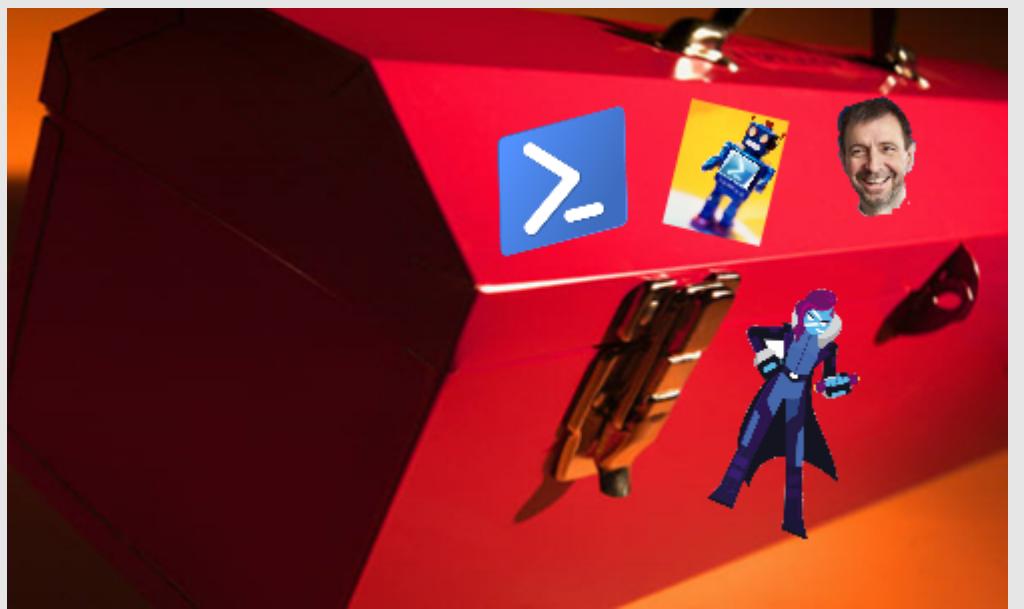


# PSScriptTools Manual v2.29.0



# Table of Contents

Introduction .....	1
PSScriptTools Overview .....	2
Installation .....	3
Uninstall the Module .....	3
General Tools .....	4
Copy-PSFunction .....	4
Get-PSProfile .....	4
Get-MyAlias .....	5
Get-ModuleCommand .....	7
Get-PSScriptTools .....	7
Convert-EventLogRecord .....	8
Get-WhoIs .....	8
Compare-Module .....	9
Get-WindowsVersion .....	10
New-PSDriveHere .....	11
Get-MyVariable .....	11
ConvertFrom-Text .....	11
Get-PSWho .....	12
Find-CimClass .....	13
Out-VerboseTee .....	14
Remove-Runspace .....	14
Get-PSLocation .....	14
Get-PowerShellEngine .....	15
Get-PathVariable .....	16
File Tools .....	17
Test-EmptyFolder .....	17
Get-FolderSizeInfo .....	17
Optimize-Text .....	18
Get-FileItem .....	18
New-CustomFileName .....	19
New-RandomFilename .....	19
ConvertTo-Markdown .....	20
ToDo .....	21
Graphical Tools .....	22
Invoke-InputBox .....	22
New-WPFMessageBox .....	23
ConvertTo-WPFGrid .....	24
Hashtable Tools .....	27
Convert-CommandToHashtable .....	27
Convert-HashtableString .....	27
Convert-HashtableToCode .....	27

ConvertTo-Hashtable	28
Join-Hashtable	28
Rename-Hashtable	28
Select Functions	30
Select-First	30
Select-Last	30
Time Functions	31
ConvertTo-UTCTime	31
ConvertFrom-UTCTime	31
Get-MyTimeInfo	31
ConvertTo-LocalTime	32
Get-TZList	32
Get-TZData	32
ConvertTo-LexicalTime	33
ConvertFrom-LexicalTime	33
Console Utilities	35
Out-More	35
Out-ConditionalColor	35
Set-ConsoleTitle	36
Set-ConsoleColor	37
Add-Border	37
Show-Tree	38
New-ANSIBar	40
New-RedGreenGradient	40
Write-ANSIProgress	41
Format Functions	43
Format-Percent	43
Format-String	43
Format-Value	43
Scripting Tools	45
Test-Expression	45
Copy-HelpExample	47
Get-GitSize	48
Remove-MergedBranch	48
Test-WithCulture	49
Copy-Command	49
Get-ParameterInfo	50
New-PSFormatXML	50
Test-IsPSWindows	52
Write-Detail	52
Save-GitSetup	53
Other	54
PSAnsiMap	54

PSSpecialChar .....	56
Sample Scripts.....	58
Open-PSScriptToolsHelp .....	58
Other Modules .....	60
Compatibility.....	61
Module Commands .....	62
Add-Border .....	63
Synopsis .....	63
Syntax .....	63
Description.....	63
Examples .....	63
Parameters.....	65
Inputs .....	67
Outputs.....	67
Notes.....	67
Related Links .....	67
Compare-Module .....	68
Synopsis .....	68
Syntax .....	68
Description.....	68
Examples .....	68
Parameters.....	69
Inputs .....	70
Outputs.....	70
Notes.....	70
Related Links .....	70
Compare-Script.....	71
Synopsis .....	71
Syntax .....	71
Description.....	71
Examples .....	71
Parameters.....	71
Inputs .....	72
Outputs.....	72
Notes.....	72
Related Links .....	73
Convert-CommandToHashtable.....	74
Synopsis .....	74
Syntax .....	74
Description.....	74
Examples .....	74
Parameters.....	74
Inputs .....	75

Outputs.....	75
Notes.....	75
Related Links .....	75
Convert-EventLogRecord.....	76
Synopsis .....	76
Syntax .....	76
Description.....	76
Examples .....	76
Parameters.....	79
Inputs .....	80
Outputs.....	80
Related Links .....	80
ConvertFrom-LexicalTimespan.....	81
Synopsis .....	81
Syntax .....	81
Description.....	81
Examples .....	81
Parameters.....	81
Inputs .....	82
Outputs.....	82
Notes.....	82
Related Links .....	83
ConvertFrom-Text.....	84
Synopsis .....	84
Syntax .....	84
Description.....	84
Examples .....	84
Parameters.....	86
Inputs .....	88
Outputs.....	88
Notes.....	88
Related Links .....	88
ConvertFrom-UTCTime .....	89
Synopsis .....	89
Syntax .....	89
Description.....	89
Examples .....	89
Parameters.....	89
Inputs .....	90
Outputs.....	90
Notes.....	90
Related Links .....	90
Convert-HashtableString.....	91

Synopsis .....	91
Syntax .....	91
Description.....	91
Examples .....	91
Parameters.....	91
Inputs .....	92
Outputs.....	92
Notes.....	92
Related Links .....	92
Convert-HashtableToCode .....	93
Synopsis .....	93
Syntax .....	93
Description.....	93
Examples .....	93
Parameters.....	93
Inputs .....	95
Outputs.....	95
Notes.....	95
Related Links .....	95
ConvertTo-Hashtable .....	96
Synopsis .....	96
Syntax .....	96
Description.....	96
Examples .....	96
Parameters.....	97
Inputs .....	98
Outputs.....	98
Notes.....	98
Related Links .....	99
ConvertTo-LexicalTimespan .....	100
Synopsis .....	100
Syntax .....	100
Description.....	100
Examples .....	100
Parameters.....	100
Inputs .....	101
Outputs.....	101
Notes.....	101
Related Links .....	101
ConvertTo-LocalTime .....	102
Synopsis .....	102
Syntax .....	102
Description.....	102

Examples .....	102
Parameters.....	103
Inputs .....	104
Outputs.....	104
Notes.....	104
Related Links .....	104
ConvertTo-Markdown .....	105
Synopsis .....	105
Syntax .....	105
Description.....	105
Examples .....	105
Parameters.....	106
Inputs .....	108
Outputs.....	108
Notes.....	108
Related Links .....	108
ConvertTo-UTCTime.....	109
Synopsis .....	109
Syntax .....	109
Description.....	109
Examples .....	109
Parameters.....	109
Inputs .....	110
Outputs.....	110
Notes.....	110
Related Links .....	110
ConvertTo-WPFGGrid .....	111
Synopsis .....	111
Syntax .....	111
Description.....	111
Examples .....	112
Parameters.....	113
Inputs .....	115
Outputs.....	116
Notes.....	116
Related Links .....	116
Copy-Command .....	117
Synopsis .....	117
Syntax .....	117
Description.....	117
Examples .....	117
Parameters.....	117
Inputs .....	119

Outputs.....	119
Notes.....	119
Related Links .....	119
Copy-HelpExample.....	120
Synopsis .....	120
Syntax .....	120
Description.....	120
Examples .....	120
Parameters.....	121
Inputs .....	122
Outputs.....	123
Notes.....	123
Related Links .....	123
Copy-PSFunction.....	124
Synopsis .....	124
Syntax .....	124
Description.....	124
Examples .....	124
Parameters.....	124
Inputs .....	125
Outputs.....	125
Notes.....	125
Related Links .....	126
Find-CimClass .....	127
Synopsis .....	127
Syntax .....	127
Description.....	127
Examples .....	127
Parameters.....	128
Inputs .....	129
Outputs.....	129
Notes.....	129
Related Links .....	129
Format-Percent.....	130
Synopsis .....	130
Syntax .....	130
Description.....	130
Examples .....	130
Parameters.....	131
Inputs .....	132
Outputs.....	132
Notes.....	132
Related Links .....	133

Format-String .....	134
Synopsis .....	134
Syntax .....	134
Description.....	134
Examples .....	134
Parameters.....	135
Inputs .....	136
Outputs.....	137
Notes.....	137
Related Links .....	137
Format-Value.....	138
Synopsis .....	138
Syntax .....	138
Description.....	138
Examples .....	138
Parameters.....	139
Inputs .....	141
Outputs.....	142
Notes.....	142
Related Links .....	142
Get-FileItem.....	143
Synopsis .....	143
Syntax .....	143
Description.....	143
Examples .....	143
Parameters.....	144
Inputs .....	146
Outputs.....	146
Notes.....	146
Related Links .....	146
Get-FolderSizeInfo .....	147
Synopsis .....	147
Syntax .....	147
Description.....	147
Examples .....	147
Parameters.....	148
Inputs .....	149
Outputs.....	149
Notes.....	149
Related Links .....	149
Get-GitSize .....	151
Synopsis .....	151
Syntax .....	151

Description.....	151
Examples .....	151
Parameters.....	152
Inputs .....	152
Outputs.....	152
Notes.....	152
Related Links .....	153
<b>Get-ModuleCommand.....</b>	<b>154</b>
Synopsis .....	154
Syntax.....	154
Description.....	154
Examples .....	154
Parameters.....	155
Inputs .....	157
Outputs.....	157
Notes.....	157
Related Links .....	157
<b>Get-MyAlias .....</b>	<b>158</b>
Synopsis .....	158
Syntax.....	158
Description.....	158
Examples .....	158
Parameters.....	159
Inputs .....	159
Outputs.....	160
Notes.....	160
Related Links .....	160
<b>Get-MyTimeInfo .....</b>	<b>161</b>
Synopsis .....	161
Syntax.....	161
Description.....	161
Examples .....	161
Parameters.....	163
Inputs .....	165
Outputs.....	165
Notes.....	165
Related Links .....	165
<b>Get-MyVariable .....</b>	<b>166</b>
Synopsis .....	166
Syntax.....	166
Description.....	166
Examples .....	166
Parameters.....	167

Inputs .....	168
Outputs.....	168
Notes.....	168
Related Links .....	169
Get-ParameterInfo.....	170
Synopsis .....	170
Syntax.....	170
Description.....	170
Examples .....	170
Parameters.....	172
Inputs .....	173
Outputs.....	173
Notes.....	173
Related Links .....	173
Get-PathVariable.....	174
Synopsis .....	174
Syntax.....	174
Description.....	174
Examples .....	174
Parameters.....	174
Inputs .....	175
Outputs.....	175
Notes.....	175
Related Links .....	175
Get-PowerShellEngine.....	176
Synopsis .....	176
Syntax.....	176
Description.....	176
Examples .....	176
Parameters.....	177
Inputs .....	177
Outputs.....	177
Notes.....	177
Related Links .....	177
Get-PSLocation .....	179
Synopsis .....	179
Syntax.....	179
Description.....	179
Examples .....	179
Parameters.....	179
Inputs .....	180
Outputs.....	180
Notes.....	180

Related Links .....	180
Get-PSProfile .....	181
Synopsis .....	181
Syntax .....	181
Description .....	181
Examples .....	181
Parameters .....	182
Inputs .....	182
Outputs .....	182
Notes .....	182
Related Links .....	183
Get-PSScriptTools .....	184
Synopsis .....	184
Syntax .....	184
Description .....	184
Examples .....	184
Parameters .....	185
Inputs .....	185
Outputs .....	185
Notes .....	185
Related Links .....	185
Get-PSWho .....	186
Synopsis .....	186
Syntax .....	186
Description .....	186
Examples .....	186
Parameters .....	187
Inputs .....	187
Outputs .....	187
Notes .....	188
Related Links .....	188
Get-TZData .....	189
Synopsis .....	189
Syntax .....	189
Description .....	189
Examples .....	189
Parameters .....	190
Inputs .....	191
Outputs .....	191
Notes .....	191
Related Links .....	191
Get-TZList .....	192
Synopsis .....	192

Syntax .....	192
Description .....	192
Examples .....	192
Parameters .....	193
Inputs .....	194
Outputs .....	194
Notes .....	194
Related Links .....	194
Get-WhoIs .....	195
Synopsis .....	195
Syntax .....	195
Description .....	195
Examples .....	195
Parameters .....	195
Inputs .....	196
Outputs .....	196
Notes .....	196
Related Links .....	196
Get-WindowsVersion .....	197
Synopsis .....	197
Syntax .....	197
Description .....	197
Examples .....	197
Parameters .....	198
Inputs .....	201
Outputs .....	201
Notes .....	201
Related Links .....	201
Get-WindowsVersionString .....	202
Synopsis .....	202
Syntax .....	202
Description .....	202
Examples .....	202
Parameters .....	202
Inputs .....	205
Outputs .....	205
Notes .....	205
Related Links .....	205
Invoke-InputBox .....	206
Synopsis .....	206
Syntax .....	206
Description .....	206
Examples .....	206

