
12    }
13 }
14
15 FileDemo| 6

```

```

/*
@TargetNode='DSCDEMOLAB'
@GeneratedBy=ChenV
@GenerationDate=06/23/2015 12:09:02 1
@GenerationHost=DSCDEMOLAB
*/

```

```

instance of MSFT_FileDirectoryConfiguration as $MSFT_FileDirectoryConfiguration1ref 2
{
ResourceID = "[File]FileDemo";
Ensure = "Present";
Contents = "PowerShell DSC Rocks!";
DestinationPath = "C:\\Temp\\Demo.txt";
Force = True;
ModuleName = "PSDesiredStateConfiguration";
SourceInfo = "::5::9::File";
ModuleVersion = "1.0";

```

};

```

instance of OMI_ConfigurationDocument 3
{
Version="1.0.0";
Author="ChenV";
GenerationDate="06/23/2015 12:09:02";
GenerationHost="DSCDEMOLAB";
};

```

```
PS C:\> Get-DscResource
```

ImplementedAs	Name	Module	Properties
Binary	File		{DestinationPath, Attributes, Checksum, Content... {DependsOn}
Composite	FileDemo		{Destination, Path, Checksum, Credential...}
PowerShell	Archive	PSDesiredStateConfiguration	{Name, DependsOn, Ensure, Path...}
PowerShell	Environment	PSDesiredStateConfiguration	{GroupName, Credential, DependsOn, Description...}
PowerShell	Group	PSDesiredStateConfiguration	{Message, DependsOn}
Binary	Log		{Name, Path, ProductId, Arguments...}
PowerShell	Package	PSDesiredStateConfiguration	{Key, ValueName, DependsOn, Ensure...}
PowerShell	Registry	PSDesiredStateConfiguration	{GetScript, SetScript, TestScript, Credential...}
PowerShell	Script	PSDesiredStateConfiguration	{Name, BuiltInAccount, Credential, DependsOn...}
PowerShell	Service	PSDesiredStateConfiguration	{UserName, DependsOn, Description, Disabled...}
PowerShell	User	PSDesiredStateConfiguration	{Name, Credential, DependsOn, Ensure...}
PowerShell	WindowsFeature	PSDesiredStateConfiguration	{Arguments, Path, Credential, DependsOn...}
PowerShell	WindowsProcess	PSDesiredStateConfiguration	

```
PS C:\> Get-DscResource -Name Service -Syntax
Service [string] #ResourceName
{
    Name = [string]
    [ BuiltInAccount = [string] { LocalService | LocalSystem | NetworkService } ]
    [ Credential = [PSCredential] ]
    [ DependsOn = [string[]] ]
    [ StartupType = [string] { Automatic | Disabled | Manual } ]
    [ State = [string] { Running | Stopped } ]
}
```

```
PS C:\> Get-Command -Noun DSC*
```

CommandType	Name	ModuleName
Function	Get-DscConfiguration	PSDesiredStateConfiguration
Function	Get-DscLocalConfigurationManager	PSDesiredStateConfiguration
Function	Get-DscResource	PSDesiredStateConfiguration
Function	New-DSCChecksum	PSDesiredStateConfiguration
Function	Remove-DscConfigurationDocument	PSDesiredStateConfiguration
Function	Restore-DscConfiguration	PSDesiredStateConfiguration
Function	Stop-DscConfiguration	PSDesiredStateConfiguration
Function	Test-DscConfiguration	PSDesiredStateConfiguration
Cmdlet	Set-DscLocalConfigurationManager	PSDesiredStateConfiguration
Cmdlet	Start-DscConfiguration	PSDesiredStateConfiguration
Cmdlet	Update-DscConfiguration	PSDesiredStateConfiguration

```
PS C:\> Class Catalog
```

```
{  
    #Properties  
    $Model = 'Fujitsu'  
    $Manufacturer = 'Life Book S Series'  
}
```

```
$var = New-Object Catalog  
$var
```

Returns the  
properties

```
Model    Manufacturer  
-----  
Fujitsu  Life Book S Series
```

```
PS C:\> $var | GM
```

Results of Get  
Member

```
TypeName: Catalog
```

Name	MemberType	Definition
Equals	Method	bool Equals(System.Object obj)
GetHashCode	Method	int GetHashCode()
GetType	Method	type GetType()
ToString	Method	string ToString()
Manufacturer	Property	System.Object Manufacturer {get;set;}
Model	Property	System.Object Model {get;set;}

```
PS C:\> $var.Manufacturer = "Microsoft"
```

```
PS C:\> $var
```

Allows to set the  
properties

```
Model    Manufacturer  
-----  
Fujitsu  Microsoft
```

```
PS C:\> Class Catalog
{
  #Properties
  $Model = 'Fujitsu'
  $Manufacturer = 'Life Book S Series'

  SetInformation([String]$mdl,[String]$mfgr)
  {
    $this.Manufacturer = $mfgr
    $this.Model = $mdl
  }
}
$var = New-Object -TypeName Catalog
$var.SetInformation('Surface' , 'Microsoft')
$var
```

Model	Manufacturer
Surface	Microsoft

Result

```
$var = New-Object Order
$var.Book('Audi' , 'Red')
$var
```

color	Manufacturer
Red	Audi

Result

```
identity Name
-----
Dummy Test Case User
```

Created a user in AD

```

1  Class Hide {
2  [String] $Name
3  Hidden $ID
4  }
5
6  $var = [Hide]::new()
7
8  $var

```

Hidden

string Name {get;set;}

Not shown here!

- Equals
- GetHashCode
- GetType
- ToString

```

PS C:\> "Error 4356 Lync" , "Warning 6781 SharePoint" , "Information 5436 Exchange" ,
"Error 3432 Lync" , "Warning 4356 SharePoint" , "Information 5432 Exchange" |
ConvertFrom-String -PropertyNames Type , EventID, Server | GM

```

1

TypeName: System.Management.Automation.PSCustomObject

Name	MemberType	Definition
Equals	Method	bool Equals(System.Object obj)
GetHashCode	Method	int GetHashCode()
GetType	Method	type GetType()
ToString	Method	string ToString()
EventID	NoteProperty	int16 EventID=4356
Server	NoteProperty	string Server=Lync
Type	NoteProperty	string Type=Error

2

3

```
PS C:\> ping www.microsoft.com | ConvertFrom-String -TemplateFile C:\Temp\Template.txt
```

IP	Bytes
--	----
2.21.47.138	32
2.21.47.138	32
2.21.47.138	32
2.21.47.138	32

```
PS C:\> ping www.microsoft.com | ConvertFrom-String -TemplateFile C:\Temp\Template.txt -Debug
```

```
DEBUG: Property: IP
Program: <SequenceProgram symbol="N1" score="5481" ><NonterminalNode symbol="$N1" rule="LinesMap">
  <NonterminalNode symbol="$T1" rule="SingleLinePositionPair">
    <VariableNode symbol="$v" />
    <NonterminalNode symbol="$p1" rule="RegPos1">
      <VariableNode symbol="$s1" />
      <NonterminalNode symbol="$RR" rule="RegexPair">
        <LiteralNode symbol="$r">
          <RegularExpression />
        </LiteralNode>
        <LiteralNode symbol="$r">
          <RegularExpression />
        </LiteralNode>
        <Token name="Date" score="109" isSymbol="true"><![CDATA[(?<!\\d)(\\d{2}(\\d{1,3}(19|20)?\\d{1,4}|(?<!\\d)(19|20)?\\d{4})
([-\\.])?\\d{2}(\\d{1,3}(19|20)?\\d{1,4}|(?<!\\d)(19|20)?\\d{4})]*)></Token>
      </RegularExpression>
    </LiteralNode>
  </NonterminalNode>
  <LiteralNode symbol="$k"><![CDATA[1]]></LiteralNode>
</NonterminalNode>
  <NonterminalNode symbol="$p1" rule="RegPos1">
    <VariableNode symbol="$s1" />
    <NonterminalNode symbol="$RR" rule="RegexPair">
      <LiteralNode symbol="$r">
        <RegularExpression />
      </LiteralNode>
      <Token name="IP" score="109" isSymbol="true"><![CDATA[(?<!\\d)?(?:25[0-5]|2[0-4][0-9]|[01]?[0-9][0-9]?)\\.){3}(?:25[0-5]|2[0-4]
[0-9]|[01]?[0-9][0-9]?)?\\d)]*)></Token>
```

```
PS C:\Users\ChenV> Get-Module -Name PackageManagement
```

ModuleType	Version	Name	ExportedCommands
Binary	1.0.0.0	PackageManagement	{Find-Package, Get-Package, Get-PackageProvider, Get-PackageSource...}

```
PS C:\Users\ChenV>
```

CommandType	Name	Version	Source
Cmdlet	Find-Package	1.0.0.0	PackageManagement
Cmdlet	Get-Package	1.0.0.0	PackageManagement
Cmdlet	Get-PackageProvider	1.0.0.0	PackageManagement
Cmdlet	Get-PackageSource	1.0.0.0	PackageManagement
Cmdlet	Install-Package	1.0.0.0	PackageManagement
Cmdlet	Register-PackageSource	1.0.0.0	PackageManagement
Cmdlet	Save-Package	1.0.0.0	PackageManagement
Cmdlet	Set-PackageSource	1.0.0.0	PackageManagement
Cmdlet	Uninstall-Package	1.0.0.0	PackageManagement
Cmdlet	Unregister-PackageSource	1.0.0.0	PackageManagement

```
PS C:\Users\ChenV> Get-PackageProvider
```

Name	Version	DynamicOptions
Programs	10.0.10105.0	{IncludeWindowsInstaller, IncludeSystemComponent}
msu	10.0.10105.0	{}
msi	10.0.10105.0	{AdditionalArguments}
Chocolatey	2.8.5.101	{SkipDependencies, ContinueOnFailure, ExcludeVersion, ForceX86...}
NuGet	2.8.5.101	{Destination, SkipDependencies, ContinueOnFailure, ExcludeVersion...}
PSModule	10.0.10105.0	{PackageManagementProvider, Location, InstallUpdate, InstallationPolicy...}

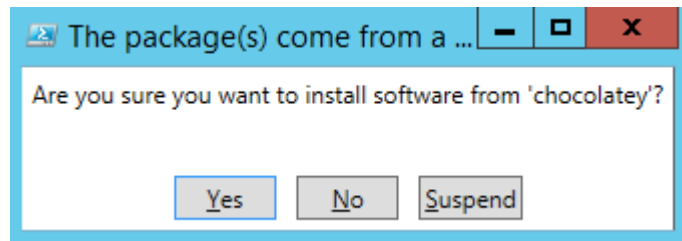
  

```
PS C:\Users\ChenV> Get-PackageSource
```

Name	ProviderName	IsTrusted	IsRegistered	IsValidated	Location
chocolatey	Chocolatey	False	True	False	http://chocolatey.org/api/v2/
PSGallery	PSModule	False	True	False	https://www.powershellgallery.com/api/v2/