Parameters.....	206
Inputs .....	208
Outputs.....	208
Notes.....	208
Related Links .....	208
Join-Hashtable.....	209
Synopsis .....	209
Syntax .....	209
Description.....	209
Examples .....	209
Parameters.....	210
Inputs .....	211
Outputs.....	211
Notes.....	211
Related Links .....	211
New-ANSIBar.....	212
Synopsis .....	212
Syntax .....	212
Description.....	212
Examples .....	212
Parameters.....	212
Inputs .....	214
Outputs.....	214
Notes.....	214
Related Links .....	214
New-CustomFileName.....	215
Synopsis .....	215
Syntax .....	215
Description.....	215
Examples .....	215
Parameters.....	217
Inputs .....	218
Outputs.....	218
Notes.....	218
Related Links .....	218
New-PSDriveHere.....	219
Synopsis .....	219
Syntax .....	219
Description.....	219
Examples .....	219
Parameters.....	220
Inputs .....	222
Outputs.....	222

Notes.....	222
Related Links .....	223
New-PSFormatXML.....	224
Synopsis .....	224
Syntax.....	224
Description.....	224
Examples .....	224
Parameters.....	227
Inputs .....	231
Outputs.....	231
Notes.....	231
Related Links .....	231
New-RandomFileName .....	232
Synopsis .....	232
Syntax.....	232
Description.....	232
Examples .....	232
Parameters.....	233
Inputs .....	234
Outputs.....	234
Notes.....	234
Related Links .....	234
New-RedGreenGradient .....	235
Synopsis .....	235
Syntax.....	235
Description.....	235
Examples .....	235
Parameters.....	235
Inputs .....	236
Outputs.....	237
Notes.....	237
Related Links .....	237
New-WPFMessageBox .....	238
Synopsis .....	238
Syntax.....	238
Description.....	238
Examples .....	238
Parameters.....	239
Inputs .....	241
Outputs.....	242
Notes.....	242
Related Links .....	242
Open-PSScriptToolsHelp .....	243

Synopsis .....	243
Syntax .....	243
Description.....	243
Examples .....	243
Parameters.....	243
Inputs .....	243
Outputs.....	243
Notes.....	243
Related Links .....	244
Optimize-Text .....	245
Synopsis .....	245
Syntax .....	245
Description.....	245
Examples .....	245
Parameters.....	247
Inputs .....	249
Outputs.....	249
Notes.....	249
Related Links .....	250
Out-ConditionalColor.....	251
Synopsis .....	251
Syntax .....	251
Description.....	251
Examples .....	252
Parameters.....	253
Inputs .....	254
Outputs.....	254
Notes.....	254
Related Links .....	254
Out-More .....	255
Synopsis .....	255
Syntax .....	255
Description.....	255
Examples .....	255
Parameters.....	256
Inputs .....	256
Outputs.....	256
Notes.....	257
Related Links .....	257
Out-VerboseTee .....	258
Synopsis .....	258
Syntax .....	258
Description.....	258

Examples .....	258
Parameters.....	259
Inputs .....	260
Outputs.....	260
Notes.....	260
Related Links .....	260
Remove-MergedBranch.....	262
Synopsis .....	262
Syntax .....	262
Description.....	262
Examples .....	262
Parameters.....	263
Inputs .....	264
Outputs.....	264
Notes.....	264
Related Links .....	264
Remove-Runspace .....	265
Synopsis .....	265
Syntax .....	265
Description.....	265
Examples .....	265
Parameters.....	265
Inputs .....	267
Outputs.....	267
Notes.....	267
Related Links .....	267
Rename-Hashtable.....	268
Synopsis .....	268
Syntax .....	268
Description.....	268
Examples .....	268
Parameters.....	269
Inputs .....	271
Outputs.....	271
Notes.....	271
Related Links .....	271
Save-GitSetup .....	272
Synopsis .....	272
Syntax .....	272
Description.....	272
Examples .....	272
Parameters.....	272
Inputs .....	273

Outputs.....	273
Notes.....	273
Related Links .....	273
Select-First .....	274
Synopsis .....	274
Syntax .....	274
Description.....	274
Examples .....	274
Parameters.....	274
Inputs .....	276
Outputs.....	276
Notes.....	276
Related Links .....	276
Select-Last .....	277
Synopsis .....	277
Syntax .....	277
Description.....	277
Examples .....	277
Parameters.....	278
Inputs .....	279
Outputs.....	279
Notes.....	279
Related Links .....	279
Set-ConsoleColor .....	280
Synopsis .....	280
Syntax .....	280
Description.....	280
Examples .....	280
Parameters.....	280
Inputs .....	282
Outputs.....	282
Notes.....	282
Related Links .....	282
Set-ConsoleTitle .....	283
Synopsis .....	283
Syntax .....	283
Description.....	283
Examples .....	283
Parameters.....	283
Inputs .....	284
Outputs.....	284
Notes.....	284
Related Links .....	285

Show-Tree .....	286
Synopsis .....	286
Syntax .....	286
Description.....	286
Examples .....	286
Parameters.....	288
Inputs .....	291
Outputs.....	291
Notes.....	291
Related Links .....	291
Test-EmptyFolder .....	292
Synopsis .....	292
Syntax .....	292
Description.....	292
Examples .....	292
Parameters.....	293
Inputs .....	294
Outputs.....	294
Notes.....	294
Related Links .....	294
Test-Expression .....	295
Synopsis .....	295
Syntax .....	295
Description.....	295
Examples .....	295
Parameters.....	298
Inputs .....	300
Outputs.....	300
Notes.....	300
Related Links .....	300
Test-ExpressionForm .....	301
Synopsis .....	301
Syntax .....	301
Description.....	301
Examples .....	301
Parameters.....	301
Inputs .....	301
Outputs.....	302
Notes.....	302
Related Links .....	302
Test-IsPSWindows .....	303
Synopsis .....	303
Syntax .....	303

Description.....	303
Examples .....	303
Parameters.....	303
Inputs .....	303
Outputs.....	303
Notes.....	303
Related Links .....	304
Test-WithCulture.....	305
Synopsis .....	305
Syntax.....	305
Description.....	305
Examples .....	305
Parameters.....	306
Inputs .....	307
Outputs.....	307
Notes.....	307
Related Links .....	307
Write-ANSIProgress .....	308
Synopsis .....	308
Syntax.....	308
Description.....	308
Examples .....	308
Parameters.....	309
Inputs .....	311
Outputs.....	311
Notes.....	311
Related Links .....	311
Write-Detail .....	312
Synopsis .....	312
Syntax.....	312
Description.....	312
Examples .....	312
Parameters.....	313
Inputs .....	314
Outputs.....	314
Notes.....	314
Related Links .....	314

# Introduction

This manual is a PDF version of a number of reference files as well as the command help. The intention of this manual is to provide a single source for all module documentation. Be aware that many of the source files contain internal cross-references. Best efforts have been made to port those links to this document. External links should work as expected.

If you need to ask a question or report a problem, please visit the module's [Github repository](#).

# PSScriptTools Overview

This module contains a collection of functions, variables and format files that you can use to enhance your PowerShell scripting work. Or get more done from a PowerShell prompt with less typing. Most of the commands are designed to work cross-platform. Please post any questions, problems or feedback in [Issues](#). Any feedback is greatly appreciated.

*Please note that code samples have been formatted to fit an 80 character width. Some example code breaks lines without using line continuation characters. I'm trusting that you can figure out how to run the example.*

# Installation

You can get the current release from this repository or install this the [PowerShell Gallery](#):

```
Install-Module PSScriptTools
```

or in PowerShell 7:

```
Install-Module PSScriptTools [-scope CurrentUser] [-force]
```

Starting in v2.2.0, the module was restructured to better support Desktop and Core editions. But starting with version 2.13.0, the module design has reverted. All commands will be exported. Anything that is platform-specific should be handled on a per-command basis. It is assumed you will be running this module in Windows PowerShell 5.1 or PowerShell 7.

# Uninstall the Module

To remove the module from your system you can uninstall it.

```
Get-Module PSScriptTools | Remove-Module  
Uninstall-Module PSScriptTools -allversions
```

## General Tools

### Copy-PSFunction

This command is designed to solve the problem when you want to run a function loaded locally on a remote computer. Copy-PSFunction will copy a PowerShell function that is loaded in your current PowerShell session to a remote PowerShell session. The remote session must already be created. The copied function only exists remotely for the duration of the remote PowerShell session.

```
$s = new-pssession -ComputerName win10 -cred $art
Copy-PSFunction Get-Status -Session $s
```

Once copied, you might use Invoke-Command to run it.

```
Invoke-Command { get-status -asstring } -session $s
```

If the function relies on external or additional files, you will have to copy them to the remote session separately.

### Get-PSProfile

This command is designed for Windows systems and make it easy to identify all possible PowerShell profile scripts. Including those for hosts such as VSCode or the PowerShell ISE. The command writes a custom object to the pipeline which has defined formatting. The default view is a table.

```
PS C:\> get-psprofile

Name: PowerShell

Scope          Path                               Exists
----          ---
AllUsersCurrentHost C:\Program Files\PowerShell\7\Microsoft.PowerShell_profile.ps1 False
AllUsersAllHosts   C:\Program Files\PowerShell\7\profile.ps1           False
CurrentUserAllHosts C:\Users\Jeff\Documents\PowerShell\profile.ps1       True
CurrentUserCurrentHost C:\Users\Jeff\Documents\PowerShell\Microsoft.PowerShell_profile.ps1 True

Name: Windows PowerShell

Scope          Path                               Exists
----          ---
AllUsersCurrentHost C:\WINDOWS\System32\WindowsPowerShell\v1.0\Microsoft.PowerShell_profile.ps1 True
AllUsersAllHosts   C:\WINDOWS\System32\WindowsPowerShell\v1.0\profile.ps1           True
CurrentUserAllHosts C:\Users\Jeff\Documents\WindowsPowerShell\profile.ps1       True
CurrentUserCurrentHost C:\Users\Jeff\Documents\WindowsPowerShell\Microsoft.PowerShell_profile.ps1 True
```

There is also a list view.

```
PS C:\> get-psprofile | Where-Object {$_ .name -eq 'powershell'} | Format-List
```

```
Name: PowerShell

Scope      : AllUsersCurrentHost
Path       : C:\Program Files\PowerShell\7\Microsoft.PowerShell_profile.ps1
Exists     : False
LastModified :

Scope      : AllUsersAllHosts
Path       : C:\Program Files\PowerShell\7\profile.ps1
Exists     : False
LastModified :

Scope      : CurrentUserAllHosts
Path       : C:\Users\Jeff\Documents\PowerShell\profile.ps1
Exists     : True
LastModified : 9/9/2020 2:35:45 PM

Scope      : CurrentUserCurrentHost
Path       : C:\Users\Jeff\Documents\PowerShell\Microsoft.PowerShell_profile.ps1
Exists     : True
LastModified : 9/9/2020 2:03:44 PM
```

## Get-MyAlias

Often you might define aliases for functions and scripts you use all of the time. It may difficult sometimes to remember them all or to find them in the default `Get-Alias` output. This command will list all currently defined aliases that are not part of the initial PowerShell state.

CommandType	Name	Version	Source
Alias	awk -> awk.exe		
Alias	cart -> ConvertTo-ASCIIArt		
Alias	cb -> Set-Clipboard		
Alias	cc -> Copy-Command	2.27.0	PSScriptTools
Alias	cfn -> New-CustomFileName	2.27.0	PSScriptTools
Alias	cft -> ConvertFrom-Text	2.27.0	PSScriptTools
Alias	chc -> Convert-HashTableToCode	2.27.0	PSScriptTools
Alias	che -> Copy-HelpExample	2.27.0	PSScriptTools
Alias	clr -> Convert-EventLogRecord	2.27.0	PSScriptTools
Alias	clt -> ConvertTo-LocalTime	2.27.0	PSScriptTools
Alias	cmo -> Compare-Module	2.27.0	PSScriptTools
Alias	ctm -> ConvertTo-Markdown	2.27.0	PSScriptTools
Alias	cwg -> ConvertTo-WPFGrid	2.27.0	PSScriptTools
Alias	daily -> dailysummary.ps1		
Alias	df -> Get-DiskFree		
Alias	dirdate -> Get-Dirdate		
Alias	fcc -> Find-CimClass	2.27.0	PSScriptTools
Alias	ff -> firefox.exe		
Alias	fhx -> Format-Hex	7.0.0.0	Microsoft.PowerShell.utility
Alias	fimo -> Find-Module	2.2.4.1	PowershellGet
Alias	First -> Select-First	2.27.0	PSScriptTools
Alias	fp -> Format-Percent	2.27.0	PSScriptTools
Alias	frut -> ConvertFrom-UTCTime	2.27.0	PSScriptTools
Alias	fs -> Format-String	2.27.0	PSScriptTools
Alias	fv -> Format-Value	2.27.0	PSScriptTools
Alias	gcb -> Get-Clipboard	7.0.0.0	Microsoft.PowerShell.Management
Alias	gcm2 -> Get-Command2		
Alias	gin -> Get-ComputerInfo	7.0.0.0	Microsoft.PowerShell.Management
Alias	gma -> Get-MyAlias	2.27.0	PSScriptTools

These are all aliases defined in the current session that aren't part of the initial session state. You can filter aliases to make it easier to find those that aren't defined in a module. These aliases should be ones created in your stand-alone scripts or PowerShell profile.

```
PS C:\> Get-MyAlias -NoModule
```

CommandType	Name	Version	Source
Alias	awk -> awk.exe		
Alias	cart -> ConvertTo-ASCIIArt		
Alias	cb -> Set-Clipboard		
Alias	daily -> dailysummary.ps1		
Alias	df -> Get-DiskFree		
Alias	dirdate -> Get-Dirdate		
Alias	ff -> firefox.exe		
Alias	gcm2 -> Get-Command2		
Alias	gmf -> Get-MyFunctions		
Alias	grep -> grep.exe		
Alias	grok -> Get-Help		
Alias	gst -> Get-Status		

The PSScriptTools module also includes a custom formatting file for alias objects which you can use with `Get-Alias` or `Get-MyAlias`.

```
Get-Alias | Sort-Object Source | Format-Table -View source
```

gcb	Get-Clipboard
gtz	Get-TimeZone
gin	Get-ComputerInfo
scb	Set-Clipboard
 Source: Microsoft.PowerShell.Utility 7.0.0.0	
Name	Definition
----	-----
fhx	Format-Hex
 Source: PowerShellGet 2.2.4.1	
Name	Definition
----	-----
inmo	Install-Module
pumo	Publish-Module
upmo	Update-Module
fimo	Find-Module
 Source: PSScriptTools 2.27.0	
Name	Definition
----	-----
Tee-Verbose	Out-VerboseTee
tex	Test-Expression
pswho	Get-PSWho
che	Copy-HelpExample

This command has an alias of `gma`.

## Get-ModuleCommand

This is an alternative to `Get-Command` to make it easier to see at a glance what commands are contained within a module and what they can do. By default, `Get-ModuleCommand` looks for loaded modules. Use `-ListAvailable` to see commands in the module not currently loaded. Note that if the help file is malformed or missing, you might get oddly formatted results.

```
PS C:\> Get-ModuleCommand PSCalendar

Verb: Get

Name          Alias      Type      Synopsis
----          ----      ----      -----
Get-Calendar  cal       Function  Displays a visua...

Verb: Show

Name          Alias      Type      Synopsis
----          ----      ----      -----
Show-Calendar scal      Function  Display a color...
Show-GuiCalendar gcal     Function  Display a WPF-b...
```

Get module commands using the default formatted view. There is also a default view for `Format-List`.

## Get-PSScriptTools

You can use this command to get a summary list of functions in this module.

```
PS C:\> Get-PSScriptTools

Verb: Add

Name          Alias      Synopsis
----          ----      -----
Add-Border    Create a text border around a string.

Verb: Compare

Name          Alias      Synopsis
----          ----      -----
Compare-Module cmo      Compare PowerShell module versions.

Verb: Convert

...
```

Here's another way you could use this command to list functions with defined aliases in the PSScriptTools module.

```
PS C:\> Get-PSScriptTools | Where-Object alias |
Select-Object Name,alias,Synopsis

Name          Alias Synopsis
----          ---- -----
Compare-Module cmo   Compare PowerShell module versions.
Convert-EventLogRecord clr   Convert EventLogRecords to structured objects
ConvertFrom-Text cft   Convert structured text to objects.
ConvertFrom-UTCTime frut  Convert a datetime value from universal
ConvertTo-LocalTime clt   Convert a foreign time to local
...
```

## Convert-EventLogRecord

When you use [Get-WinEvent](#), the results are objects you can work with in PowerShell. However, often times there is additional information that is part of the eventlog record, such as replacement strings, that are used to construct a message. This additional information is not readily exposed. You can use this command to convert the results of a [Get-WinEvent](#) command into a PowerShell custom object with additional information.

```
PS C:\> Get-WinEvent -FilterHashtable @{Logname='System';ID=7045} -MaxEvents 1| Convert-EventLogRecord

LogName      : System
RecordType   : Information
TimeCreated  : 1/21/2020 3:49:46 PM
ID          : 7045
ServiceName  : Netwrix Account Lockout Examiner
ImagePath    : "C:\Program Files (x86)\Netwrix\Account Lockout Examiner
                \ALEService.exe"
ServiceType  : user mode service
StartType    : auto start
AccountName  : bovine320\jeff
Message      : A service was installed in the system.

                Service Name: Netwrix Account Lockout Examiner
                Service File Name: "C:\Program Files (x86)\Netwrix\Account
                Lockout Examiner\ALEService.exe"
                Service Type: user mode service
                Service Start Type: auto start
                Service Account: bovine320\jeff
Keywords     : {Classic}
Source       : Service Control Manager
Computername : Bovine320
```

## Get-WhoIs

This command will retrieve WhoIs information from the ARIN database for a given IPv4 address.

```
PS C:\> Get-WhoIs 208.67.222.222 | Select-Object -Property *
```

```
IP : 208.67.222.222
Name : OPENDNS-NET-1
RegisteredOrganization : Cisco OpenDNS, LLC
City : San Francisco
StartAddress : 208.67.216.0
EndAddress : 208.67.223.255
NetBlocks : 208.67.216.0/21
Updated : 3/2/2012 8:03:18 AM
```

```
PS C:\> '1.1.1.1','8.8.8.8','208.67.222.222' | Get-WhoIs | Format-List
```

```
IP : 1.1.1.1
Name : APNIC-1
RegisteredOrganization : Asia Pacific Network Information Centre
City : South Brisbane
StartAddress : 1.0.0.0
EndAddress : 1.255.255.255
NetBlocks : 1.0.0.0/8
Updated : 7/30/2010 9:23:43 AM
```

```
IP : 8.8.8.8
Name : LVLT-GOGL-8-8-8
RegisteredOrganization : Google LLC
City : Mountain View
StartAddress : 8.8.8.0
EndAddress : 8.8.8.255
NetBlocks : 8.8.8.0/24
Updated : 3/14/2014 4:52:05 PM
```

```
IP : 208.67.222.222
Name : OPENDNS-NET-1
RegisteredOrganization : Cisco OpenDNS, LLC
City : San Francisco
StartAddress : 208.67.216.0
EndAddress : 208.67.223.255
NetBlocks : 208.67.216.0/21
Updated : 3/2/2012 8:03:18 AM
```

This module includes a custom format file for these results.

## Compare-Module

Use this command to compare module versions between what is installed against an online repository like the PSGallery

```
PS C:\> Compare-Module Platyps
```

```
Name : platyPS
OnlineVersion : 0.14.0
InstalledVersion : 0.14.0,0.12.0,0.11.1,0.10.2,0.9.0
PublishedDate : 4/3/2019 12:46:30 AM
UpdateNeeded : False
```

Or you can compare and manage multiple modules.

```
Compare-Module | Where UpdateNeeded |
Out-GridView -title "Select modules to update" -outputMode multiple |
ForEach { Update-Module $_.Name }
```

This example compares modules and send results to `Out-GridView`. Use `Out-GridView` as an object picker to decide what modules to update.

## Get-WindowsVersion

This is a PowerShell version of the `winver.exe` utility. This command uses PowerShell remoting to query the registry on a remote machine to retrieve Windows version information.

```
Get-WindowsVersion -Computername win10,srv1,srv2 -Credential company\artd
```

Computername: WIN10					
ProductName	EditionID	ReleaseID	Build	InstalledUTC	
Windows 10 Enterprise Evaluation	EnterpriseEval	1909	18363	5/30/2020 2:49:55 PM	
Computername: SRV1					
ProductName	EditionID	ReleaseID	Build	InstalledUTC	
Windows Server 2016 Standard Evaluation	ServerStandardEval	1607	14393	5/30/2020 2:49:15 PM	
Computername: SRV2					
ProductName	EditionID	ReleaseID	Build	InstalledUTC	
Windows Server 2016 Standard Evaluation	ServerStandardEval	1607	14393	5/30/2020 2:50:00 PM	

The output has a default table view but there are other properties you might want to use.

```
PS C:\> Get-WindowsVersion | Select-Object *
```

```
ProductName : Windows 10 Pro
EditionID  : Professional
ReleaseID   : 1909
Build      : 18363.657
Branch     : 19h1_release
InstalledUTC : 7/5/2019 10:54:49 PM
Computername : BOVINE320
```

## Get-WindowsVersionString

This command is a variation of `Get-WindowsVersion` that returns a formatted string with version information.

```
PS C:\> Get-WindowsVersionString
BOVINE320 Windows 10 Pro Version Professional (OS Build 18363.657)
```

## New-PSDriveHere

This function will create a new PSDrive at the specified location. The default is the current location, but you can specify any PSPath. by default, the function will take the last word of the path and use it as the name of the new PSDrive.

```
PS C:\users\jeff\documents\Enterprise Mgmt Webinar> new-psdrivehere -setlocation  
PS Webinar:>
```

You can use the first word in the leaf location or specify something completely different.

```
New-PSDrivehere \\ds416\backup\ Backup
```

## Get-MyVariable

This function will return all variables not defined by PowerShell or by this function itself. The default is to return all user-created variables from the global scope but you can also specify a scope such as `script`, `local` or a number 0 through 5.

```
PS C:\> Get-MyVariable  
  
NNName Value          Type  
---- -  
a    bits           ServiceController  
dt   10/22/2018 10:49:38 AM DateTime  
foo  123            Int32  
r    {1, 2, 3, 4...} Object[]  
...
```

Depending on the value and how PowerShell chooses to display it, you may not see the type.

## ConvertFrom-Text

This command can be used to convert text from a file or a command-line tool into objects. It uses a regular expression pattern with named captures and turns the result into a custom object. You have the option of specifying a typename in case you are using custom format files.

```
PS C:\> $arp = '(?<IPAddress>(\d{1,3}\.){3}\d{1,3})\s+(?<MAC>(\w{2}-){5}\w{2})\s+(?<Type>\w+$)'
PS C:\> arp -g -N 172.16.10.22 | Select-Object -skip 3 |
foreach {$_.Trim()} | ConvertFrom-Text $arp -TypeName arpData -NoProgress
```

IPAddress	MAC	Type
-----	---	----
172.16.10.1	b6-fb-e4-16-41-be	dynamic
172.16.10.100	00-11-32-58-7b-10	dynamic
172.16.10.115	5c-aa-fd-0c-bf-fa	dynamic
172.16.10.120	5c-1d-d9-58-81-51	dynamic
172.16.10.159	3c-e1-a1-17-6d-0a	dynamic
172.16.10.162	00-0e-58-ce-8b-b6	dynamic
172.16.10.178	00-0e-58-8c-13-ac	dynamic
172.16.10.185	d0-04-01-26-b5-61	dynamic
172.16.10.186	e8-b2-ac-95-92-98	dynamic
172.16.10.197	fc-77-74-9f-f4-2f	dynamic
172.16.10.211	14-20-5e-93-42-fb	dynamic
172.16.10.222	28-39-5e-3b-04-33	dynamic
172.16.10.226	00-0e-58-e9-49-c0	dynamic
172.16.10.227	48-88-ca-e1-a6-00	dynamic
172.16.10.239	5c-aa-fd-83-f1-a4	dynamic
172.16.255.255	ff-ff-ff-ff-ff-ff	static
224.0.0.2	01-00-5e-00-00-02	static
224.0.0.7	01-00-5e-00-00-07	static
224.0.0.22	01-00-5e-00-00-16	static
224.0.0.251	01-00-5e-00-00-fb	static
224.0.0.252	01-00-5e-00-00-fc	static
239.255.255.250	01-00-5e-7f-ff-fa	static

This example uses a previously created and import format.ps1xml file for the custom type name.

## Get-PSWho

This command will provide a summary of relevant information for the current user in a PowerShell Session. You might use this to troubleshoot an end-user problem running a script or command.

```
PS C:\> Get-PSWho

User          : BOVINE320\Jeff
Elevated      : True
Computername  : BOVINE320
OperatingSystem : Microsoft Windows 10 Pro [64-bit]
OSVersion     : 10.0.18363
PSVersion     : 5.1.18362.145
Edition       : Desktop
PSHost        : ConsoleHost
WSMan         : 3.0
ExecutionPolicy : RemoteSigned
Culture       : English (United States)
```

You can also turn this into a text block using the `AsString` parameter. This is helpful when you want to include the output in some type of report.

```
PS C:\> add-border -textblock (get-pswho -asstring) -ANSIBorder "`e[92m" -border $PSSpecialChar.Lozenge
$PSSpecialChar.Lozenge
+-----+
| User          : BOVINE320\Jeff
| Elevated      : True
| Computername  : BOVINE320
| OperatingSystem : Microsoft Windows 10 Pro [64-bit]
| OSVersion     : 10.0.18363
| PSVersion     : 7.0.1
| Edition        : Core
| PSHost         : ConsoleHost
| WSMan          : 3.0
| ExecutionPolicy : RemoteSigned
| Culture        : English (United States)
+-----+
PS C:\>
```

## Find-CimClass

This function is designed to search an entire CIM repository for a class name. Sometimes, you may have a guess about a class name but not know the full name or even the correct namespace. `Find-CimClass` will recursively search for a given classname. You can use wildcards and search remote computers.

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

Find-CimClass
Searching for class *protection* in 150 namespaces
[oooooo]                                     ]
processing \\BOVINE320\Root\CIMV2\ms_409

NameSpace: Root/CIMV2/mdm/dmmap

CimClassName          CimClassMethods      CimClassProperties
-----              -----                  -----
MDM_AppLocker_EnterpriseDataProt... {}           {InstanceID, ParentID, Policy}
MDM_AppLocker_EnterpriseDataProt... {}           {InstanceID, ParentID, Policy}
MDM_EnterpriseDataProtection {}                 {InstanceID, ParentID, Status}
MDM_EnterpriseDataProtection_Set... {}           {AllowAzureRMSForEDP, AllowUserDecryption, DataRecoveryCert...}
MDM_Policy_Config01_DataProtecti... {}           {AllowDirectMemoryAccess, InstanceID, LegacySelectiveWipeID...}
MDM_Policy_Result01_DataProtecti... {}           {AllowDirectMemoryAccess, InstanceID, LegacySelectiveWipeID...}
MDM_Reportng_EnterpriseDataProt... {}           {InstanceID, LogCount, Logs, ParentID...}
MDM_Reportng_EnterpriseDataProt... {}           {InstanceID, Logs, ParentID, StartTime...}
MDM_WindowsAdvancedThreatProtect... {}           {InstanceID, Offboarding, Onboarding, ParentID}
MDM_WindowsAdvancedThreatProtect... {}           {GroupIds, InstanceID, ParentID, SampleSharing...}
MDM_WindowsAdvancedThreatProtect... {}           {Criticality, Group, IdMethod, InstanceID...}
MDM_WindowsAdvancedThreatProtect... {}           {InstanceID, LastConnected, OnboardingState, OrgId...}
```

## Out-VerboseTee

This command is intended to let you see your verbose output and write the verbose messages to a log file. It will only work if the verbose pipeline is enabled, usually when your command is run with -Verbose. This function is designed to be used within your scripts and functions. You either have to hard code a file name or find some other way to define it in your function or control script. You could pass a value as a parameter or set it as a PSDefaultParameterValue.

This command has aliases of Tee-Verbose and tv.