```
PS C:\> Find-Package | Select -First 20
```

Name	Version	Source	Summary
GallioBundle	3.4	chocolatey	The Gallio platform seeks to facilitate the creation of a rich ecosystem of interoperabl
scummvm	1.7.0	chocolatey	scummvm
residualvm	0.1.1	chocolatey	residualvm
WindowsAzurePowershell_0871	0.8.7.1	chocolatey	
Leechcraft	0.6.70.2	chocolatey	LeechCraft is a free open source cross-platform modular live environment.
AzureBuildSDKvs2013	2.4.0	chocolatey	Azure SDK for build servers and Visual Studio 2013
XSockets.PerformanceCounters	0.1	chocolatey	Installs Performance Monitor counters for XSockets.NET v4
GoCiAgent	14.2.0	chocolatey	Installs Go Agent
linqpad4.AnyCPU.portable	4.51.03	chocolatey	LINQPad 4 (Portable, AnyCPU build for "massive" queries)
poshpuppetreports	0.9.55	chocolatey	
ceed	0.8.0	chocolatey	ceed
simply-weather	0.2.2	chocolatey	Weather without all the fuss
OrchardCms	1.8.1.2	chocolatey	Installs an instance of the Orchard Cms
frozenbytes.dev.essentials	1.01	chocolatey	frozenbytes.dev.essentials
csved	2.3.2	chocolatey	CSVed is an easy and powerful CSV file editor, you can manipulate any CSV file, separate
dtkneak	1.0.0.1	chocolatey	The DTK Barcode Reader SDK_loves_ to pop up a licensing dialog when running in debug. I
jpegoptim	1.2.4.4	chocolatey	Utility to optimize jpeg files. Provides lossless optimization (based on optimizing the
resourceextract	1.18	chocolatey	Extract resource files (bitmaps, icons, html files, and more) from dll files
xbox-one-controller	1.0.0.0	chocolatey	PC Drivers for the Xbox One Controller Now Available
tfsSidekicks	2.4.0	chocolatey	Team Foundation Sidekicks is a suite of tools for Microsoft Team Foundation Server admin

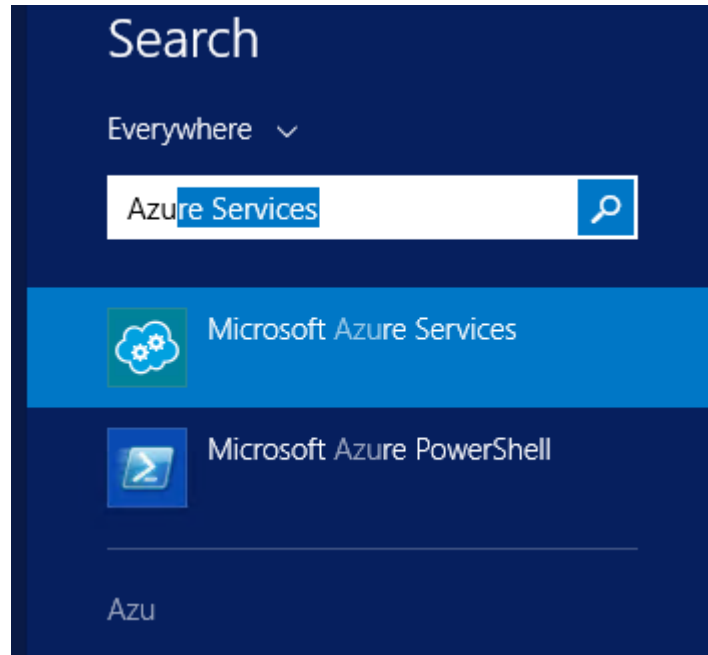




```
PS C:\> Find-Package -Name WindowsAzurePowerShell | Install-Package -Verbose
VERBOSE: Performing the operation "Install Package" on target "Package 'WindowsAzurePowerShell' version '0.8.8' from 'chocolatey'".
VERBOSE: NuGet: GET http://chocolatey.org/api/v2/Packages(Id='DotNet4.5',Version='4.5')
VERBOSE: NuGet: GET http://chocolatey.org/api/v2/package/DotNet4.5/4.5
VERBOSE: NuGet: Installing 'DotNet4.5 4.5'.
VERBOSE: NuGet: Successfully installed 'DotNet4.5 4.5'.
VERBOSE:
VERBOSE: False 1
VERBOSE: NuGet: GET http://chocolatey.org/api/v2/Packages(Id='WindowsAzurePowerShell',Version='0.8.8')
VERBOSE: NuGet: Attempting to resolve dependency 'DotNet4.5'.
VERBOSE: NuGet: GET http://chocolatey.org/api/v2/package/WindowsAzurePowerShell/0.8.8
VERBOSE: NuGet: Installing 'WindowsAzurePowerShell 0.8.8'.
VERBOSE: NuGet: Successfully installed 'WindowsAzurePowerShell 0.8.8'.
VERBOSE: CreateFolder Success C:\Users\ChenV\AppData\Local\Temp\2\chocolatey\WindowsAzurePowerShell
VERBOSE: GetChocolateyWebFile WindowsAzurePowerShell => http://az412849.vo.msecnd.net/downloads03/azure-powershell.0.8.8.msi
VERBOSE: Package Successfully Installed WindowsAzurePowerShell
VERBOSE: True 2
3
```

Name	Version	Source	Summary
DotNet4.5	4.5	chocolatey	The Microsoft .NET Framework 4.5
WindowsAzurePowerShell	0.8.8	chocolatey	

Installed .NET 4.5 and Windows Azure PowerShell



```

PS C:\> Import-Module 'C:\Program Files\WindowsPowerShell\Modules\PowerShellGet' -Verbose
VERBOSE: Loading module from path 'C:\Program Files\WindowsPowerShell\Modules\PowerShellGet\PowerShellGet.psd1'.
VERBOSE: Loading 'FormatsToProcess' from path 'C:\Program Files\WindowsPowerShell\Modules\PowerShellGet\PSGet.Format.ps1xml'.
VERBOSE: Loading module from path 'C:\Program Files\WindowsPowerShell\Modules\PowerShellGet\PSGet.psm1'.
VERBOSE: Importing function 'Find-Module'.
VERBOSE: Importing function 'Get-InstalledModule'.
VERBOSE: Importing function 'Get-PSRepository'.
VERBOSE: Importing function 'Install-Module'.
VERBOSE: Importing function 'Publish-Module'.
VERBOSE: Importing function 'Register-PSRepository'.
VERBOSE: Importing function 'Save-Module'.
VERBOSE: Importing function 'Set-PSRepository'.
VERBOSE: Importing function 'Uninstall-Module'.
VERBOSE: Importing function 'Unregister-PSRepository'.
VERBOSE: Importing function 'Update-Module'.
VERBOSE: Importing alias 'fimo'.
VERBOSE: Importing alias 'inmo'.
VERBOSE: Importing alias 'pumo'.
VERBOSE: Importing alias 'upmo'.

```

```

PS C:\> Find-Module -Name xJEA | Install-Module -Verbose
VERBOSE: The specified Location is 'https://www.powershellgallery.com/api/v2/' and PackageManagementProvider is 'NuGet'.
VERBOSE: Getting the provider object for the PackageManagement Provider 'NuGet'.
VERBOSE: The specified Location is 'https://www.powershellgallery.com/api/v2/' and PackageManagementProvider is 'NuGet'.
VERBOSE: Performing the operation "Install-Module" on target "Version '0.2.16.6' of module 'xJea'".
VERBOSE: The specified module will be installed in 'C:\Program Files\WindowsPowerShell\Modules'.
VERBOSE: The specified Location is 'NuGet' and PackageManagementProvider is 'NuGet'.
VERBOSE: Downloading module 'xJea' with version '0.2.16.6' from the repository 'https://www.powershellgallery.com/api/v2/'.
VERBOSE: NuGet: GET https://www.powershellgallery.com/api/v2/Packages(Id='xJea',Version='0.2.16.6')
VERBOSE: NuGet: GET https://www.powershellgallery.com/api/v2/package/xJea/0.2.16.6
VERBOSE: NuGet: Installing 'xJea 0.2.16.6'.
VERBOSE: NuGet: Successfully installed 'xJea 0.2.16.6'.
VERBOSE: Module 'xJea' was installed successfully.

PS C:\> Uninstall-Module -Name xJEA -Verbose
VERBOSE: Performing the operation "Uninstall-Module" on target "Version '0.2.16.6' of module 'xJea'".
VERBOSE: Successfully uninstalled the module 'xJea' from module base 'C:\Program Files\WindowsPowerShell\Modules\xJea\0.2.16.6'.



PS C:\> |

```

## Manage My Modules

### Modules

These modules are currently published for the world to see.

Module	Module ID	Description	Downloads
  Testing	Testing	Just for Demo!	0

You have a total of 1 modules. 0

```

PS C:\> Publish-Module -Name Testing -NuGetApiKey ff9b122f-067f-4a45-975f-55df02855a6e -Verbose
VERBOSE: Repository details, Name = 'PSGallery', Location = 'https://www.powershellgallery.com/api/v2/'; IsTrusted = 'True'; IsRegistered = 'True'.
VERBOSE: Repository details, Name = 'PSGallery', Location = 'https://www.powershellgallery.com/api/v2/'; IsTrusted = 'True'; IsRegistered = 'True'.
VERBOSE: Module 'Testing' was found in 'C:\Windows\system32\WindowsPowerShell\v1.0\Modules\Testing'.
VERBOSE: Repository details, Name = 'PSGallery', Location = 'https://www.powershellgallery.com/api/v2/'; IsTrusted = 'True'; IsRegistered = 'True'.
VERBOSE: Repository details, Name = 'PSGallery', Location = 'https://www.powershellgallery.com/api/v2/'; IsTrusted = 'True'; IsRegistered = 'True'.
VERBOSE: Using the specified source names : 'PSGallery'.
VERBOSE: Getting the provider object for the PackageManagement Provider 'NuGet'.
VERBOSE: The specified Location is 'https://www.powershellgallery.com/api/v2/' and PackageManagementProvider is 'NuGet'.
VERBOSE: Performing the operation "Publish-Module" on target "Version '1.0' of module 'Testing'".
VERBOSE: Successfully published module 'Testing' to the module publish location 'https://go.microsoft.com/fwlink/?LinkID=397527&cid=0x409'. Please allow few minutes for 'Testing' to show up in the search results.

PS C:\>

```

```
VERBOSE: Importing function 'Get-RunningServices'. 1
VERBOSE: Importing function 'Get-StoppedServices'.
VERBOSE: Importing alias 'grsv'.
VERBOSE: Importing alias 'gssv'. 2
```

```
PS C:\> Import-Module C:\Temp\Class.psm1 -Verbose
VERBOSE: Loading module from path 'C:\Temp\Class.psm1'.
```

```
PS C:\> $var = New-Object Demo
```

```
PS C:\> $var.GetInformation
```

```
PS C:\> $var
```

```
FirstName SurName
-----
Chendrayan Venkatesan
```

Pass SamaccountName as Parameter ('ID')

```
PS C:\> Import-Module C:\Temp\Class.psm1 -Verbose
VERBOSE: Loading module from path 'C:\Temp\Class.psm1'.
```

```
PS C:\> $var = New-Object Demo
```

```
PS C:\> $var.GetInformation
```

```
PS C:\> $var
```

```
FirstName SurName
-----
Chendrayan Venkatesan
```

Pass SamaccountName as Parameter ('ID')

```
PS C:\> Import-Module C:\SystemManagement.dll -Verbose
VERBOSE: Loading module from path 'C:\SystemManagement.dll'. 1
VERBOSE: Importing cmdlet 'Clear-TemporaryInternetFiles'.
VERBOSE: Importing cmdlet 'Clear-IEHistory'.
VERBOSE: Importing cmdlet 'Clear-UserTemporaryFiles'. 2

PS C:\> Clear-TemporaryInternetFiles 3
Clearing Temporary Internet Cache Files and Directories....C:\Users\ChenV\AppData\Local\Microsoft\Windows\INetCache
Done Processing!!!

PS C:\> Clear-IEHistory 4
Clearing Internet Explorer History....C:\Users\ChenV\AppData\Local\Microsoft\Windows\History
Done Processing!!!

PS C:\> Clear-UserTemporaryFiles 5
Clearing Your Profile Temporary Files...C:\Users\ChenV\AppData\Local\Temp\2\
Done Processing!!!