```
Begin {
    $log = New-RandomFilename -useTemp -extension log
    Write-Detail "Starting $($myinvocation.mycommand)" -Prefix begin |
    Tee-Verbose $log
    Write-Detail "Logging verbose output to $log" -prefix begin |
    Tee-Verbose -append
    Write-Detail "Initializing data array" -Prefix begin |
    Tee-Verbose $log -append
    $data = @()
} #begin
```

When the command is run with -Verbose you will see the verbose output **and** it will be saved to the specified log file.

## Remove-Runspace

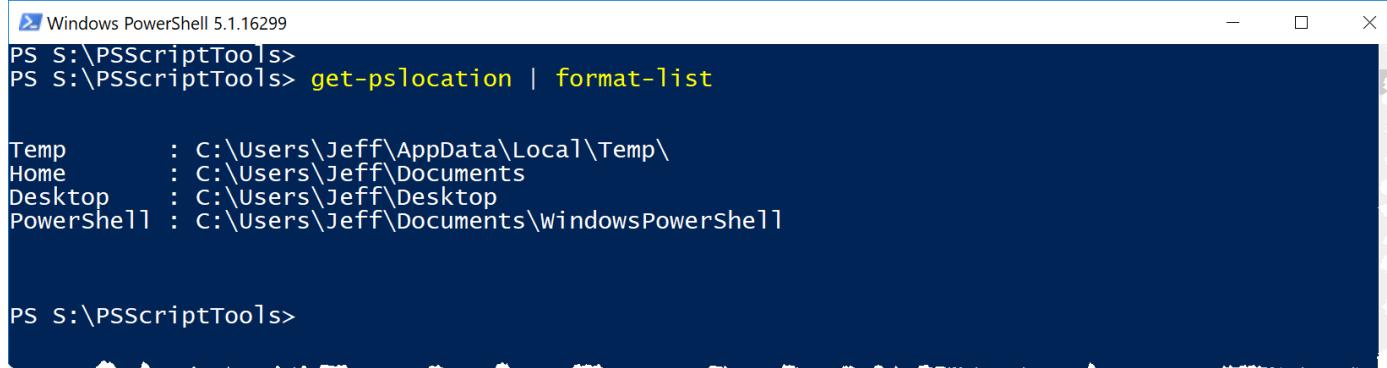
During the course of your PowerShell work, you may discover that some commands and scripts can leave behind runspaces such as ConvertTo-WPFGrid. You may even deliberately be creating additional runspaces. These runspaces will remain until you exit your PowerShell session. Or use this command to cleanly close and dispose of runspaces.

```
Get-RunSpace | where ID -gt 1 | Remove-RunSpace
```

Get all runspaces with an ID greater than 1, which is typically your current session, and remove the runspace.

## Get-PSLocation

A simple function to get common locations. This can be useful with cross-platform scripting.



```
Windows PowerShell 5.1.16299
PS S:\PSScriptTools>
PS S:\PSScriptTools> get-pslocation | format-list

Temp      : C:\Users\Jeff\AppData\Local\Temp\
Home     : C:\Users\Jeff\Documents
Desktop   : C:\Users\Jeff\Desktop
PowerShell : C:\Users\Jeff\Documents\WindowsPowerShell

PS S:\PSScriptTools>
```

```
PS /mnt/c/scripts/PSScriptTools/samples> get-pslocation
Temp   Home      Desktop  PowerShell
----- -----
/tmp/ /home/jhicks    /home/jhicks/.config/powershell

PS /mnt/c/scripts/PSScriptTools/samples>
```

## Get-PowerShellEngine

Use this command to quickly get the path to the PowerShell executable. In Windows you should get a result like this:

```
PS C:\> Get-PowerShellEngine
C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
```

But PowerShell on non-Windows platforms is a bit different:

```
PS /home/jhicks> Get-PowerShellEngine
/opt/microsoft/powershell/7/pwsh
```

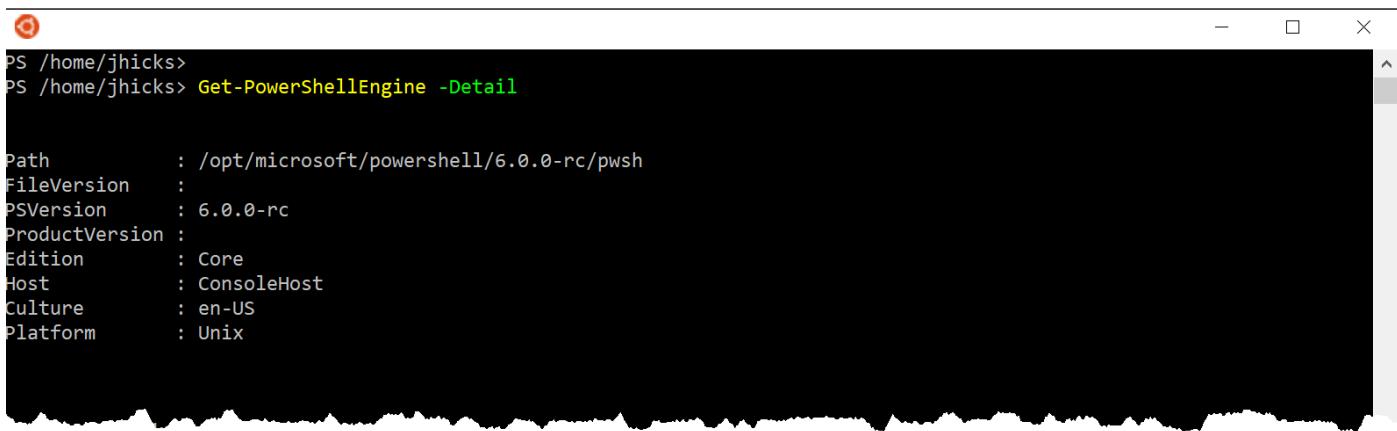
You can also get detailed information.

```
Windows PowerShell 5.1.16299
PS S:\> get-powershellengine -Detail

Path          : C:\Windows\System32\WindowsPowerShell\v1.0\powershell.exe
FileVersion   : 10.0.16299.15 (WinBuild.160101.0800)
PSVersion     : 5.1.16299.64
ProductVersion: 10.0.16299.15
Edition       : Desktop
Host          : ConsoleHost
Culture       : en-US
Platform      :
```

```
PowerShell-6.0.0-rc
PS C:\> get-powershellengine -Detail

Path          : C:\Program Files\PowerShell\6.0.0-rc\pwsh.exe
FileVersion   : 6.0.0
PSVersion     : 6.0.0-rc
ProductVersion: 6.0.0-rc
Edition       : Core
Host          : ConsoleHost
Culture       : en-US
Platform      : Win32NT
```



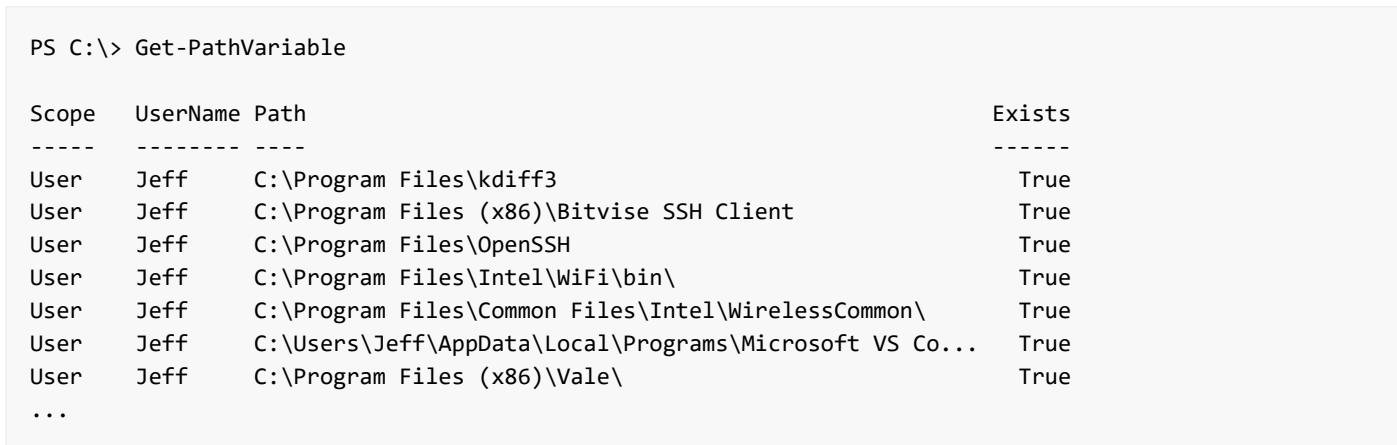
```
PS /home/jhicks>
PS /home/jhicks> Get-PowerShellEngine -Detail

Path      : /opt/microsoft/powershell/6.0.0-rc/pwsh
FileVersion   :
PSVersion    : 6.0.0-rc
ProductVersion :
Edition      : Core
Host        : ConsoleHost
Culture     : en-US
Platform    : Unix
```

Results will vary depending on whether you are running PowerShell on Windows nor non-Windows systems.

## Get-PathVariable

Over time, as you add and remove programs, your %PATH% might change. An application may add a location but not remove it when you uninstall the application. This command makes it easier to identify locations and whether they are still good.



```
PS C:\> Get-PathVariable

Scope  UserName Path                                Exists
-----  -----
User   Jeff    C:\Program Files\kdiff3                True
User   Jeff    C:\Program Files (x86)\Bitvise SSH Client  True
User   Jeff    C:\Program Files\OpenSSH                True
User   Jeff    C:\Program Files\Intel\WiFi\bin\          True
User   Jeff    C:\Program Files\Common Files\Intel\WirelessCommon\  True
User   Jeff    C:\Users\Jeff\AppData\Local\Programs\Microsoft VS Co...  True
User   Jeff    C:\Program Files (x86)\Vale\              True
...
```

## File Tools

### Test-EmptyFolder

This command will test if a given folder path is empty of all files anywhere in the path. This includes hidden files. The command will return True even if there are empty sub-folders. The default output is True or False but you can use -Passthru to get more information.

```
PS C:\> Get-ChildItem c:\work -Directory | Test-EmptyFolder -passthru |  
Where-Object {$_.IsEmpty} |  
ForEach-Object { Remove-Item -LiteralPath $_.path -Recurse -force -whatif}  
  
What if: Performing the operation "Remove Directory" on target "C:\work\demo3".  
What if: Performing the operation "Remove Directory" on target "C:\work\installers".  
What if: Performing the operation "Remove Directory" on target "C:\work\new".  
What if: Performing the operation "Remove Directory" on target "C:\work\sqlback".  
What if: Performing the operation "Remove Directory" on target "C:\work\todd".  
What if: Performing the operation "Remove Directory" on target "C:\work\[data]".
```

Find all empty sub-folders under C:\Work and pipe them to `Remove-Item`. This is one way to remove empty folders. The example is piping objects to `ForEach-Object` so that `Remove-Item` can use the `-LiteralPath` parameter, because `C:\work\[data]` is a non-standard path.

### Get-FolderSizeInfo

Use this command to quickly get the size of a folder. You also have an option to include hidden files. The command will measure all files in all subdirectories.

```
PS C:\> Get-FolderSizeInfo c:\work  
  
Computername    Path          TotalFiles   TotalSize  
-----  -----  
BOVINE320      C:\work       931         137311146  
  
PS C:\> Get-FolderSizeInfo c:\work -Hidden  
  
Computername    Path          TotalFiles   TotalSize  
-----  -----  
BOVINE320      C:\work       1375        137516856
```

The command includes a format file with an additional view to display the total size in KB, MB, GB or TB.

```
PS C:\> Get-ChildItem D:\ -Directory | Get-FolderSizeInfo -Hidden |
Where-Object TotalSize -gt 1gb | Sort-Object TotalSize -Descending |
Format-Table -View gb
```

Computername	Path	TotalFiles	TotalSizeGB
BOVINE320	D:\Autolab	159	137.7192
BOVINE320	D:\VMDisks	18	112.1814
BOVINE320	D:\ISO	17	41.5301
BOVINE320	D:\FileHistory	104541	36.9938
BOVINE320	D:\Vagrant	13	19.5664
BOVINE320	D:\Vms	83	5.1007
BOVINE320	D:\2016	1130	4.9531
BOVINE320	D:\video	125	2.592
BOVINE320	D:\blog	21804	1.1347
BOVINE320	D:\pstranscripts	122092	1.0914

Or you can use the name view.

```
PS C:\> Get-ChildItem c:\work -Directory | Get-FolderSizeInfo -Hidden |
Where-Object {$_.totalsize -ge 2mb} | Format-Table -view name
```

Path: C:\work

Name	TotalFiles	TotalKB
A	20	5843.9951
keepass	15	5839.084
PowerShellBooks	26	4240.3779
sunday	47	24540.6523

## Optimize-Text

Use this command to clean and optimize content from text files. Sometimes text files have blank lines or the content has trailing spaces. These sorts of issues can cause problems when passing the content to other commands.

This command will strip out any lines that are blank or have nothing by white space, and trim leading and trailing spaces. The optimized text is then written back to the pipeline. Optionally, you can specify a property name. This can be useful when your text file is a list of computer names and you want to take advantage of pipeline binding.

## Get-FileItem

A PowerShell version of the CLI where.exe command. You can search with a simple or regex pattern.

```
PS C:\> pswhere winword.exe -Path c:\ -Recurse -first
C:\Program Files\Microsoft Office\root\Office16\WINWORD.EXE
```

Note that you might see errors for directories where you don't have access permission. This is normal.

## New-CustomFileName

This command will generate a custom file name based on a template string that you provide.

```
PS C:\> New-CustomFileName %computername_%day%monthname%yr-%time.log  
COWPC_28Nov19-142138.log
```

```
PS C:\> New-CustomFileName %dayofweek-#####.dat  
Tuesday-3128.dat
```

You can create a template string using any of these variables. Most of these should be self-explanatory.

- %username
- %computername
- %year - 4 digit year
- %yr - 2 digit year
- %monthname - The abbreviated month name
- %month - The month number
- %dayofweek - The full name of the week day
- %day
- %hour
- %minute
- %time
- %string - A random string
- %guid

You can also insert a random number using % followed by a # character for each digit you want.

```
22 = %##  
654321 = %#####
```

## New-RandomFilename

Create a new random file name. The default is a completely random name including the extension.

```
PS C:\> New-RandomFilename  
fykxecvh.ipw
```

But you can specify an extension.

```
PS C:\> New-RandomFilename -extension dat  
emevgq3r.dat
```

Optionally you can create a random file name using the TEMP folder or your HOME folder. On Windows

platforms, this will default to your Documents folder.