PS C:\>
```

```
#  
# Module manifest for module 'ModuleManifestDemo'  
#  
# Generated by: Chendrayan Venkatesan  
#  
# Generated on: 6/26/2015  
#  
@{  
  
# Script module or binary module file associated with this manifest.  
# RootModule = ''  
  
# Version number of this module.  
ModuleVersion = '1.0'  
  
# ID used to uniquely identify this module  
GUID = 'abfe91d1-ef13-4d24-8b0f-26642f28eedf'  
  
# Author of this module  
Author = 'Chendrayan Venkatesan'  
  
# Company or vendor of this module  
CompanyName = 'Contoso'  
  
# Copyright statement for this module  
Copyright = '(c) 2015 Chendrayan Venkatesan. All rights reserved.'  
  
# Description of the functionality provided by this module  
Description = 'Module Manifest Demo'  
  
# Minimum version of the Windows PowerShell engine required by this module  
PowerShellVersion = '5.0'
```

```
PS C:\> (Get-Command -Name *Debug*).Where({$_.Source -ne 'Azure' -and $_.CommandType -eq 'cmdlet'})
```

CommandType	Name	Version	Source
Cmdlet	Debug-Job	3.0.0.0	Microsoft.PowerShell.Core
Cmdlet	Debug-Process	3.1.0.0	Microsoft.PowerShell.Management
Cmdlet	Debug-Runspace	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Disable-RunspaceDebug	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Enable-RunspaceDebug	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Get-RunspaceDebug	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Set-PSDebug	3.0.0.0	Microsoft.PowerShell.Core
Cmdlet	Wait-Debugger	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Write-Debug	3.1.0.0	Microsoft.PowerShell.Utility

```
PS C:\> Get-Command -Name *BreakPoint
```

CommandType	Name	Version	Source
Cmdlet	Disable-PSBreakpoint	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Enable-PSBreakpoint	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Get-PSBreakpoint	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Remove-PSBreakpoint	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	Set-PSBreakpoint	3.1.0.0	Microsoft.PowerShell.Utility

```
$servers = @('localhost' , 'NotOnline' , 'localhost')
foreach($server in $servers)
{
  Get-WmiObject -Class win32_operatingSystem -ComputerName $server
}
```

Line breakpoint enabled

```
PS C:\> Get-PSBreakpoint -id 13
```

ID	Script	Line	Command	Variable	Action
13			Get-Service		

```
PS C:\> Enable-PSBreakpoint -Id 13 -Verbose
```

```
PS C:\> Get-PSBreakpoint -Id 13
```

ID	Script	Line	Command	Variable	Action
13			Get-Service		

```

PS C:\Temp> .\Scriptdemo.ps1
Hit Variable breakpoint on 'C:\Temp\Scriptdemo.ps1:$Server' (Write access)
Hit Variable breakpoint on 'C:\Temp\Scriptdemo.ps1:$Server' (Write access)
[DBG]: PS C:\Temp>>
[DBG]: PS C:\Temp>>
PS C:\Temp> |

```

```

$servers = @('localhost' , 'NotOnline' , 'localhost')
foreach($server in $servers)
{
    Get-WmiObject -Class Win32_OperatingSystem -ComputerName $server
}

```

```

PS C:\> $Debug = Start-Job -Name DebugDemo -ScriptBlock {
    $var = 1
    Wait-Debugger
    $var
    $var + 10
}

PS C:\> Debug-Job -Job $Debug -Verbose
VERBOSE: Performing the operation "Debug" on target "DebugDemo".
Stopped at: $var
[DBG]: [Job42]: PS C:\Users\904870\Documents>> |

```

```

PS C:\> Get-Job

```

Id	Name	PSJobTypeName	State	HasMoreData	Location	Command
53	Job53	BackgroundJob	AtBreakpoint	True	localhost	Set-PSBreakpoint C:\T...

## Chapter 3: Exploring Desired State Configuration

```
Administrator: Windows PowerShell
PS C:\> Get-ItemProperty 'HKLM:\SOFTWARE\Microsoft\NET Framework Setup\NDP\v4\Client'

PSPath           : Microsoft.PowerShell.Core\Registry::HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\NET Framework Setup\NDP\v4\Cl
ient
PSParentPath     : Microsoft.PowerShell.Core\Registry::HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\NET Framework Setup\NDP\v4
PSChildName      : Client
PSDrive          : HKLM
PSProvider       : Microsoft.PowerShell.Core\Registry
Version          : 4.0.30319
TargetVersion    : 4.0.0
Install          : 1
MSI              : 1
Servicing        : 0
InstallPath      : c:\Windows\Microsoft.NET\Framework64\v4.0.30319\

PS C:\> _
```

4.0

```
Administrator: Windows PowerShell
PS C:\> Import-Module ServerManager -Verbose 1
VERBOSE: Loading module from path 'C:\Windows\system32\WindowsPowerShell\v1.0\Modules\ServerManager\ServerManager.psd1'.
VERBOSE: Loading 'FormatsToProcess' from path 'C:\Windows\system32\WindowsPowerShell\v1.0\Modules\ServerManager\Feature.format.ps1xml'.
VERBOSE: Importing cmdlet 'Get-WindowsFeature'.
VERBOSE: Importing cmdlet 'Add-WindowsFeature'.
VERBOSE: Importing cmdlet 'Remove-WindowsFeature'.
VERBOSE: Exporting cmdlet 'Get-WindowsFeature'.
VERBOSE: Exporting cmdlet 'Add-WindowsFeature'.
VERBOSE: Exporting cmdlet 'Remove-WindowsFeature'.
VERBOSE: Importing cmdlet 'Add-WindowsFeature'.
VERBOSE: Importing cmdlet 'Get-WindowsFeature'.
VERBOSE: Importing cmdlet 'Remove-WindowsFeature'.
PS C:\> Get-WindowsFeature -Name '*ISE*' 2

Display Name                                     Name
-----
[ ] Windows PowerShell Integrated Scripting Environ... PowerShell-ISE
3
PS C:\> Add-WindowsFeature -Name 'PowerShell-ISE' -Verbose 4
VERBOSE: Checking if running in 'WhatIf' Mode.
VERBOSE: Start Installation...
VERBOSE: Performing operation "Add-WindowsFeature" on Target "[Windows PowerShell Integrated Scripting Environment <ISE>] Windows PowerShell Integrated Scripting Environment <ISE>".
VERBOSE: Performing operation "Add-WindowsFeature" on Target "[.NET Framework 3.5.1 Features] .NET Framework 3.5.1".
VERBOSE: [Installation] Succeeded: [.NET Framework 3.5.1 Features] .NET Framework 3.5.1.
VERBOSE: [Installation] Succeeded: [Windows PowerShell Integrated Scripting Environment <ISE>] Windows PowerShell Integrated Scripting Environment <ISE>.

Success Restart Needed Exit Code Feature Result
-----
5 True No Success [.NET Framework 3.5.1, Windows PowerShell ...

PS C:\> Get-WindowsFeature -Name '*ISE*'

Display Name                                     Name
-----
[X] Windows PowerShell Integrated Scripting Environ... PowerShell-ISE
```

Configuring Windows updates  
96% complete  
Do not turn off your computer.



```
PS C:\> Get-Module -ListAvailable

Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules

ModuleType Version Name ExportedCommands
-----
Manifest 1.0.0.0 ADRMS {Update-ADRMS, Uninstall-ADRMS, Install-ADRMS}
Manifest 1.0.0.0 AppLocker {Set-AppLockerPolicy, Get-AppLockerPolicy, Test-AppLockerPolicy, Get-AppLockerFileInformation...}
Manifest 1.0 BestPractices {Get-BpaModel, Invoke-BpaModel, Get-BpaResult, Set-BpaResult}
Manifest 1.0.0.0 BitsTransfer {Add-BitsFile, Remove-BitsTransfer, Complete-BitsTransfer, Get-BitsTransfer...}
Manifest 1.0.0.0 CimCmdlets {Get-CimAssociatedInstance, Get-CimClass, Get-CimInstance, Get-CimSession...}
Script 1.0.0.0 ISE {New-IseSnippet, Import-IseSnippet, Get-IseSnippet}
Manifest 3.0.0.0 Microsoft.PowerShell.Diagnostics {Get-WinEvent, Get-Counter, Import-Counter, Export-Counter...}
Manifest 3.0.0.0 Microsoft.PowerShell.Host {Start-Transcript, Stop-Transcript}
Manifest 3.1.0.0 Microsoft.PowerShell.Management {Add-Content, Clear-Content, Clear-ItemProperty, Join-Path...}
Manifest 3.0.0.0 Microsoft.PowerShell.Security {Get-Acl, Set-Acl, Get-PfxCertificate, Get-Credential...}
Manifest 3.1.0.0 Microsoft.PowerShell.Utility {Format-List, Format-Custom, Format-Table, Format-Wide...}
Manifest 3.0.0.0 Microsoft.WSMan.Management {Disable-WSManCredSSP, Enable-WSManCredSSP, Get-WSManCredSSP, Set-WSManQuickConfig...}
Binary 1.0 PSDesiredStateConfiguration {Set-DscLocalConfigurationManager, Start-DscConfiguration, Configuration, Get-DscConfiguration...}
Script 1.0.0.0 PS.Diagnostics {Disable-PSTrace, Disable-PSNSManCombinedTrace, Disable-WSManTrace, Enable-PSTrace...}
Binary 1.1.0.0 PSScheduledJob {New-JobTrigger, Add-JobTrigger, Remove-JobTrigger, Get-JobTrigger...}
Manifest 2.0.0.0 PSWorkflow {New-PSWorkflowExecutionOption, New-PSWorkflowSession, nws}
Manifest 1.0.0.0 PSWorkflowUtility {Invoke-AsWorkflow}
Manifest 1.0.0.0 ServerManager {Get-WindowsFeature, Add-WindowsFeature, Remove-WindowsFeature}
Manifest 1.0.0.0 TroubleshootingPack {Get-TroubleshootingPack, Invoke-TroubleshootingPack}
```

```
PS C:\> Configuration WMF5
{
  Import-DscResource -ModuleName xWindowsUpdate, xPendingReboot
  Node localhost
  {
    xHotfix WMFInstall
    {
      Path = 'C:\Users\ChenV\Downloads\Windows6.1-KB2908075-x64.msu'
      Id = 'KB2908075'
      Ensure = 'Present'
    }
  }
}

WMF5

Directory: C:\WMF5

Mode                LastWriteTime         Length Name
----                -
-a---              7/2/2015  9:20 AM         1192 localhost.mof
```

MOF Created

```
PS C:\> Start-DscConfiguration -Path WMF5 -Wait -Force -Verbose
VERBOSE: Perform operation 'Invoke CimMethod' with following parameters, ''methodname' = SendConfigurationApply, 'classname' = MSFT_DSCLocalConfigurationManager, 'namespaceName' = root/Microsoft/Windows/DesiredStateConfiguration'.
VERBOSE: An LCM method call arrived from computer DSC2008R2DEMO with user sid S-1-5-21-696186302-4281343859-1456728110-500.
VERBOSE: [DSC2008R2DEMO]: LCM: [ Start Set ] [[xHotfix]WMFInstall]
VERBOSE: [DSC2008R2DEMO]: LCM: [ Start Resource ] [[xHotfix]WMFInstall]
VERBOSE: [DSC2008R2DEMO]: LCM: [ Start Test ] [[xHotfix]WMFInstall]
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Test ] [[xHotfix]WMFInstall] Testing whether hotfix is Present
VERBOSE: [DSC2008R2DEMO]: LCM: [ Start Set ] [[xHotfix]WMFInstall] Validating path/URI.
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] in 5.6240 seconds.
VERBOSE: [DSC2008R2DEMO]: LCM: [ Start Set ] [[xHotfix]WMFInstall] Log name hasn't been specified. Hotfix will use the temporary log C:\Windows\temp\966.tmp.etl
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] Validating path/URI.
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] START Install using wsusa.exe
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] Found file c:\windows\temp\966.tmp.etl
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] END Install using wsusa.exe
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] in 80.8020 seconds.
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Resource ] [[xHotfix]WMFInstall]
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall]
VERBOSE: [DSC2008R2DEMO]: LCM: [ End Set ] [[xHotfix]WMFInstall] in 89.8640 seconds.
VERBOSE: Operation 'Invoke CimMethod' complete.
VERBOSE: Time taken for configuration job to complete is 92.163 seconds
```

Configuring Windows updates  
77% complete  
Do not turn off your computer.