```
PS C:\> New-RandomFilename -extension log -UseHomeFolder  
C:\Users\Jeff\Documents\kbyw4fda.log
```

On Linux machines it will be the home folder.

```
PS /mnt/c/scripts> New-RandomFilename -home -Extension tmp  
/home/jhicks/oces0epq.tmp
```

## ConvertTo-Markdown

This command is designed to accept pipelined output and create a markdown document. The pipeline output will be formatted as a text block or a table. You can optionally define a title, content to appear before the output and content to appear after the output. You can run a command like this:

```
Get-Service Bits,Winrm |  
ConvertTo-Markdown -title "Service Check" -precontent "## $($env:computername)"  
-postcontent "_report $(Get-Date)_"
```

which generates this markdown:

```
# Service Check  
  
## BOVINE320  
  
```text  
  
Status     Name          DisplayName  
----      ----  
Running    Bits          Background Intelligent Transfer Ser...  
Running    Winrm         Windows Remote Management (WS-Manag...  
``  
  
_report 09/25/2019 09:57:12_
```

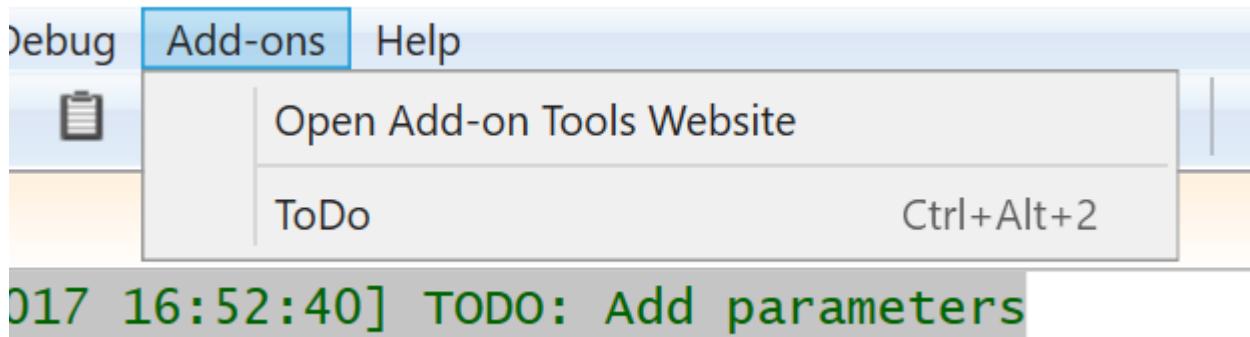
Because the function writes markdown to the pipeline you will need to pipe it to a command `Out-File` to create a file.

## ToDo

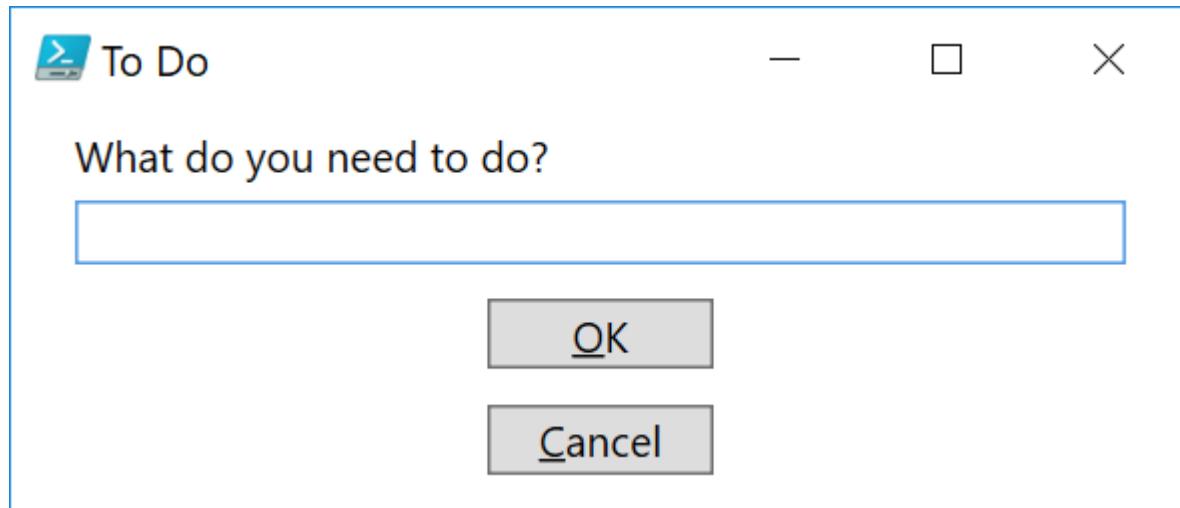
Because this module is intended to make scripting easier for you, it adds options to insert ToDo statements into PowerShell files. If you are using the PowerShell ISE or VS Code and import this module, it will add the capability to insert a line like this:

```
# [12/13/2018 16:52:40] TODO: Add parameters
```

In the PowerShell ISE, you will get a new menu under Add-Ons.



You can use the menu or keyboard shortcut which will launch an input box.



The comment will be inserted at the current cursor location.

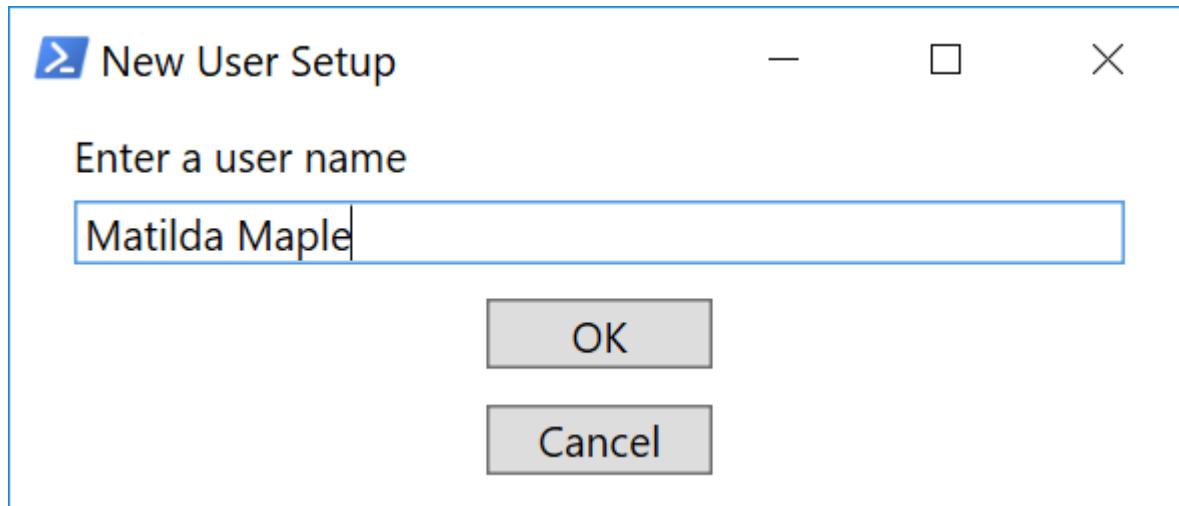
In VS Code, access the command palette (Ctrl+Shift+P) and then `PowerShell: Show Additional Commands from PowerShell Modules`. Select `Insert ToDo` from the list and you'll get the same input box. Note that this will only work for PowerShell files.

## Graphical Tools

### Invoke-InputBox

This function is a graphical replacement for `Read-Host`. It creates a simple WPF form that you can use to get user input. The value of the text box will be written to the pipeline.

```
$name = Invoke-InputBox -Prompt "Enter a user name" -Title "New User Setup"
```



You can also capture a secure string.

```
Invoke-Inputbox -Prompt "Enter a password for $Name" -AsSecureString  
-BackgroundColor red
```



This example also demonstrates that you can change the form's background color. This function will **not** work in PowerShell Core.

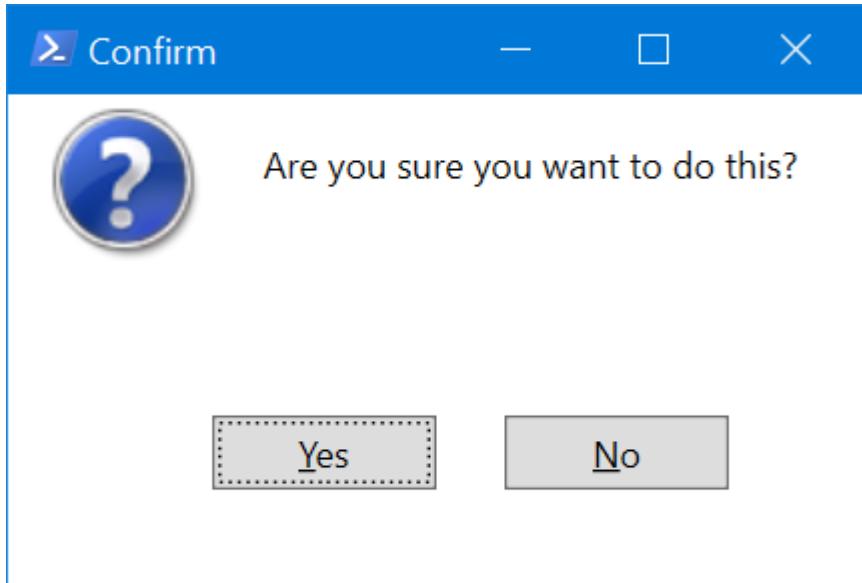
## New-WPFMessageBox

This function creates a Windows Presentation Foundation (WPF) based message box. This is intended to replace the legacy MsgBox function from VBScript and the Windows Forms library. The command uses a set of predefined button sets, each of which will close the form and write a value to the pipeline.

- OK = 1
- Cancel = 0
- Yes = \$True
- No = \$False

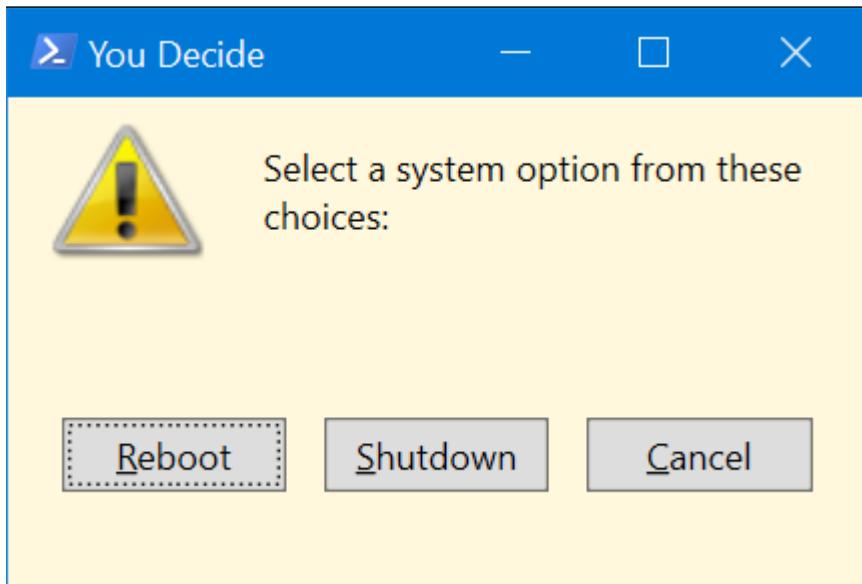
You can also create an ordered hashtable of your own buttons and values. It is assumed you will typically use this function in a script where you can capture the output and take some action based on the value.

```
New-WPFMessageBox -Message "Are you sure you want to do this?"  
-Title Confirm -Icon Question -ButtonSet YesNo
```



You can also create your own custom button set as well as modify the background color.

```
New-WPFMessageBox -Message "Select a system option from these choices:"  
-Title "You Decide" -Background cornsilk -Icon Warning  
-CustomButtonSet ([ordered]@{"Reboot"=1;"Shutdown"=2;"Cancel"=3})
```



## ConvertTo-WPFGrid

This command is an alternative to `Out-GridView`. It works much the same way. Run a PowerShell command and pipe it to this command. The output will be displayed in an auto-sized data grid. You can click on column headings to sort. You can resize columns and you can re-order columns.

```
Get-Eventlog -list -ComputerName DOM1,SRV1,SRV2 |  
Select MachineName, Log, MaximumKilobytes, Overflowaction,  
@{Name="RetentionDays"; Expression={$_.MinimumRetentionDays}},  
@{Name="Entries"; Expression = {$_.entries.count}} |  
ConvertTo-WPFGrid -Title "Event Log Report"
```

Event Log Report

MachineName	Log	MaximumKilobytes	OverflowAction	RetentionDays	Entries
DOM1	Active Directory Web Services	512	OverwriteOlder	7	38
DOM1	Application	20480	OverwriteAsNeeded	0	16722
DOM1	DFS Replication	15168	OverwriteAsNeeded	0	39
DOM1	Directory Service	512	OverwriteAsNeeded	0	291
DOM1	DNS Server	102400	OverwriteAsNeeded	0	2762
DOM1	HardwareEvents	20480	OverwriteAsNeeded	0	0
DOM1	Internet Explorer	512	OverwriteOlder	7	0
DOM1	Key Management Service	20480	OverwriteAsNeeded	0	0
DOM1	Security	131072	OverwriteAsNeeded	0	194724
DOM1	System	20480	OverwriteAsNeeded	0	8105
DOM1	Windows PowerShell	15360	OverwriteAsNeeded	0	459
SRV1	Application	20480	OverwriteAsNeeded	0	17377
SRV1	HardwareEvents	20480	OverwriteAsNeeded	0	0
SRV1	Internet Explorer	512	OverwriteOlder	7	0
SRV1	Key Management Service	20480	OverwriteAsNeeded	0	0
SRV1	Security	20480	OverwriteAsNeeded	0	30287
SRV1	System	20480	OverwriteAsNeeded	0	7463
SRV1	Windows PowerShell	15360	OverwriteAsNeeded	0	1209
SRV2	Application	20480	OverwriteAsNeeded	0	15885
SRV2	HardwareEvents	20480	OverwriteAsNeeded	0	0
SRV2	Internet Explorer	512	OverwriteOlder	7	0
SRV2	Key Management Service	20480	OverwriteAsNeeded	0	0
SRV2	Security	20480	OverwriteAsNeeded	0	17536
SRV2	System	20480	OverwriteAsNeeded	0	6529
SRV2	Windows PowerShell	15360	OverwriteAsNeeded	0	274

last updated 02/12/2019 20:27:44

You can also have automatically refresh the data.

```
Get-Process | Sort-Object WS -Descending |
Select-Object -first 20 ID,Name,WS,VM,PM,Handles,StartTime |
ConvertTo-WPFGrid -Refresh -timeout 20 -Title "Top Processes"
```