```
PS C:\> $PSVersionTable
```

Name	Value
PSVersion	5.0.10105.0
WSManStackVersion	3.0
SerializationVersion	1.1.0.1
CLRVersion	4.0.30319.17929
BuildVersion	10.0.10105.0
PSCompatibleVersions	{1.0, 2.0, 3.0, 4.0...}
PSRemotingProtocolVersion	2.3

Success!

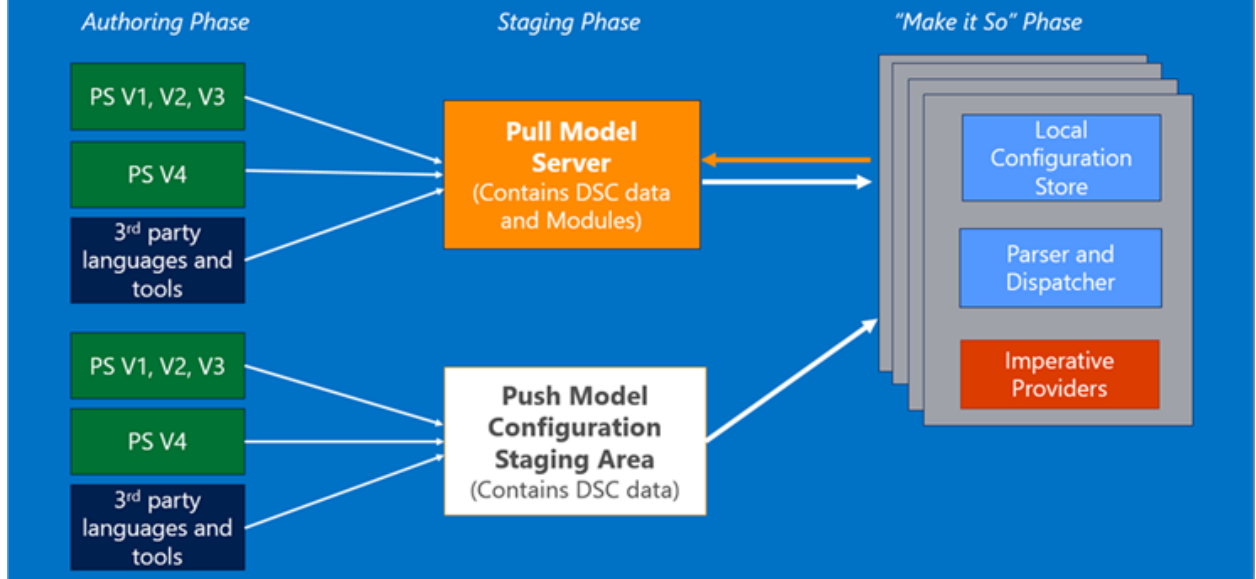
```
Administrator: Windows PowerShell
PS C:\Users\ChenV\Documents> .\Untitled1.ps1
PS C:\Users\ChenV\Documents> notepad .\Untitled1.ps1

Collecting data...
Start Installation... /
[oooooooooooo]

PS C:\Users\ChenV\Documents> notepad .\Untitled1.ps1
PS C:\Users\ChenV\Documents> .\Untitled1.ps1
Feature is not available...Installation begins...
VERBOSE: Checking if running in 'WhatIf' Mode.
VERBOSE: Start Installation...
VERBOSE: Performing the operation "Add-WindowsFeature" on target "[Windows PowerShell] Integrated Scripting Environment (ISE) Windows PowerShell Integrated Scripting Environment (ISE)".
```



# PowerShell DSC – Pull/Push Model



Directory: C:\Test 1

Mode	LastWriteTime	Length	Name	<span style="color: red;">2</span>
----	-----	-----	----	
-a----	8/24/2015 12:03 PM	1892	localhost.mof	



```

PS C:\> cd WSMAN: 1
PS WSMAN:\> dir

WSManConfig:

ComputerName
-----
localhost
wmf5node03

Type
----
Container
Container

PS WSMAN:\> cd wmf5node03 2
PS WSMAN:\wmf5node03> cd .\Shell 3
PS WSMAN:\wmf5node03\Shell> dir 4

WSManConfig: Microsoft.WSMAN.Management\WSMAN::wmf5node03\Shell

Type          Name                               SourceOfValue      Value
----          -
System.String AllowRemoteShellAccess            true
System.String IdleTimeout                          7200000
System.String MaxConcurrentUsers                10
System.String MaxShellRunTime                 2147483647
System.String MaxProcessesPerShell            25
System.String MaxMemoryPerShellMB             1024
System.String MaxShellsPerUser                30

PS WSMAN:\wmf5node03\Shell> |

```

Localhost  
Remote Server

set to 30

```

PS WSMAN:\wmf5node03\Shell> ls

WSManConfig: Microsoft.WSMAN.Management\WSMAN::wmf5node03\Shell

Type          Name                               SourceOfValue      Value
----          -
System.String AllowRemoteShellAccess            true
System.String IdleTimeout                          7200000
System.String MaxConcurrentUsers                10
System.String MaxShellRunTime                 2147483647
System.String MaxProcessesPerShell            25
System.String MaxMemoryPerShellMB             1024
System.String MaxShellsPerUser                5

```

```


string username = "DSCDEMOLAB\\SKBAdminID";
string password = "SecureString";
System.Security.SecureString securepassword = new System.Security.SecureString();
foreach (char c in password)
{
    securepassword.AppendChar(c);
}
PSCredential credential = new PSCredential(username, securepassword);
WSManConnectionInfo connectionInfo = new WSManConnectionInfo(new Uri("https://RemoteServer/OcsPowershell"), "http://schemas.microsoft.com/powershell/Microsoft.PowerShell", credential);
connectionInfo.AuthenticationMechanism = AuthenticationMechanism.Default;
connectionInfo.SkipCACheck = true;
connectionInfo.SkipCNCheck = true;
//connectionInfo.AuthenticationMechanism = AuthenticationMechanism.Basic;
connectionInfo.MaximumConnectionRedirectionCount = 2;
//connectionInfo.MaximumConnectionRedirectionCount = 2;

```

```

PS C:\> $cred = Get-Credential "DSCDEMOLAB\Chen"
Session = New-PSSession -ConnectToURI "http://MFSNode02/OcsPowershell" -Credential $cred
Import-PSSession $session
New-Object -Type RemoteConnectionInfo -Property @{Uri="http://MFSNode02/OcsPowershell";Credential=$cred}
+ Session = New-PSSession -ConnectToURI "http://MFSNode02/OcsPowershell" -Credential $cred
+ CategoryInfo          : (System.Management.Automation) (New-PSSession), PowerShellException
+ FullyQualifiedErrorId : 214330027, PSSessionImport
Import-PSSession -SkipCACheck argument on parameter "Session". The argument is null. Provide a valid value for the argument, and then try running the command again.
At line:1 char:19
+ Import-PSSession $session
+ CategoryInfo          : (System.Management.Automation) (New-PSSession), PowerShellException
+ FullyQualifiedErrorId : 214330027, PSSessionImport

```



## There is a problem with this website's security certificate.

---

The security certificate presented by this website was not issued by a trusted certificate authority. The security certificate presented by this website was issued for a different website's address.

Security certificate problems may indicate an attempt to fool you or intercept any data you send to the server.

**We recommend that you close this webpage and do not continue to this website.**

- [Click here to close this webpage.](#)
- [Continue to this website \(not recommended\).](#)
- [More information](#)

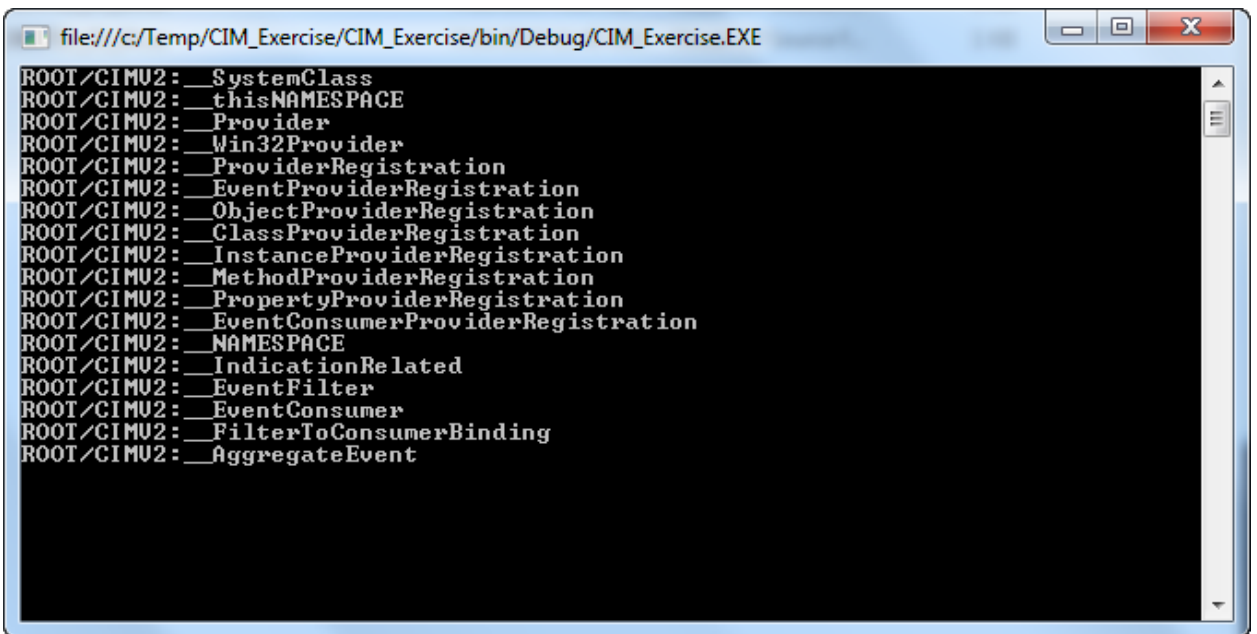
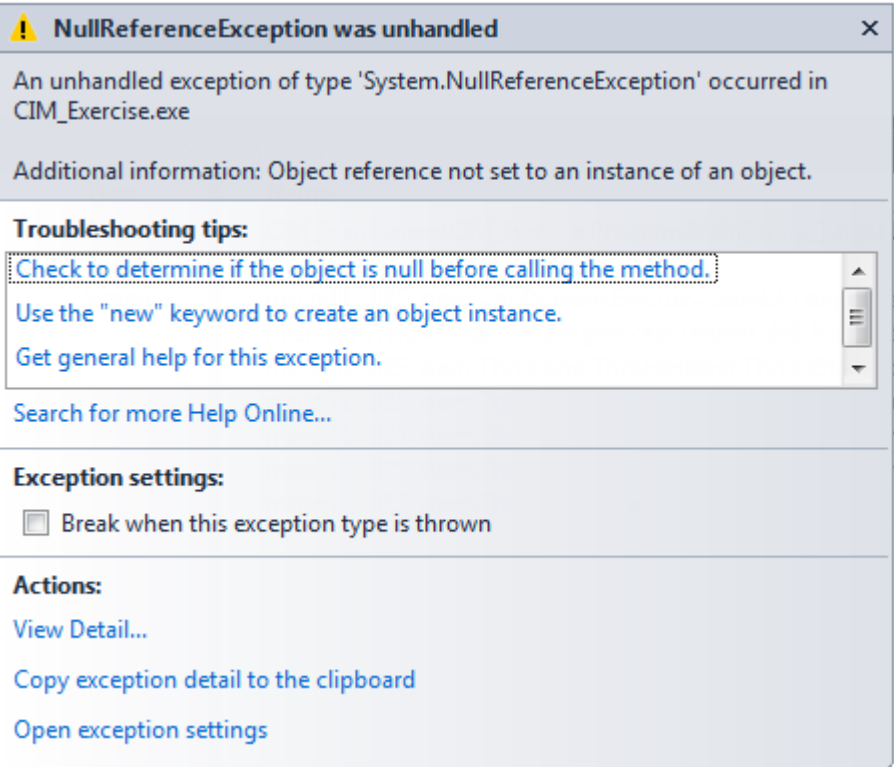
```

PS C:\> Set-WSManQuickConfig
Set-WSManQuickConfig : Access is denied. You need to run this cmdlet from an elevated process.
At line:1 char:1
+ Set-WSManQuickConfig
+ ~~~~~
+ CategoryInfo          : (System.Management.Automation) (Set-WSManQuickConfig), InvalidOperationException
+ FullyQualifiedErrorId : System.InvalidOperationException,Microsoft.PowerShell.Commands.ImportPSSessionCommand

```

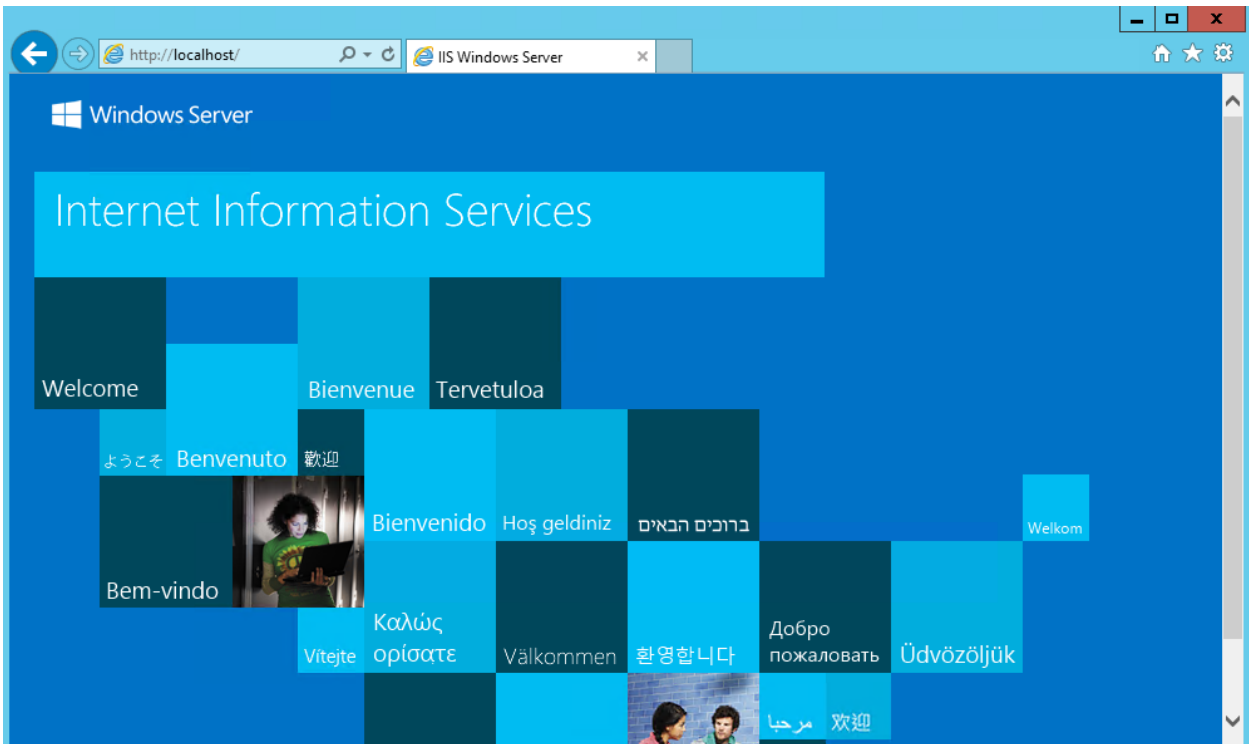
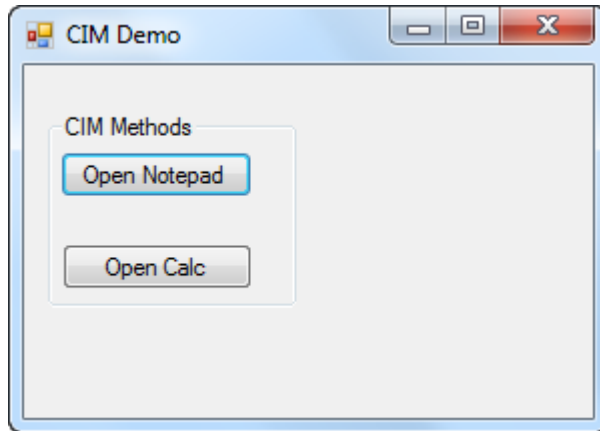






```
PS C:\> (Get-CimClass -ClassName Win32_Process).CimClassMethods
```

Name	ReturnType	Parameters	Qualifiers
Create	UInt32	{CommandLine, CurrentDirectory, ProcessStartupInformation, ProcessId}	{Constructor, Implemented, MappingStrings, Privileges...}
Terminate	UInt32	{Reason}	{Destructor, Implemented, MappingStrings, Privileges...}
GetOwner	UInt32	{Domain, User}	{Implemented, MappingStrings, ValueMap}
GetOwnerSid	UInt32	{Sid}	{Implemented, MappingStrings, ValueMap}
SetPriority	UInt32	{Priority}	{Implemented, MappingStrings, ValueMap}
AttachDebugger	UInt32	{}	{Implemented, ValueMap}



```
PS C:\> Start-SetConfiguration -Test -Mail -Verbose -Force
VERBOSE: Perform operation 'Invoke CimMethod' with following parameters, 'methodName' = SendConfigurationApply,'className' = MSFT_DSCLocalConfigurationManager,'namespaceName' = root/Microsoft/Windows/DesiredStateC
onfiguration'.
VERBOSE: An LCM method call arrived from computer WFPSNODE01 with user sid S-1-5-21-3437098744-4265828018-247196969-500.
VERBOSE: [WFPSNODE01]: LCM: [ Start Set ]
VERBOSE: [WFPSNODE01]: LCM: [ Start Resource ] [MyTestClassResource]Testing]
VERBOSE: [WFPSNODE01]: LCM: [ Start Test ] [MyTestClassResource]Testing]
VERBOSE: [WFPSNODE01]: LCM: [ End Test ] [MyTestClassResource]Testing] in 0.0150 seconds.
VERBOSE: [WFPSNODE01]: LCM: [ Start Set ] [MyTestClassResource]Testing]
VERBOSE: [WFPSNODE01]: [ MyTestClassResource]Testing] Creating Folder
VERBOSE: [WFPSNODE01]: LCM: [ End Set ] [MyTestClassResource]Testing] in 0.0320 seconds.
VERBOSE: [WFPSNODE01]: LCM: [ End Resource ] [MyTestClassResource]Testing]
VERBOSE: [WFPSNODE01]: LCM: [ End Set ]
VERBOSE: [WFPSNODE01]: LCM: [ End Set ] in 0.2500 seconds.
VERBOSE: Operation 'Invoke CimMethod' complete.
VERBOSE: Time taken for configuration job to complete is 0.3 seconds
```

```
enum Ensure 1
+ {...}

[DscResource()] 2 3
- class MyTestClassResource{

    [DscProperty(Key)] 4
    [string] $Path

    [DscProperty(Mandatory)] 5
    [Ensure] $Ensure

    [DscProperty(Mandatory)]
    [ValidateSet("Directory","File")]
    [string] $ItemType

    #Replaces Get-TargetResource
    [MyTestClassResource] Get() 6
    {...}

    #Replaces Test-TargetResource
    [bool] Test() 7
    {...}

    #Replaces Set-TargetResource
    [void] Set() 8
    {...}

}
```

```

PS C:\> Start-DscConfiguration -Path Demo -ComputerName WMFSNode02 -Verbose -Wait -Force
VERBOSE: Perform operation 'Invoke CimMethod' with following parameters, 'methodName = SendConfigurationApply, className = MSFT_DSCLocalConfigurationManager, namespaceName = root/Microsoft/Windows/DesiredStateConfiguration'.
VERBOSE: An LCM method call arrived from computer WMFSNode03 with user sid S-1-5-21-3437098744-4265828018-247196969-500.
VERBOSE: [WMFSNode02]: LCM: [ Start Set ]
VERBOSE: [WMFSNode02]: LCM: [ Start Resource ] [[Service]Bits]
VERBOSE: [WMFSNode02]: LCM: [ Start Test ] [[Service]Bits]
VERBOSE: [WMFSNode02]: LCM: [ End Test ] [[Service]Bits] in 0.2190 seconds.
VERBOSE: [WMFSNode02]: LCM: [ Skip Set ] [[Service]Bits]
VERBOSE: [WMFSNode02]: LCM: [ End Resource ] [[Service]Bits]
VERBOSE: [WMFSNode02]: LCM: [ End Set ]
VERBOSE: [WMFSNode02]: LCM: [ End Set ] in 1.2030 seconds.
VERBOSE: Operation 'Invoke CimMethod' complete.
VERBOSE: Time taken for configuration job to complete is 1.321 seconds

```

```

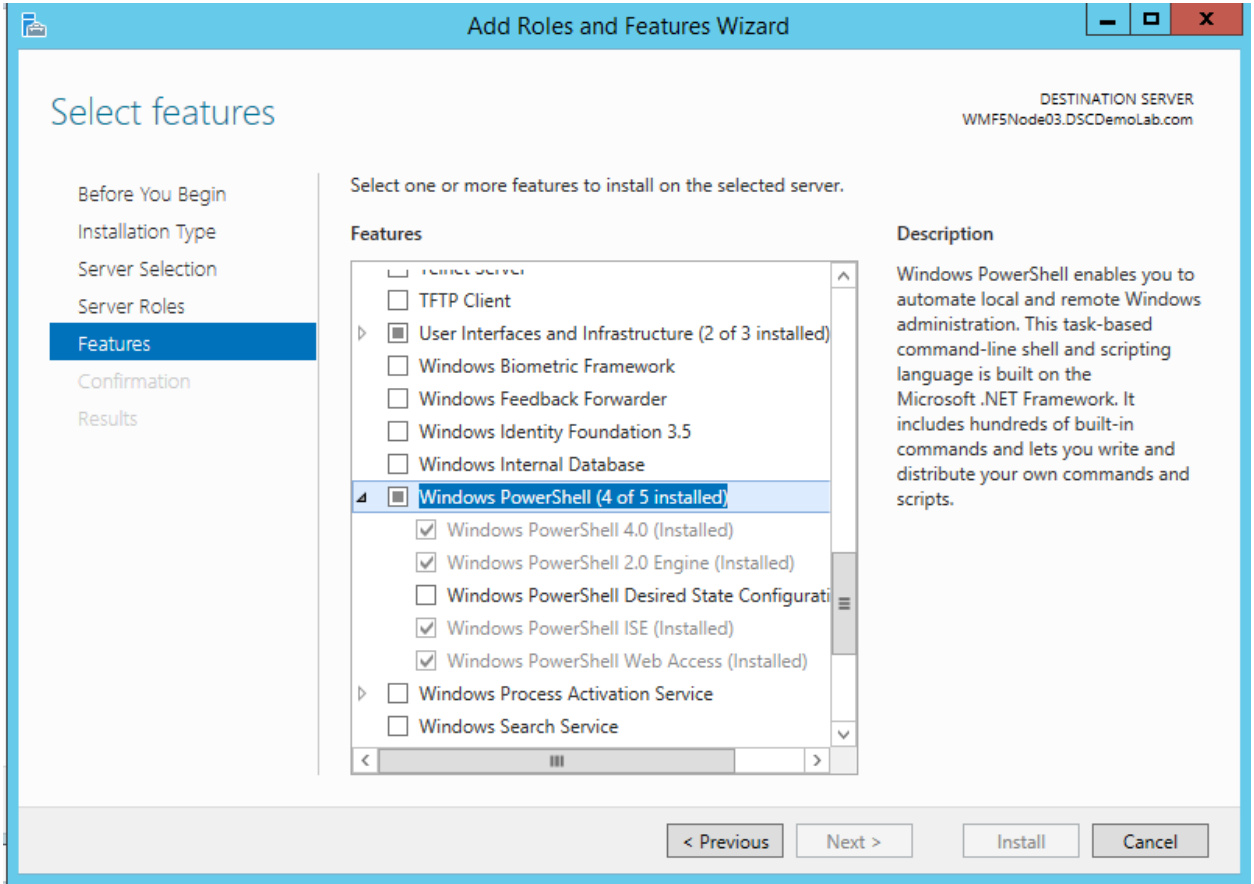
PS C:\> Get-DscLocalConfigurationManager

ActionAfterReboot      : ContinueConfiguration
AgentId                : 4FA44C3A-3206-11E5-80C0-000D3A2135E3
AllowModuleOverWrite  : False
CertificateID         :
ConfigurationDownloadManagers : {}
ConfigurationID       : c720b906-5e47-4ff1-b34c-24bed9905770
ConfigurationMode     : ApplyAndMonitor
ConfigurationModeFrequencyMins : 50
Credential            :
DebugMode             : {NONE}
DownloadManagerCustomData : {MSFT_KeyValuePair (key = "SourcePath")}
DownloadManagerName   : DscFileDownloadManager
LCMCompatibleVersions : {1.0, 2.0}
LCMState              : Idle
LCMStateDetail        :
LCMVersion            : 2.0
MaxPendingConfigRetryCount :
StatusRetentionTimeInDays : 10
PartialConfigurations :
RebootNodeIfNeeded    : False
RefreshFrequencyMins  : 30
RefreshMode           : Pull
ReportManagers        : {}
ResourceModuleManagers : {}
PSComputerName        :

```

Pull Mode

# Chapter 4: PowerShell and Web Technologies



## Windows PowerShell Web Access



Enter your credentials and connection settings

User name:

Password:

Connection type:

Computer name:

Optional connection settings

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```
PS C:\> Get-Command -Module PowerShellWebAccess
```

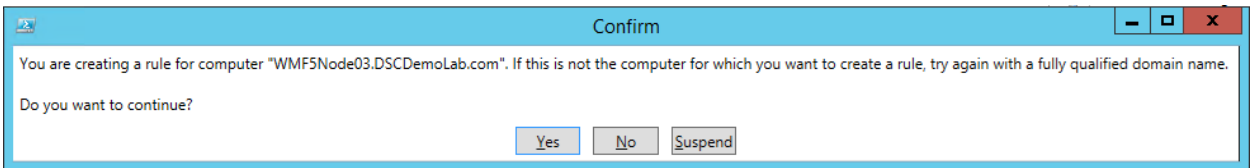
CommandType	Name	Version	Source
Function	Install-PswaWebApplication	1.1.0.0	PowerShellWebAccess
Function	Uninstall-PswaWebApplication	1.1.0.0	PowerShellWebAccess
Cmdlet	Add-PswaAuthorizationRule	1.1.0.0	PowerShellWebAccess
Cmdlet	Get-PswaAuthorizationRule	1.1.0.0	PowerShellWebAccess
Cmdlet	Remove-PswaAuthorizationRule	1.1.0.0	PowerShellWebAccess
Cmdlet	Test-PswaAuthorizationRule	1.1.0.0	PowerShellWebAccess