Top Processes

	Id	Name	WS	VM	PM	Handles	StartTime
3092	Memory Compression	1747447808	1814691840	4161536	0	1/30/2019 9:46:01 AM	
16728	Code	745938944	2204812578816	775516160	638	2/12/2019 4:35:06 PM	
1472	dwm	373415936	2205525884928	1036087296	1292	1/30/2019 9:46:01 AM	
11976	slack	361508864	2204708483072	307527680	491	2/12/2019 1:02:50 PM	
6984	Code	248057856	2205164032000	244703232	530	2/12/2019 4:35:06 PM	
12612	thunderbird	232312832	1015586816	324341760	1028	2/12/2019 9:11:11 AM	
2544	brave	202432512	2204164759552	217972736	423	2/12/2019 10:39:54 AM	
13968	slack	187772928	2204290772992	237174784	714	1/30/2019 9:47:14 AM	
14780	SugarSync	183324672	464482304	241012736	1208	1/30/2019 9:46:38 AM	
13972	brave	168230912	2238674284544	302723072	2777	2/7/2019 9:32:50 AM	
3016	powershell	164237312	2204586930176	322105344	1620	2/12/2019 12:32:00 PM	
3844	Code	153067520	2204334030848	159526912	451	2/12/2019 4:35:08 PM	
22104	powershell	140689408	2204716986368	924684288	874	2/12/2019 4:35:10 PM	
2088	ekrn	138780672	2203913326592	122093568	956	1/30/2019 9:46:01 AM	
17264	slack	122294272	2205174013952	131186688	2617	1/30/2019 9:47:04 AM	
7016	sqlservr	120057856	46579154944	637329408	715	1/30/2019 9:46:02 AM	
24040	brave	114626560	2204050501632	137789440	418	2/12/2019 9:37:56 AM	
9996	explorer	109133824	2204844474368	195948544	3396	1/30/2019 9:46:08 AM	
22984	WmiPrvSE	99557376	2204058812416	81039360	1095	2/12/2019 8:18:23 PM	
17964	ONENOTE	98279424	637419520	60428288	1149	2/12/2019 5:49:47 PM	

Last updated 02/12/2019 20:18:47 - refresh in 6 seconds

Note that in v2.4.0 the form layout was modified and may not be reflected in these screen shots.

# Hashtable Tools

## Convert-CommandToHashtable

This command is intended to convert a long PowerShell expression with named parameters into a splatting alternative.

```
PS C:\> Convert-CommandToHashtable -Text "get-eventlog -listlog  
-computername a,b,c,d -erroraction stop"  
  
$paramHash = @{  
    listlog = $True  
    computername = "a","b","c","d"  
    erroraction = "stop"  
}  
  
Get-EventLog @paramHash
```

The idea is that you can copy the output of the command into a script file.

## Convert-HashtableString

This function is similar to `Import-PowerShellDataFile`. But where that command can only process a file, this command will take any hashtable-formatted string and convert it into an actual hashtable.

```
PS C:\> Get-Content c:\work\test.psd1 | Unprotect-CMSMessage |  
Convert-HashtableString  
  
Name          Value  
----          ----  
CreatedBy     BOVINE320\Jeff  
CreatedAt    10/02/2018 21:28:47 UTC  
Computername Think51  
Error           
Completed    True  
Date         10/02/2018 21:29:35 UTC  
Scriptblock   restart-service spooler -force  
CreatedOn    BOVINE320
```

The test.psd1 file is protected as a CMS Message. In this example, the contents are decoded as a string which is then in turn converted into an actual hashtable.

## Convert-HashtableToCode

Use this command to convert a hashtable into its text or string equivalent.

```
PS C:\> $h = @{Name="SRV1";Asset=123454;Location="Omaha"}
PS C:\> Convert-HashtableToCode $h
@{
    Name = 'SRV1'
    Asset = 123454
    Location = 'Omaha'
}
```

Convert a hashtable object to a string equivalent that you can copy into your script.

## ConvertTo-Hashtable

This command will take an object and create a hashtable based on its properties. You can have the hashtable exclude some properties as well as properties that have no value.

```
PS C:\> Get-Process -id $pid | Select-Object name,id,handles,workingset |
ConvertTo-Hashtable

Name          Value
----          -----
WorkingSet    418377728
Name          powershell_ise
Id            3456
Handles       958
```

## Join-Hashtable

This command will combine two hashtables into a single hashtable. Join-Hashtable will test for duplicate keys. If any of the keys from the first, or primary hashtable are found in the secondary hashtable, you will be prompted for which to keep. Or you can use -Force which will always keep the conflicting key from the first hashtable.

```
PS C:\> $a=@{Name="Jeff";Count=3;Color="Green"}
PS C:\> $b=@{Computer="HAL";Enabled=$True;Year=2020;Color="Red"}
PS C:\> Join-Hashtable $a $b
Duplicate key Color
A Green
B Red
Which key do you want to KEEP \[AB\]? A

Name          Value
----          -----
Year          2020
Name          Jeff
Enabled       True
Color         Green
Computer      HAL
Count         3
```

## Rename-Hashtable

This command allows you to rename a key in an existing hashtable or ordered dictionary object.

```
PS C:\> $h = Get-Service Spooler | ConvertTo-Hashtable
```

The hashtable in \$h has Machinename property which can be renamed.

```
PS C:\> Rename-Hashtable -Name h -Key Machinename -NewKey Computername  
-Passthru
```

Name	Value
---	-----
ServiceType	Win32OwnProcess, InteractiveProcess
ServiceName	Spooler
Container	
CanPauseAndContinue	False
RequiredServices	{RPCSS, http}
ServicesDependedOn	{RPCSS, http}
Computername	.
CanStop	True
StartType	Automatic
Site	
ServiceHandle	SafeServiceHandle
DisplayName	Print Spooler
CanShutdown	False
Status	Running
Name	Spooler
DependentServices	{Fax}

# Select Functions

The module contains 2 functions which simplify the use of `Select-Object`. The commands are intended to make it easier to select the first or last X number of objects. The commands include features so that you can sort the incoming objects on a given property first.

## Select-First

Normally, you might run a command with `Select-Object` like this:

```
PS C:\> Get-Process | Select-Object -first 5 -Property WS -Descending
```

Handles	NPM(K)	PM(K)	WS(K)	CPU(s)	Id	SI	ProcessName
696	89	615944	426852	391.97	7352	0	sqlservr
541	78	262532	274576	278.41	6208	8	Code
1015	70	227824	269504	137.39	16484	8	powershell_ise
1578	111	204852	254640	98.58	21332	8	firefox
884	44	221872	245712	249.23	12456	8	googledrivesync

To streamline the process a bit, you can use `Select-First`.

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

Handles	NPM(K)	PM(K)	WS(K)	CPU(s)	Id	SI	ProcessName
696	89	615944	426852	391.97	7352	0	sqlservr
541	78	262532	274576	278.41	6208	8	Code
1015	70	227824	269504	137.39	16484	8	powershell_ise
1578	111	204852	254640	98.58	21332	8	firefox
884	44	221872	245712	249.23	12456	8	googledrivesync

Even better, use the command alias `first`.

```
Get-Process | Sort-Object ws -Descending | first 5
```

## Select-Last

You can perform a similar operating using `Select-Last` or its alias `last`.

```
dir c:\scripts\*.ps1 | Sort-Object lastwritetime | last 10
```

# Time Functions

The module has a couple of date and time-related commands.

## ConvertTo-UTCTime

Convert a local datetime value to universal time. The default is to convert now but you can specify a datetime value.

```
PS C:\> ConvertTo-UTCTime  
Monday, March 4, 2019 5:51:26 PM
```

Convert a datetime that is UTC-5 to universal time.

## ConvertFrom-UTCTime

```
PS C:\> ConvertFrom-UTCTime "3/4/2019 6:00PM"  
Monday, March 4, 2019 1:00:00 PM
```

Convert a universal datetime to the local time.

## Get-MyTimeInfo

Display a group of time settings for a collection of locations. This command is a PowerShell equivalent of a world clock. It will display a datetime value against a collection of locations. You can specify an ordered hashtable of locations and time zones. You can run a command like:

```
[System.TimeZoneInfo]::GetSystemTimeZones() | Out-GridView
```

or

```
Get-TimeZone -listavailable
```

To discover time zone names. Note that the ID is case-sensitive. You can then use the command like this:

```
PS C:\> Get-MyTimeInfo -Locations ([ordered]@{Seattle="Pacific Standard time";  
"New Zealand" = "New Zealand Standard Time"}) -HomeTimeZone  
"central standard time" | Select Now,Home,Seattle,'New Zealand'  
  
Now                  Home                  Seattle                  New Zealand  
---                  ---                  -----                  -----  
3/4/2019 1:18:36 PM 3/4/2019 12:18:36 PM 3/4/2019 10:18:36 AM 3/5/2019 7:18:36 AM
```

This is a handy command when traveling and your laptop is using a locally derived time and you want to see the time in other locations. It is recommended that you set a PSDefaultParameter value for the HomeTimeZone

---

parameter in your PowerShell profile.

## ConvertTo-LocalTime

It can be tricky sometimes to see a time in a foreign location and try to figure out what that time is locally. This command attempts to simplify this process. In addition to the remote time, you need the base UTC offset for the remote location.

```
PS C:\> Get-TimeZone -ListAvailable | Where-Object id -match Hawaii

Id          : Hawaiian Standard Time
DisplayName : (UTC-10:00) Hawaii
StandardName : Hawaiian Standard Time
DaylightName : Hawaiian Daylight Time
BaseUtcOffset : -10:00:00
SupportsDaylightSavingTime : False

PS C:\> ConvertTo-LocalTime "10:00AM" -10:00:00

Thursday, March 14, 2019 4:00:00 PM
```

In this example, the user first determines the UTC offset for Hawaii. Then 10:00AM in say Honolulu, is converted to local time which in this example is in the Eastern Time zone.

## Get-TZList

This command uses a free and publicly available REST API offered by <http://worldtimeapi.org> to get a list of time zone areas. You can get a list of all areas or by geographic location. Use Get-TZData to then retrieve details.

```
PS C:\> Get-TZList Australia
Australia/Adelaide
Australia/Brisbane
Australia/Broken_Hill
Australia/Currie
Australia/Darwin
Australia/Eucla
Australia/Hobart
Australia/Lindeman
Australia/Lord_Howe
Australia/Melbourne
Australia/Perth
Australia/Sydney
```

## Get-TZData

This command also uses the API from worldtimeapi.org to retrieve details about a given time zone area.

PS C:\> Get-TZData Australia/Hobart				
Timezone	Label	Offset	DST	Time
Australia/Hobart	AEDT	11:00:00	True	3/16/2019 3:43:14 AM

The Time value is the current time at the remote location. The command presents a formatted object but you can also get the raw data.

```
PS C:\> Get-TZData Australia/Hobart -Raw

week_number : 11
utc_offset   : +11:00
unixtime     : 1552668285
timezone     : Australia/Hobart
dst_until    : 2019-04-06T16:00:00+00:00
dst_from     : 2018-10-06T16:00:00+00:00
dst          : True
day_of_year  : 75
day_of_week  : 6
datetime     : 2019-03-16T03:44:45.689655+11:00
abbreviation : AEDT
```

## ConvertTo-LexicalTime

When working with timespans or durations in XML files, such as those from scheduled tasks, the format is a little different than what you might expect. The specification is described at <https://www.w3.org/TR/xmlschema-2/#duration>. Use this command to convert a timespan into a lexical format you can use in an XML file where you need to specify a duration.

```
PS C:\> ConvertTo-LexicalTimespan (New-TimeSpan -Days 7 -hours 12)

P7DT12H
```

## ConvertFrom-LexicalTime

Likewise, you might need to convert a lexical value back into a timespan.

```
PS C:\> ConvertFrom-LexicalTimespan P7DT12H
```

```
Days      : 7
Hours     : 12
Minutes   : 0
Seconds   : 0
Milliseconds : 0
Ticks     : 64800000000000
TotalDays  : 7.5
TotalHours : 180
TotalMinutes : 10800
TotalSeconds : 648000
TotalMilliseconds : 64800000
```

These functions were first described at <https://jdhitsolutions.com/blog/powershell/7101/converting-lexical-timespans-with-powershell/>

# Console Utilities

## Out-More

This command provides a PowerShell alternative to the cmd.exe **MORE** command, which doesn't work in the PowerShell ISE. When you have screens of information, you can page it with this function.

```
Get-Service | Out-More
```

Status	Service Name	Description
Running	CertPropSvc	Certificate Propagation
Running	ClickToRunSvc	Microsoft Office Click-to-Run Service
Stopped	ClipSVC	Client License Service (ClipSVC)
Stopped	COMSysApp	COM+ System Application
Running	CoreMessagingRe...	CoreMessaging
Running	cphs	Intel(R) Content Protection HECI Se...
Running	cplspcon	Intel(R) Content Protection HDCP Se...
Running	CryptSvc	Cryptographic Services
Stopped	CscService	Offline Files
Stopped	dbupdate	Dropbox Update Service (dbupdate)
Stopped	dbupdatem	Dropbox Update Service (dbupdatem)
Running	DbxSvc	DbxSvc
Running	DcomLaunch	DCOM Server Process Launcher
Stopped	debugregsvc	debugregsvc
Stopped	defragsvc	Optimize drives
Stopped	DeveloperToolsS...	Developer Tools Service
Running	DeviceAssociati...	Device Association Service
Stopped	DeviceInstall	Device Install Service
Stopped	DevicesFlowUser...	DevicesFlowUserService_44fb1
Stopped	DevQueryBroker	DevQuery Background Discovery Broker
Running	Dhcp	DHCP Client
Stopped	diagnosticshub....	Microsoft (R) Diagnostics Hub Stand...
Stopped	diagsvc	Diagnostic Execution Service
Running	DiagTrack	Connected User Experiences and Tele...
Stopped	DmEnrollmentSvc	Device Management Enrollment Service
Stopped	dmwappushservice	dmwappushsvc
Running	Dnscache	DNS Client

This also works in PowerShell Core.