```
PS C:\> Uninstall-PswaWebApplication -WebApplicationName pswa -Verbose -DeleteTestCertificate
Removing web application pswa...
```

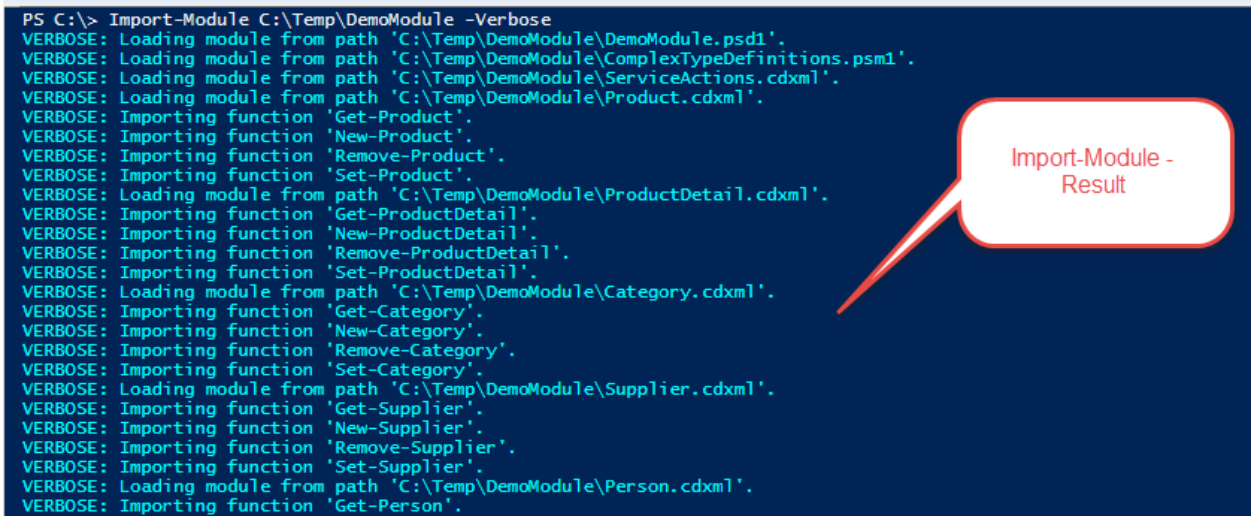
```
Removing application pool pswa_pool...
```

```
Removing self-signed certificate...
```

```
PS C:\>
```



Id	RuleName	User	Destination	ConfigurationName
0	Rule 0	DSCDEMLAB\ChenV	WMF5Node03.DSCDemoLab.com	Microsoft.PowerShell





```
PS C:\> Get-Command -Module DemoModule
```

CommandType	Name	Version	Source
Function	Get-Advertisement	1.0	DemoModule
Function	Get-Category	1.0	DemoModule
Function	Get-Person	1.0	DemoModule
Function	Get-PersonDetail	1.0	DemoModule
Function	Get-Product	1.0	DemoModule
Function	Get-ProductDetail	1.0	DemoModule
Function	Get-Supplier	1.0	DemoModule
Function	New-Advertisement	1.0	DemoModule
Function	New-Category	1.0	DemoModule
Function	New-Person	1.0	DemoModule
Function	New-PersonDetail	1.0	DemoModule
Function	New-Product	1.0	DemoModule
Function	New-ProductDetail	1.0	DemoModule
Function	New-Supplier	1.0	DemoModule
Function	Remove-Advertisement	1.0	DemoModule
Function	Remove-Category	1.0	DemoModule
Function	Remove-Person	1.0	DemoModule
Function	Remove-PersonDetail	1.0	DemoModule
Function	Remove-Product	1.0	DemoModule
Function	Remove-ProductDetail	1.0	DemoModule
Function	Remove-Supplier	1.0	DemoModule
Function	Set-Advertisement	1.0	DemoModule
Function	Set-Category	1.0	DemoModule
Function	Set-Person	1.0	DemoModule
Function	Set-PersonDetail	1.0	DemoModule
Function	Set-Product	1.0	DemoModule
Function	Set-ProductDetail	1.0	DemoModule
Function	Set-Supplier	1.0	DemoModule

Available  
Commands

```
PS C:\> Get-Person -AllowUnsecureConnection
```

ID	Name
0	Paula Wilson
1	Jose Pavarotti
2	Art Braunschweiger
3	Liz Nixon
4	Liu Wong
5	Jaime Yorres
6	Fran Wilson

Get-Person  
[cmdlet] output

```
PS C:\> "The Site Status Code is`t" + $site.StatusCode
"The Site Status Code is 200
Description OK

PS C:\>
```

Output

```
StatusCode      : 200
StatusDescription : OK
Content         : <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
                  "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd"><html lang="nl"
                  xml:lang="nl" xmlns="http://www.w3.org/1999/xhtml"><script type...
RawContent      : HTTP/1.1 200 OK
                  Vary: Accept-Encoding
                  Content-Length: 59399
                  Cache-Control: private, max-age=0
                  Content-Type: text/html; charset=utf-8
                  P3P: CP="NON UNI COM NAV STA LOC CURa DEVa PSAa PSDa OUR IND"...
Forms           : {sb_form}
Headers        : {[Vary, Accept-Encoding], [Content-Length, 59399], [Cache-Control, private,
                  max-age=0], [Content-Type, text/html; charset=utf-8]...}
Images         : {@{innerHTML=; innerText=; outerHTML=<IMG id=id_p class="b_icon id_avatar"
                  style="DISPLAY: none" src="data:image/gif;base64,R0lGODlhAQABIAAAAAAAP//yH5BAEAA
                  AEALAAAAABAAEAAAIBTAA7">; outerText=; tagName=IMG; id=id_p; class=b_icon
                  id_avatar; style=DISPLAY: none; src=data:image/gif;base64,R0lGODlhAQABIAAAAAAAP//
                  /yH5BAEAAAEALAAAAABAAEAAAIBTAA7}}
InputFields    : {@{innerHTML=; innerText=; outerHTML=<INPUT spellcheck=false id=sb_form_q
                  title="Voer de zoekterm in" class=b_searchbox maxLength=1000 name=q
                  autocomplete="off" autocorrect="off" autocapitalize="off">; outerText=;
                  tagName=INPUT; spellcheck=false; id=sb_form_q; title=Voer de zoekterm in;
                  class=b_searchbox; maxLength=1000; name=q; autocomplete=off; autocorrect=off;
                  autocapitalize=off}, @{innerHTML=; innerText=; outerHTML=<INPUT tabIndex=0
                  id=sb_form_go title=Zoeken class=b_searchboxSubmit type=submit value="Submit
                  Query" name=qo>; outerText=; tagName=INPUT; tabIndex=0; id=sb_form_go;
```

```
Headers        : {}
Cookies        : System.Net.CookieContainer
UseDefaultCredentials : False
Credentials    :
Certificates   :
UserAgent      : Mozilla/5.0 (Windows NT; Windows NT 6.1; en-US) WindowsPowerShell/5.0.10100.0
Proxy          :
MaximumRedirection : -1
```

```
PS C:\> $login =Invoke-WebRequest -Uri ("https://www.facebook.com" + $form.Action) -WebSession $Ign -Method POST -Body $Forms.Fields
$fb = $login.Forms[0]
PS C:\> $fb
```

Id	Method	Action	Fields
login_form	post	https://www.facebook.com/login.php?login_attempt=1	{[Isd, AVoIEewt], [email, ], [pass, ], [u_0_v, Aanmelden]...}

Action

```
PS C:\> $url = "http://blogs.technet.com/b/wikininjas/rss.aspx"
[xml]$xml = (New-object System.Net.WebClient).DownloadString($url)
$xml
```



```
xml                                     xml-styleheet                                rss
---                                     -
version="1.0" encoding="UTF-8" type="text/xml" href="http://blogs.technet.com/utility/feedstylesheets/rss.xml" media="screen" rss
```

```
PS C:\> $url = "http://blogs.technet.com/b/wikininjas/rss.aspx"
[xml]$xml = (New-object System.Net.WebClient).DownloadString($url)
$xml.rss.channel | %{$_.item} | ? {[DateTime]$_ .pubDate -gt (Get-Date).AddDays(-7)} | FT creator , pubdate -AutoSize
```

```
creator      pubDate
-----
Durval Ramos  Fri, 31 Jul 2015 02:03:08 GMT
Ed Price - MSFT Tue, 28 Jul 2015 07:00:00 GMT
Ed Price - MSFT Sun, 26 Jul 2015 17:10:00 GMT
XAML guy      Sat, 25 Jul 2015 23:07:23 GMT
Ed Price - MSFT Sat, 25 Jul 2015 00:35:00 GMT
```

```
PS C:\> $var = New-WebServiceProxy -Uri http://www.webservices.net/CurrencyConverter.asmx?WSDL
$var.ConversionRate

OverloadDefinitions
-----
double ConversionRate(Microsoft.PowerShell.Commands.NewWebServiceProxy.AutogeneratedTypes.WebServiceProxy3et_CurrencyConverter_asmx_WSDL
.Currency FromCurrency, 1
Microsoft.PowerShell.Commands.NewWebServiceProxy.AutogeneratedTypes.WebServiceProxy3et_CurrencyConverter_asmx_WSDL.Currency ToCurrency) 2
```

```

</s:element>
- <s:simpleType name="Currency">
  - <s:restriction base="s:string">
    <s:enumeration value="AFA"/>
    <s:enumeration value="ALL"/>
    <s:enumeration value="DZD"/>
    <s:enumeration value="ARS"/>
    <s:enumeration value="AWG"/>
    <s:enumeration value="AUD"/>
    <s:enumeration value="BSD"/>
    <s:enumeration value="BHD"/>
    <s:enumeration value="BDT"/>
    <s:enumeration value="BBD"/>
    <s:enumeration value="BZD"/>
    <s:enumeration value="BMD"/>
    <s:enumeration value="BTN"/>
    <s:enumeration value="BOB"/>
    <s:enumeration value="BWP"/>
    <s:enumeration value="BRL"/>
    <s:enumeration value="GBP"/>
    <s:enumeration value="BND"/>
    <s:enumeration value="BIF"/>
    <s:enumeration value="XOF"/>
    <s:enumeration value="XAF"/>
    <s:enumeration value="KHR"/>
  
```



```

Location      : Amsterdam Airport Schiphol, Netherlands (EHAM) 52-18N 004-46E -2M
Time         : Jul 31, 2015 - 06:55 AM EDT / 2015.07.31 1055 UTC
Wind        : Variable at 3 MPH (3 KT):0
Visibility   : greater than 7 mile(s):0
SkyConditions : mostly clear
Temperature  : 62 F (17 C)
DewPoint     : 44 F (7 C)
RelativeHumidity : 51%
Pressure    : 30.12 in. Hg (1020 hPa)
Status      : Success

```

JSON

```
{
  "resultCount":50,
  "results": [
    {"wrapperType":"track", "kind":"song", "artistId":3996865, "collectionId":579372950, "trackId":579373079, "artistName":"Metallica", "collec
    "collectionCensoredName":"Metallica", "trackCensoredName":"Enter Sandman", "artistViewUrl":"https://itunes.apple.com/us/artist/metallica/ic
    "collectionViewUrl":"https://itunes.apple.com/us/album/enter-sandman/id579372950?i=579373079&uo=4", "trackViewUrl":"https://itunes.apple.co
    "previewUrl":"http://a38.phobos.apple.com/us/z30/Music/v4/bd/fd/e4/bdfde4e4-5407-9bb0-e632-edbf079bed21/mzaf_907706799096684396.plus.aac.p
    /thumb/Music/v4/9a/41/03/9a410309-7dbe-fce4-a6be-43101f0a1352/0093624986553.jpg/30x30bb-85.jpg", "artworkUrl160":"http://is2.mzstatic.com/in
    43101f0a1352/0093624986553.jpg/60x60bb-85.jpg", "artworkUrl100":"http://is3.mzstatic.com/image/thumb/Music/v4/9a/41/03/9a410309-7dbe-fce4-s
    "collectionPrice":7.99, "trackPrice":1.29, "releaseDate":"1991-08-12T07:00:00Z", "collectionExplicitness":"notExplicit", "trackExplicitness
    "trackCount":12, "trackNumber":1, "trackTimeMillis":331560, "country":"USA", "currency":"USD", "primaryGenreName":"Rock", "radioStationUrl"
    "isStreamable":true},
    {"wrapperType":"track", "kind":"song", "artistId":3996865, "collectionId":579372950, "trackId":579373086, "artistName":"Metallica", "collec
    Matters", "collectionCensoredName":"Metallica", "trackCensoredName":"Nothing Else Matters", "artistViewUrl":"https://itunes.apple.com/us/ar
    "collectionViewUrl":"https://itunes.apple.com/us/album/nothing-else-matters/id579372950?i=579373086&uo=4", "trackViewUrl":"https://itunes.i
    /id579372950?i=579373086&uo=4", "previewUrl":"http://a1984.phobos.apple.com/us/z30/Music/v4/3c/e7/ac/3ce7ac90-4834-151a-667e-2259c7e7bd38/
    "artworkUrl130":"http://is5.mzstatic.com/image/thumb/Music/v4/9a/41/03/9a410309-7dbe-fce4-a6be-43101f0a1352/0093624986553.jpg/30x30bb-85.jp
    /Music/v4/9a/41/03/9a410309-7dbe-fce4-a6be-43101f0a1352/0093624986553.jpg/60x60bb-85.jpg", "artworkUrl100":"http://is3.mzstatic.com/image/t
    43101f0a1352/0093624986553.jpg/100x100bb-85.jpg", "collectionPrice":7.99, "trackPrice":1.29, "releaseDate":"1991-08-12T07:00:00Z", "collect
    "trackExplicitness":"notExplicit", "discCount":1, "discNumber":1, "trackCount":12, "trackNumber":8, "trackTimeMillis":388733, "country":"US
```

```
StatusCode      : 200
StatusDescription : OK
Content         :
                {
                  "resultCount":50,
                  "results": [
                    {"wrapperType":"track", "kind":"song", "artistId":3996865, "collectionId":579372950, "trackId":579373079, "artistName":"Metallica",
                    "collectionName":"Metallica", ...
                  }
                ]
RawContent      : HTTP/1.1 200 OK
                x-apple-jingle-correlation-key: TIGLVAHYXJEPAMBMBJGYB2LTHAE
                x-apple-translated-wo-url: /webObjects/MZStoreServices.woa/ws/wsSearch?term=metallica&urlDesc=
                x-apple-orig-url: http://it...
Forms          : {}
Headers        : {[x-apple-jingle-correlation-key, TIGLVAHYXJEPAMBMBJGYB2LTHAE], [x-apple-translated-wo-url,
                /webObjects/MZStoreServices.woa/ws/wsSearch?term=metallica&urlDesc=], [x-apple-orig-url,
                http://itunes.apple.com/search?term=metallica], [x-apple-application-site, st11]}
Images         : {}
InputFields    : {}
Links          : {}
ParsedHtml     : mshtml.HTMLDocumentClass
RawContentLength : 76958
```

JSON in PowerShell as Content

```
wrapperType trackName
-----
track Enter Sandman
track Nothing Else Matters
track The Unforgiven
track One
track Wherever I May Roam
track Sad But True
track For Whom the Bell Tolls
track The Day That Never Comes
track Master of Puppets
track Fade to Black
track Fuel
track Turn the Page
track Cyanide
track Don't Tread On Me
track All Nightmare Long
track Whiskey In the Jar
track The Unforgiven III
track Holier Than Thou
track My Friend of Misery
track Of Wolf and Man
track Through the Never
track The Unforgiven II
track The God That Failed
track I Disappear
track King Nothing
```

Converted JSON to  
readable format and  
selected first 25  
results

## Service

The following operations are supported. For a formal definition, please review the [Service Description](#).

- [HelloWorld](#)

**This web service is using <http://tempuri.org/> as its default namespace.**

**Recommendation: Change the default namespace before the XML Web service is made public.**

Each XML Web service needs a unique namespace in order for client applications to distinguish it from other services on the Web. <http://tempuri.org/> is available for XML Web services that are under development, but published XML Web services should use a more permanent namespace.

Your XML Web service should be identified by a namespace that you control. For example, you can use your company's Internet domain name as part of the namespace. Although many XML Web service namespaces look like URLs, they need not point to actual resources on the Web. (XML Web service namespaces are URIs.)

For XML Web services created using ASP.NET, the default namespace can be changed using the WebService attribute's Namespace property. The WebService attribute is an attribute applied to the class that contains the XML Web service methods. Below is a code example that sets the namespace to "http://microsoft.com/webservices/":

```
C#
[WebService(Namespace="http://microsoft.com/webservices/")]
public class MyWebService {
    // Implementation
}
```

Visual Basic

```
<WebService(Namespace="http://microsoft.com/webservices/")> Public Class MyWebService
    // Implementation
End Class
```

C++

```
[WebService(Namespace="http://microsoft.com/webservices/")]
public ref class MyWebService {
    // Implementation
};
```

For more details on XML namespaces, see the W3C recommendation on [Namespaces in XML](#).

For more details on WSDL, see the [WSDL Specification](#).

For more details on URIs, see [RFC 2396](#).

```
Administrator: Windows PowerShell
PS C:\> $local = New-WebServiceProxy -Uri http://localhost/website/Service.asmx?wsdl
PS C:\> $local

2                               1
SoapVersion                    : Default
AllowAutoRedirect              : False
CookieContainer                :
ClientCertificates             : {}
EnableDecompression            : False
UserAgent                      : Mozilla/4.0 (compatible; MSIE 6.0; MS Web Services Client Protocol
                               4.0.30319.34014)
Proxy                          :
UnsafeAuthenticatedConnectionSharing : False
Credentials                    :
UseDefaultCredentials          : False
ConnectionGroupName           :
PreAuthenticate                : False
Uri                             : http://localhost/website/Service.asmx
RequestEncoding                :
Timeout                        : 100000
Site                           :
Container                       :

3
PS C:\>
PS C:\> $local.HelloWorld()
Hello World
PS C:\> 4
```

```
Administrator:
PS C:\> $local.Add(2,3)
5
PS C:\>
```

```
PS C:\> help New-AzureWebsite -Parameter Name
```

```
-Name <String>
```

```
The name of the website
```

```
Required? false
```

```
Position? 1
```

```
Default value
```

```
Accept pipeline input? true (ByPropertyName)
```

```
Accept wildcard characters? false
```

```
PS C:\> $site = Get-AzureWebsite -Name MyAzureSiteDemo 1
$username = $site.PublishingUsername
$password = $site.PublishingPassword 2
$base64AuthInfo = [Convert]::ToBase64String([Text.Encoding]::ASCII.GetBytes("{0}:{1}" -f $username,$password)) 3
$api = "https://$(($site.Name).scm.azurewebsites.net)/api" 4
$sku = Invoke-RestMethod -Uri "$api/environment" -Headers @{Authorization=("Basic {0}" -f $base64AuthInfo)} -Method GET 5
version          siteLastModified 6
-----          -
47.40727.1709.0 2015-07-31T16:42:45.7700000Z 8
```

```
PS C:\> Get-Command -Name *JSON*
```

CommandType	Name	Version	Source
-----	-----	-----	-----
Cmdlet	ConvertFrom-Json	3.1.0.0	Microsoft.PowerShell.Utility
Cmdlet	ConvertTo-Json	3.1.0.0	Microsoft.PowerShell.Utility



```
PS C:\> $json = @"
{
  "Title": "Mr.",
  "Name": "Scripting"
}
"@

$json | ConvertFrom-Json

Title Name
-----
Mr.    Scripting
```

JSON inside the here string!

Convert

Output

```
TypeName: System.Management.Automation.PSCustomObject

Name      MemberType Definition
----      -
Equals    Method    bool Equals(System.Object obj)
GetHashCode Method    int GetHashCode()
GetType   Method    type GetType()
ToString  Method    string ToString()
Name      NoteProperty string Name=Scripting
Title     NoteProperty string Title=Mr.
```

```
Name    Role
----    -
Chen    SharePoint IT Pro
Keanu
```

## Chapter 5: Exploring Application Programming Interface

```
PS C:\> $code = @" 1
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace ClassLibrary2
{
    public class Class1
    {
        public static int sum(int a,int b)
        {
            return a + b;
        }
    }
}
"@ 2 3 4
Add-Type -TypeDefinition $code
[ClassLibrary2.Class1]::sum(34,45) 5
79 6
```

```
PS C:\> Import-Module C:\Temp\ClassLibrary2\ClassLibrary2\bin\Debug\ClassLibrary2.dll
PS C:\> [ClassLibrary2.Class1]::sum(45,56)
101
PS C:\> |
```

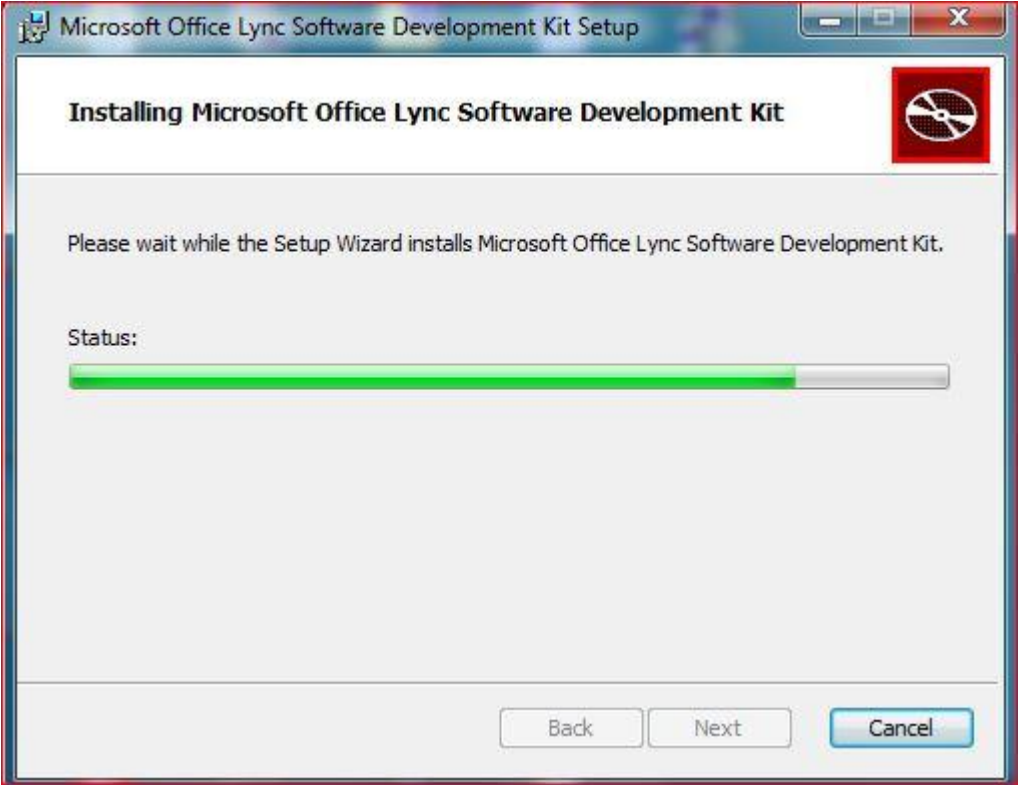
FolderType	Name	ItemsInFolder
Root	Top of Information Store	96
Calendar	Calendar	347
Contacts	Contacts	24
ImContactList	{A9E2BC46-B3A0-4243-B315-60D991004455}	0
GalContacts	GAL Contacts	0
OrganizationalContacts	Organizational Contacts	0
PeopleCentricConversationBuddies	PeopleCentricConversation Buddies	0
RecipientCache	Recipient Cache	116
QuickContacts	Skype for Business Contacts	0
ConversationActions	Conversation Action Settings	0
DeletedItems	Deleted Items	2
User Created	Backup	56
Drafts	Drafts	0
Inbox	Inbox	7127
Journal	Journal	1
JunkEmail	Junk E-mail	5
User Created	News Feed	0

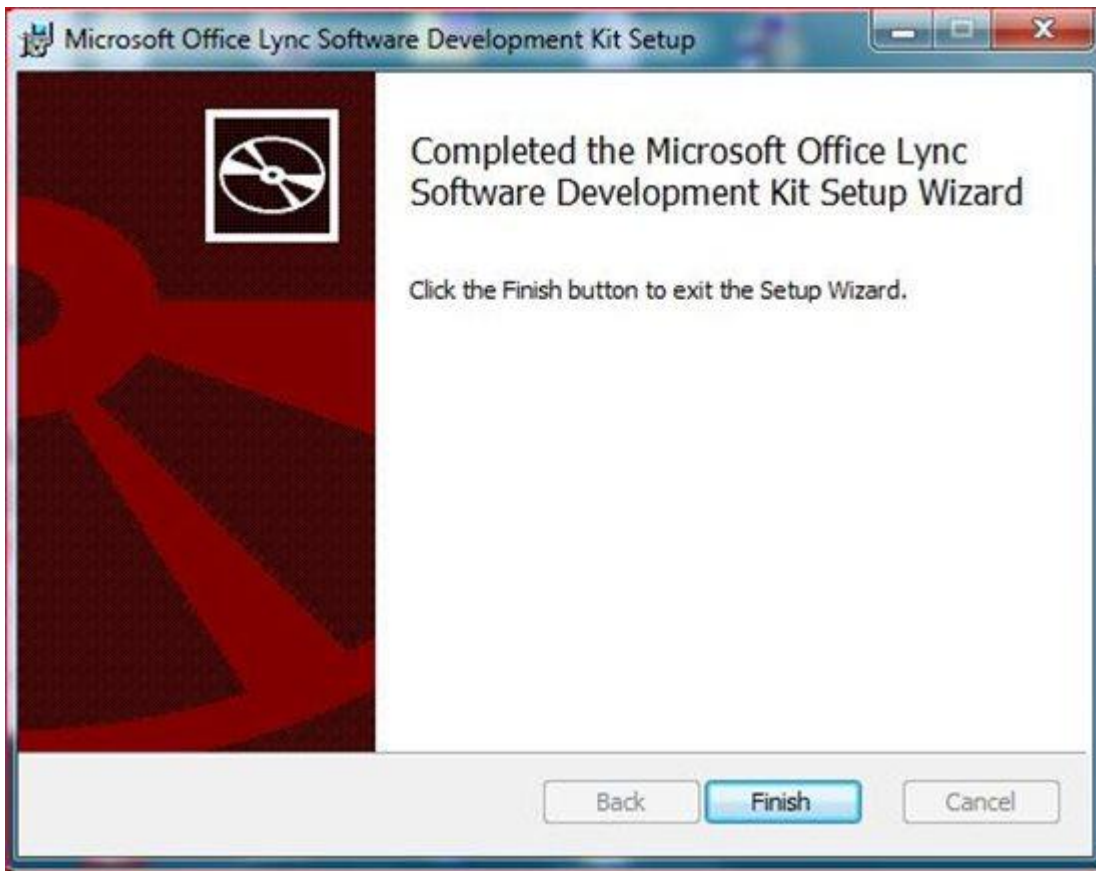
DisplayName	TotalCount	FolderClass
AllContacts	267	IPF.Note
AllItems	15767	IPF
BlackBerryHandheldInfo	2	
BrokerSubscriptions	0	
Calendar Version Store	1031	IPF.Note
CalendarItemSnapshots	0	
Common Views	0	
Deferred Action	0	
Document Centric Conversations	0	IPF.Note
ExchangeSyncData	0	