## Out-ConditionalColor

This command is designed to take pipeline input and display it in a colorized format, based on a set of conditions. Unlike `Write-Host` which doesn't write to the pipeline, this command will write to the pipeline. You can use a simple hashtable to define a color if the given property matches the hashtable key.

```
Windows PowerShell 5.1.16299
PS C:\> PS C:\> Get-Service | Out-ConditionalColor -PropertyConditions @{{Stopped="magenta"} } -property Status

Status      Name          DisplayName
----      Name          DisplayName
Stopped    AdobeFlashPlaye... Adobe Flash Player Update Service
Stopped    AJRouter       AllJoyn Router Service
Stopped    ALG           Application Layer Gateway Service
Stopped    AppIDSvc      Application Identity
Running    Appinfo        Application Information
Running    AppMgmt        Application Management
Stopped    AppReadiness   App Readiness
Stopped    AppVClient    Microsoft App-V Client
Stopped    AppXSvc       AppX Deployment Service (AppXSVC)
Stopped    AssignedAccessM... AssignedAccessManager Service
Running    AudioEndpointBu... Windows Audio Endpoint Builder
Running    Audiosrv       Windows Audio
Stopped    AxInstSV      ActiveX Installer (AxInstSV)
Stopped    BDEsvc        BitLocker Drive Encryption Service
Running    BFE            Base Filtering Engine
Running    BITS           Background Intelligent Transfer Ser...
Stopped    BoxSyncUpdateSe... Box Sync Update Service
Running    BrokerInfrastru... Background Tasks Infrastructure Ser...
Stopped    BthHFSrv      Bluetooth Handsfree Service
Running    bthserv        Bluetooth Support Service
Stopped    camsvc         Capability Access Manager Service
Running    CDPSvc         Connected Devices Platform Service
```

Or you can specify an ordered hashtable for more complex processing.

```
Windows PowerShell 5.1.16299
PS C:\> $h=[ordered]@{
>> {$psitem.ws -gt 500mb}='red'
>> {$psitem.ws -gt 300mb}='yellow'
>> {$psitem.ws -gt 200mb}='cyan'
>>
PS C:\> get-process | sort ws -descending | Out-ConditionalColor -Conditions $h

Handles  NPM(K)    PM(K)      WS(K)      CPU(s)      Id  SI  ProcessName
----  NPM(K)    PM(K)      WS(K)      CPU(s)      Id  SI  ProcessName
      907      69  596376    579476     64.70  15576  2 powershell
      775     147  638696    496924    988.75  10892  2 firefox
      732      94  672056    450124    406.59  6548  0 sqlservr
      987     143  482196    391804  1,661.95  14824  2 firefox
     1568     145  340752    376272  1,037.64  800  2 firefox
     2740     101  370604    336400     44.22  26280  2 Microsoft.Photos
      610      71  278152    304764     44.42  13828  2 firefox
      537     104  283060    297924    142.77  22156  2 firefox
      565      85  251944    282352    418.81  24148  2 Code
     3411     156  329504    277424     87.31  14412  2 SnagitEditor
      475      64  189656    224372   164.09  12812  2 slack
      483      66  196240    203720    338.50  9464  2 slack
     1075     123  200904    183272     10.33  23168  2 Snagit32
      468      62  178908    180276    215.70  18300  2 slack
     1062      57  186472    177460   3,327.45  13316  2 SugarSync
      465      62  174072    171168    232.03  18628  2 slack
      455      61  170240    168932     35.80  20420  2 slack
      438      60  171432    168016    276.92  23188  2 slack
      454      61  168456    167448    133.80   340  2 slack
```

This command doesn't always work depending on the type of object you pipe to it. The problem appears to be related to the formatting system. Development and testing is ongoing.

## Set-ConsoleTitle

Set the title bar of the current PowerShell console window.

```
if ($Test-IsAdministrator) {  
    Set-ConsoleTitle "Administrator: $($PSVersionTable.PSVersion)"  
}
```

## Set-ConsoleColor

Configure the foreground or background color of the current PowerShell console window. Note that if you are running the PSReadline module, this command won't work. You should use `Set-PSReadlineOption` or similar command to configure your session settings.

```
Set-ConsoleColor -background DarkGray -foreground Yellow
```

## Add-Border

This command will create a character or text-based border around a line of text. You might use this to create a formatted text report or to improve the display of information to the screen.

```
PS C:\> Add-Border $env:computername  
  
*****  
* COWPC *  
*****
```

Starting in v2.23.0 you can also use ANSI escape sequences to color the text and/or the border.

```
PS C:\> add-border -Text "Today is a good day for PowerShell" -ANSIBorder ``e[38;5;47m" -ANSIText ``e[93m"  
  
*****  
* Today is a good day for PowerShell *  
*****  
PS C:\> _
```

```
$params =@{  
    textblock = (Get-PSWho |AsString ).trim()  
    ANSIBorder = ``e[38;5;214m"  
    Character = ([char]0x25CA)  
    ANSIText = ``e[38;5;225m"  
}  
Add-Border @params
```

PS C:\> Add-Border @params

PS C:\>

# Show-Tree

Shows the specified path as a graphical tree in the console. This is intended as a PowerShell alternative to the tree DOS command. This function should work for any type of PowerShell provider and can be used to explore providers used for configuration like the WSMAN provider or the registry. By default, the output will only show directory or equivalent structures. But you can opt to include items well as item details.

```
Administrator: C:\Program Files\PowerShell\6\pwsh.exe
PS C:\> show-tree c:\work
C:\work
+-A
| \--B
|   \--C
+--dnssuffix
| +-docs
| +-en-us
| \--images
+--gpo
| +--{65D9E940-AAD4-4508-A199-86EAE4E9E535}
|   \--DomainSysvol
|     \--GPO
|       +-Machine
|         +-Applications
|         +-microsoft
|           \--windows_nt
|             \--SecEdit
|           +-Preferences
|             +-Folders
|               \--NetworkShares
|             \--Scripts
|               +-Shutdown
|               \--Startup
|             \--User
|             \--{7E7F01CE-6889-44B0-9D03-818F8284EDE0}
|               \--DomainSysvol
|                 \--GPO
|                   +-Machine
|                     +-Applications
```

If you are running PowerShell 7 and specifying a file system path, you can display the tree in a colorized format by using the `-InColor` dynamic parameter.

```
PS C:\> pstree c:\work\alpha -ShowItem -InColor
C:\work\alpha
+--bravo
|   +--delta
|   |   +--FunctionDemo.ps1
|   |   +--function-form.ps1
|   |   +--function-logstamp.ps1
|   |   +--FunctionNotes.ps1
|   |   \--Function-SwitchTest.ps1
|   +--gamma
|   |   \--x.txt
|   +--images
|   |   +--wpfbox-1.png
|   |   +--wpfbox-2.png
|   |   +--wpfgrid.png
|   |   \--wpfgrid2.png
|   +--data.txt
|   +--sample-1.json
|   +--sample-2.json
|   +--sample-3.json
|   +--sample-4.json
|   \--something2.xml
+--documents-log.csv
+--dropbox-log.csv
+--GoogleDrive-log.csv
+--junk.txt
+--Scripts-log.csv
+--stuff.tmp
\--test.data
PS C:\>
```

Beginning with v2.21.0, this command uses ANSI Color schemes from a JSON file. You can customize the file if you wish. See the [PSAnsiMap](#) section of this README.

This command has an alias of `pstree`.

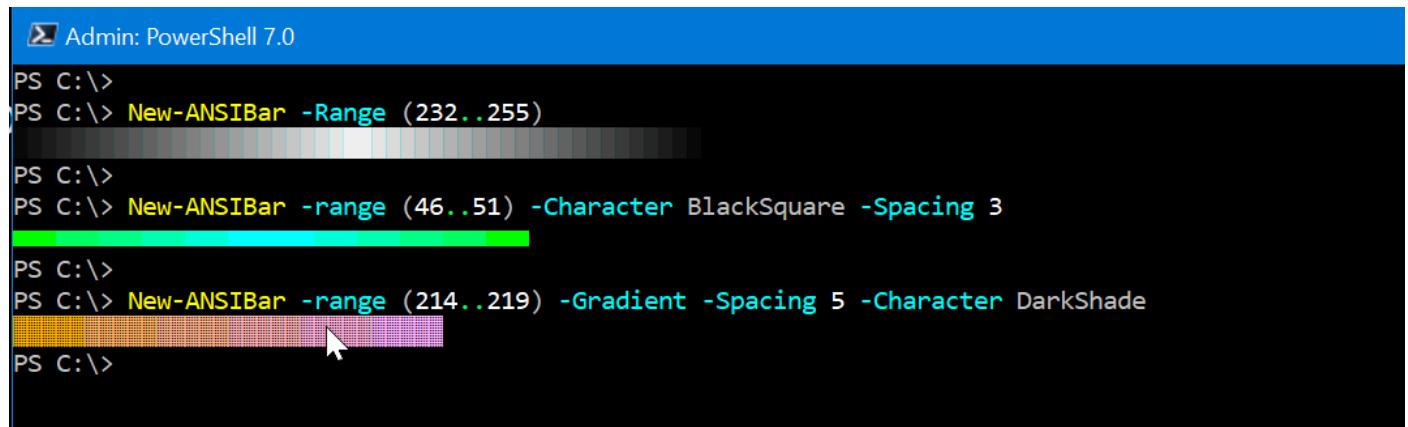
```
PS C:\> pstree c:\work\alpha -files -properties LastWriteTime,Length

C:\work\Alpha\
+-- LastWriteTime = 02/28/2020 11:19:32
+--bravo
|   +-- LastWriteTime = 02/28/2020 11:20:30
|   +--delta
|   |   +-- LastWriteTime = 02/28/2020 11:17:35
|   |   +--FunctionDemo.ps1
|   |   |   +-- Length = 888
|   |   |   \-- LastWriteTime = 06/01/2009 15:50:47
|   |   +--function-form.ps1
|   |   |   +-- Length = 1117
|   |   |   \-- LastWriteTime = 04/17/2019 17:18:28
|   |   +--function-logstamp.ps1
|   |   |   +-- Length = 598
|   |   |   \-- LastWriteTime = 05/23/2007 11:39:55
|   |   +--FunctionNotes.ps1
|   |   |   +-- Length = 617
|   |   |   \-- LastWriteTime = 02/24/2016 08:59:03
|   |   \--Function-SwitchTest.ps1
|   |       +-- Length = 242
|   |       \-- LastWriteTime = 06/09/2008 15:55:44
|   +--gamma
...
...
```

This example is using parameter and command aliases. You can display a tree listing with files including user-specified properties. Use a value of \* to show all properties.

## New-ANSIBar

You can use this command to create colorful bars using ANSI escape sequences based on a 256 color scheme. The default behavior is to create a gradient bar that goes from first to last values in the range and then back down again. Or you can create a single gradient that runs from the beginning of the range to the end. You can use one of the default characters or specify a custom one.



```
PS C:\>
PS C:\> New-ANSIBar -Range (232..255)
PS C:\>
PS C:\> New-ANSIBar -range (46..51) -Character BlackSquare -Spacing 3
PS C:\>
PS C:\> New-ANSIBar -range (214..219) -Gradient -Spacing 5 -Character DarkShade
PS C:\>
```

## New-RedGreenGradient

A related command is `New-RedGreenGradient` which displays a bar going from red to green. This might be handy when you want to present a visual indicator.

```
PS C:\> Admin: PowerShell 7.0
PS C:\> New-RedGreenGradient -Percent .75

PS C:\> Get-Volume | Where-Object {$_.FileSystemType -eq 'NTFS' -AND $_.DriveLetter -match "[C-Zc-z]"} |
>> Sort-Object -Property DriveLetter |
>> Select-Object -Property DriveLetter, FileSystemLabel,
>> @{Name="FreeGB"; Expression={Format-Value -Input $_.SizeRemaining -Unit GB}},
>> @{Name = "PctFree"; Expression = {$pct = Format-Percent -Value $_.SizeRemaining -Total $_.Size -Decimal 2;
>> "{1} {0}" -f $(New-RedGreenGradient -Percent ($pct/100) -Step 6), $pct}}
DriveLetter FileSystemLabel FreeGB PctFree
-----
C Windows          87 36.86 
D Data             102 21.37
PS C:\>
```

## Write-ANSIProgress

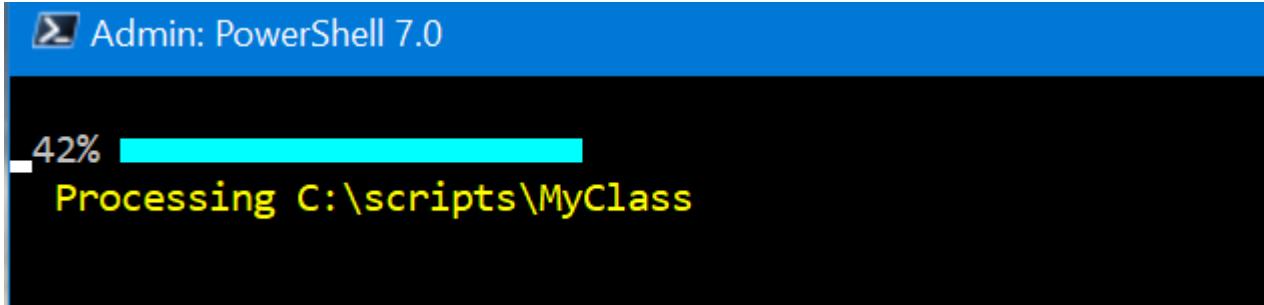
You could also use Write-ANSIProgress to show a custom ANSI bar.

```
PS C:\> Admin: PowerShell 7.0
PS C:\> Write-ANSIProgress -PercentComplete .78 -BarSymbol Circle -ProgressColor "$([char]0x1b)[92m"
78% 
PS C:\>
PS C:\> ■

PS C:\> Get-CimInstance Win32_Operatingsystem |
>> Select-Object @{@Name = "MemGB"; Expression = {$_._TotalVisibleMemorySize/1MB -as [int]}},
>> FreePhysicalMemory,
>> @{Name = "PctFree"; Expression = { $pct = $([math]::round($_.FreePhysicalMemory/$_.TotalVisibleMemorySize, 2));
>> Write-ANSIProgress -PercentComplete $pct | Select-Object -Last 1}}
MemGB FreePhysicalMemory PctFree
-----
32           14687996  44% 
PS C:\>
```

Or you can use it in your code to display a console progress bar.

```
$sb = {
    Clear-Host
    $top = Get-ChildItem c:\scripts -Directory
    $i = 0
    $out=@()
    $pos = $host.ui.RawUICursorPosition
    Foreach ($item in $top) {
        $i++
        $pct = [math]::round($i/$top.Count,2)
        Write-ANSIProgress -PercentComplete $pct -position $pos
        Write-Host " Processing $($item.FullName).PadRight(80))"
        -ForegroundColor Yellow -NoNewline
        $out+= Get-ChildItem -path $item -Recurse -file |
            Measure-Object -Property Length -Sum |
            Select-Object @{Name="Path";Expression={$item.FullName}},Count,
            @{Name="Size";Expression={$_.Sum}}
    }
    Write-Host ""
    $out | Sort-Object -Property Size -Descending
}
```



The screenshot shows a PowerShell window titled 'Admin: PowerShell 7.0'. In the top left corner, there is a small icon. The title bar contains the text 'Admin: PowerShell 7.0'. The main content area displays the following text:

```
42% ██████████
Processing C:\scripts\ MyClass
```

The progress bar is approximately 42% complete, indicated by the text '42%' and a blue progress bar. Below the progress bar, the text 'Processing C:\scripts\ MyClass' is displayed in yellow.