```

file:///c:/users/chenv/documents/visual studio 2010/Projects/Office365/O
DisplayName: Anil Yaaram Alias: Anil.Yaaram Email Anil.Y
DisplayName: Chendrayan Venkatesan Alias: Chendrayan Ema
DisplayName: Hoshank Mahmood Alias: HoshankMahmood Email
DisplayName: Karthik Muthukumar Alias: Karthik Email Kar
DisplayName: Mostafa Selim Alias: MostafaSelim Email Mos
-

```





CapabilitiesChanged	Event	System.EventHandler`1[Microsoft.Lync.Model.PreferredCapabilitiesChangedEventArgs] CapabilitiesChanged(System.Object, Microsoft.Lync.Model.PreferredCapabilitiesChangedEventArgs)
ClientDisconnected	Event	System.EventHandler ClientDisconnected(System.Object, System.EventArgs)
CredentialRequested	Event	System.EventHandler`1[Microsoft.Lync.Model.CredentialRequestedEventArgs] CredentialRequested(System.Object, Microsoft.Lync.Model.CredentialRequestedEventArgs)
DelegatorClientAdded	Event	System.EventHandler`1[Microsoft.Lync.Model.DelegatorClientCollectionEventArgs] DelegatorClientAdded(System.Object, Microsoft.Lync.Model.DelegatorClientCollectionEventArgs)
DelegatorClientRemoved	Event	System.EventHandler`1[Microsoft.Lync.Model.DelegatorClientCollectionEventArgs] DelegatorClientRemoved(System.Object, Microsoft.Lync.Model.DelegatorClientCollectionEventArgs)
SignInDelayed	Event	System.EventHandler`1[Microsoft.Lync.Model.SignInDelayedEventArgs] SignInDelayed(System.Object, Microsoft.Lync.Model.SignInDelayedEventArgs)
StateChanged	Event	System.EventHandler`1[Microsoft.Lync.Model.ClientStateChangedEventArgs] StateChanged(System.Object, Microsoft.Lync.Model.ClientStateChangedEventArgs)
BeginInitialize	Method	System.IAsyncResult BeginInitialize(System.AsyncCallback callback, System.Object state)
BeginShutdown	Method	System.IAsyncResult BeginShutdown(System.AsyncCallback communicatorClientCallback, System.Object state)
BeginSignIn	Method	System.IAsyncResult BeginSignIn(string userUri, string domainAndUsername, string password, System.AsyncCallback communicatorClientCallback, System.Object state)
BeginSignOut	Method	System.IAsyncResult BeginSignOut(System.AsyncCallback communicatorClientCallback, System.Object state)
CreateApplicationRegistration	Method	Microsoft.Lync.Model.Extensibility.ApplicationRegistration CreateApplicationRegistration(string appGuid, string appName)
CreateObjRef	Method	System.Runtime.Remoting.ObjRef CreateObjRef(type requestedType)
EndInitialize	Method	void EndInitialize(System.IAsyncResult asyncResult)
EndShutdown	Method	void EndShutdown(System.IAsyncResult asyncResult)
EndSignIn	Method	void EndSignIn(System.IAsyncResult asyncResult)
EndSignOut	Method	void EndSignOut(System.IAsyncResult asyncResult)
Equals	Method	bool Equals(System.Object obj)
GetHashCode	Method	int GetHashCode()
GetLifetimeService	Method	System.Object GetLifetimeService()
GetType	Method	type GetType()
InitializeLifetimeService	Method	System.Object InitializeLifetimeService()
ToString	Method	string ToString()
Capabilities	Property	Microsoft.Lync.Model.LyncClientCapabilityTypes Capabilities (get)
ContactManager	Property	Microsoft.Lync.Model.ContactManager ContactManager (get)
ConversationManager	Property	Microsoft.Lync.Model.Conversation.ConversationManager ConversationManager (get)
DelegatorClients	Property	System.Collections.Generic.IList[Microsoft.Lync.Model.DelegatorClient] DelegatorClients (get)

```
PS C:\windows\system32> $client = [Microsoft.Lync.Model.LyncClient]::GetClient()
$client.ContactManager.Groups.InnerObject.Name
Other Contacts
Pinned Contacts
SharePoint Portal Team
Project Management
End User Computing
```

## SharePoint Development

```
PS C:\windows\system32> $client = [Microsoft.Lync.Model.LyncClient]::GetClient()
$client.ContactManager.BeginAddGroup

OverloadDefinitions
-----
System.IAsyncResult BeginAddGroup(string customGroupName, System.AsyncCallback contactsAndGroupsCallback, System.Object state)
System.IAsyncResult BeginAddGroup(Microsoft.Lync.Model.Group.DistributionGroup distributionGroup, System.AsyncCallback
contactsAndGroupsCallback, System.Object state)
```

TEST1 (0/0)

To add contacts, drag from another group or add from search.

New Group Created!

```
IsCertified : False
Priority    : 4194304
Type       : Custom
IsActive   : True
Name       : Speakers (Realtek High Definition Audio)/Microphone (Realtek High Definition Audio)
InnerObject : Microsoft.Office.Uc.AudioDeviceClass
```

```
PS C:\windows\system32> $client = [Microsoft.Lync.Model.LyncClient]::GetClient()
$client.InnerObject.Self.Contact:
sip:chendrayan.venkatesan@
```

SIP ID of IM

```
PS C:\windows\system32> |
```

```
PS C:\windows\system32> $client = [Microsoft.Lync.Model.LyncClient]::GetClient()
$client.SignInConfiguration
```

```
ExternalServerUrl : sipdir.online.lync.com:443
InternalServerUrl : sipdir.online.lync.com:443
IsPasswordSaved   : False
Mode              : Auto
SignedInFromIntranet : True
SignInAsAvailability : None
SignInAutoRetry   : False
TransportMode     : TcpTransport
UserName          : Chendrayan.Venkatesan@
InnerObject       : Microsoft.Office.Uc.SignInConfigurationClass
```

Sign in Configuration!

```
PS C:\> [enum]::GetValues([Microsoft.Lync.Model.ContactAvailability])
None
Free
FreeIdle
Busy
BusyIdle
DoNotDisturb
TemporarilyAway
Away
Offline
Invalid

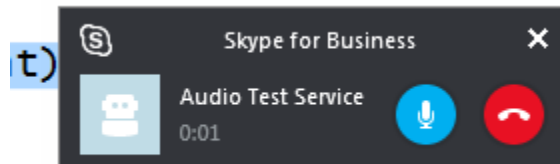
PS C:\> [enum]::GetValues([Microsoft.Lync.Model.ContactAvailability]) | %{ "{0,3} {1}" -f $([int]$_),$_ }
  0 None
3500 Free
5000 FreeIdle
6500 Busy
7500 BusyIdle
9500 DoNotDisturb
12500 TemporarilyAway
15500 Away
18500 Offline
-1 Invalid
```

Status

Status with values

```
PS C:\windows\system32> Import-Module 'c:\Temp\LyncAPIDemo\LyncAPIDemo\bin\Debug\LyncAPIDemo.dll'
Get-LyncStatus
You are signed in!

PS C:\windows\system32> |
```







Chendrayan Venkatesan

Chendrayan Venkatesan  
Available - Video Capable  
2 Participants

Wednesday, August 05, 2015

Okay! This Works 4:20 PM

Test Ping!

|

📎 ! 😊 ▶

💬 📺 📞 🖥️ ⋮

Selected FirstName

Selected Title

Selected LastName

Selected Email

Selected SPS-Responsibility

1	FirstName	LastName	WorkEmail	Title	Responsibility
2	Chendrayan	Venkatesan	Chendrayan@domain.onmicrosoft.com	SP Admin	PowerShell SharePoint 2010
3	Someone	Someone	HoshankMahmood@domain.onmicrosoft.com	SP Admin	PowerShell SharePoint 2010

Office 365 Test Site EDIT LINKS

## Site Contents

Lists, Libraries, and other Apps

Search this site

SITE WORKFLOWS SETTINGS

List Created

- add an app
- Calendar: 0 items, Modified 10 months ago
- CSOM List: new! 0 items, Modified 1 minute ago
- Documents: 0 items, Modified 10 months ago
- Form Templates: 0 items, Modified 3 weeks ago
- MicroFeed: 2 items, Modified 7 months ago
- Office 365: 0 items, Modified 6 months ago
- Site Assets: 3 items, Modified 8 months ago
- Site Mailbox: Installed 6 months ago
- Site Pages: 2 items, Modified 5 minutes ago
- Style Library: 5 items, Modified 10 months ago
- Tasks: 0 items, Modified 10 months ago
- Testing: 0 items, Modified 6 months ago
- Unicef.Apps
- User List: 1 item, Modified 5 months ago

```

PS C:\> Import-Module C:\Temp\OfficeServers\OfficeServers\bin\Debug\OfficeServers.dll -Verbose
VERBOSE: Importing cmdlet 'Get-PhotoStatus'.
VERBOSE: Importing cmdlet 'Get-OSInformation'.
VERBOSE: Importing cmdlet 'Add-LyncPersonalNote'.
PS C:\>
  
```

3 cmdlets imported.. successfully!

```
Windows PowerShell
PS C:\> Get-Command -Module OfficeServers
```

CommandType	Name	Version	Source
Cmdlet	Add-LyncPersonalNote	1.0.0.0	OfficeServers
Cmdlet	Get-OSInformation	1.0.0.0	OfficeServers
Cmdlet	Get-PhotoStatus	1.0.0.0	OfficeServers

```
PS C:\>
```



```
Windows PowerShell
PS C:\> Get-OSInformation
OS Version is Microsoft Windows NT 6.1.7601 Service Pack 1
PS C:\>
```

OS Information

```
Windows PowerShell
PS C:\> Get-PhotoStatus
Lync Group Name Information...
Photo will be visible to others!
PS C:\>
```