# Format Functions

A set of simple commands to make it easier to format values.

## Format-Percent

Treat a value as a percentage. This will write a [double] and not include the % sign.

```
PS C:\> Format-Percent -Value 123.5646MB -total 1GB -Decimal 4
12.0669
```

## Format-String

Use this command to perform one of several string manipulation "tricks".

```
PS C:\> Format-String "powershell" -Reverse -Case Proper
Llehsrewop
PS C:\> Format-String PowerShell -Randomize
wSlhoeepIrl
PS C:\> Format-String "!MySecretPWord" -Randomize
-Replace @{S="$";e=&{Get-Random -min 1 -max 9};o="^"} -Reverse
yr7!^7WcMtr$Pd
```

## Format-Value

This command will format a given numeric value. By default it will treat the number as an integer. Or you can specify a certain number of decimal places. The command will also allow you to format the value in KB, MB, etc.

```
PS C:\> Format-Value 1235465676 -Unit kb
1206509
PS C:\> Format-Value 123.45 -AsCurrency
$123.45
PS C:\> (Get-Process | measure-object ws -sum).sum |
Format-Value -Unit mb | Format-Value -AsNumber
9,437
```

Or pull it all together:

```
Get-CimInstance win32_operatingsystem |
Select-Object @{Name = "TotalMemGB";
Expression={Format-Value $_.TotalVisibleMemorySize -Unit mb}},
@{Name="FreeMemGB";
Expression={Format-Value $_.FreePhysicalMemory -unit mb -Decimal 2}},
@{Name="PctFree";
Expression={Format-Percent -Value $_.FreePhysicalMemory / Total $_.totalVisibleMemorySize -Decimal 2}}
```

TotalMemGB	FreeMemGB	PctFree
32	14.05	44.06

# Scripting Tools

## Test-Expression

The primary command can be used to test a PowerShell expression or scriptblock for a specified number of times and calculate the average runtime, in milliseconds, over all the tests.

### Why

When you run a single test with `Measure-Command` the result might be affected by any number of factors. Likewise, running multiple tests may also be influenced by things such as caching. The goal in this module is to provide a test framework where you can run a test repeatedly with either a static or random interval between each test. The results are aggregated and analyzed. Hopefully, this will provide a more meaningful or realistic result.

### Examples

The output will also show the median and trimmed values as well as some metadata about the current PowerShell session.

```
PS C:\> $cred = Get-credential globomantics\administrator
PS C:\> Test-Expression {
    param($cred)
    Get-WmiObject win32_logicaldisk -computer chi-dc01 -credential $cred
} -argumentList $cred

Tests      : 1
TestInterval : 0.5
AverageMS   : 1990.6779
MinimumMS    : 1990.6779
MaximumMS    : 1990.6779
MedianMS     : 1990.6779
TrimmedMS    :
PSVersion   : 5.1.17763.134
OS          : Microsoft Windows 10 Pro
```

You can also run multiple tests with random time intervals.

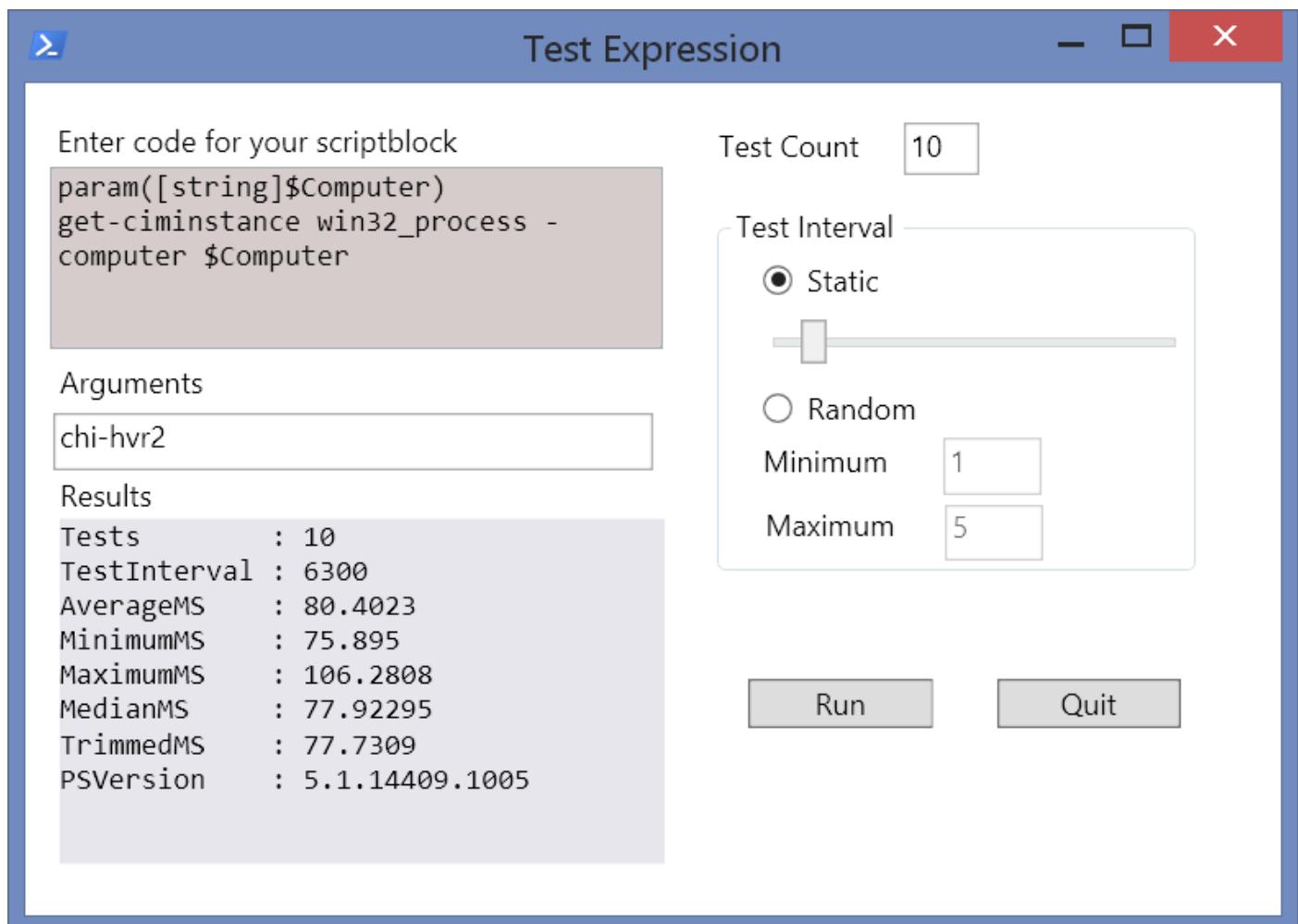
```
PS C:\>Test-Expression {
    param([string[]]$Names)
    Get-Service $names
} -count 5 -IncludeExpression -argumentlist @('bits','wuauserv','winrm') ` 
-RandomMinimum .5 -RandomMaximum 5.5

Tests      : 5
TestInterval : Random
AverageMS   : 1.91406
MinimumMS   : 0.4657
MaximumMS   : 7.5746
MedianMS    : 0.4806
TrimmedMS   : 0.51
PSVersion   : 5.1.17763.134
OS          : Microsoft Windows 10 Pro
Expression   : param([string[]]$Names) Get-Service $names
Arguments    : {bits, wuauserv, winrm}
```

For very long-running tests, you can run them as a background job.

## Graphical Testing

The module also includes a graphical command called `Test-ExpressionForm`. This is intended to serve as both an entry and results form.



When you quit the form the last result will be written to the pipeline including all metadata, the scriptblock and any arguments.

## Copy-HelpExample

This command is designed to make it (slightly) easier to copy code snippets from help examples. Specify the name of a function or cmdlet, presumably one with documented help examples, and you will be offered a selection of code snippets to copy to the clipboard. Code snippets have been trimmed of blank lines, most prompts, and comments. Many examples include command output. You will have to manually remove what you don't want after pasting.

The default behavior is to use a console-based menu which works cross-platform.

```
Administrator: Windows PowerShell 5.1.19041
PS C:\> Copy-HelpExample Stop-Service

Code Samples

Each help example is numbered to the left. At the prompt below,
select the code samples you want to copy to the clipboard. Separate
multiple values with a comma.

Some example code includes the output.

[1] Example 1: Stop a service on the local computer
    Stop-Service -Name "sysmonlog"

[2] Example 2: Stop a service by using the display name
    Get-Service -DisplayName "telnet" | Stop-Service

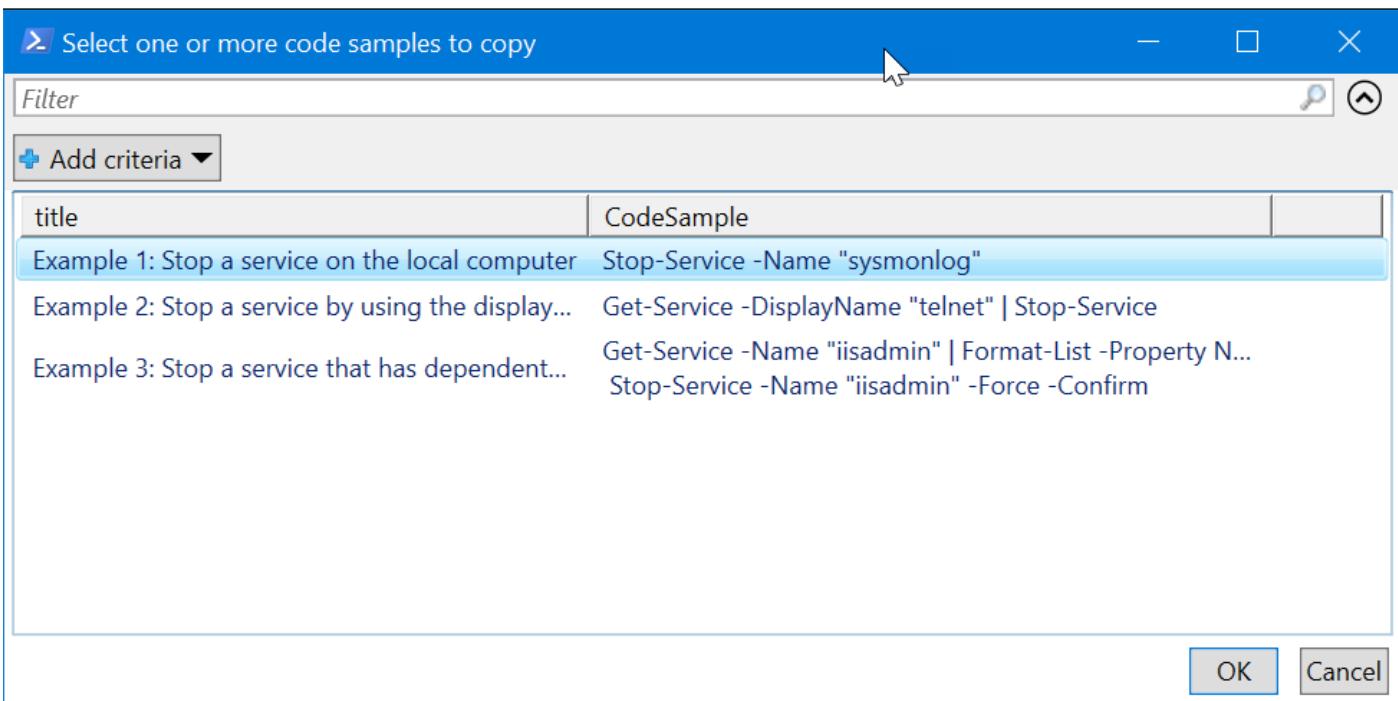
[3] Example 3: Stop a service that has dependent services
    Get-Service -Name "iisadmin" | Format-List -Property Name, DependentServices
    Stop-Service -Name "iisadmin" -Force -Confirm

Please select items to copy to the clipboard by number. Separate multiple entries with a comma. Press Enter alone to cancel:
```

Enter the number of the code to copy to the clipboard. Enter multiple numbers separated by commas.

If you are running a Windows platform there is a dynamic help parameter to use Out-GridView.

```
Copy-HelpExample Stop-Service -UseGridView
```



If you are running this in the PowerShell ISE, this is the default behavior even if you don't specify the `-Code` parameter.

## Get-GitSize

Use this command to determine how much space the hidden `.git` folder is consuming.

```
PS C:\scripts\PSScriptTools> Get-GitSize

Path          Files      SizeKB
---          ----      -----
C:\scripts\PSScriptTools    751      6859.9834
```

This is the default, formatted view. The object has other properties you can use.

```
Name      : PSScriptTools
Path      : C:\scripts\PSScriptTools
Files     : 751
Size      : 7024623
Date      : 3/5/2020 2:57:06 PM
Computername : BOVINE320
```

## Remove-MergedBranch

When using `git` you may create a number of branches. Presumably you merge these branches into the main or master branch. You can use this command to remove all merged branches other than `master` and the current branch. You must be in the root of your project to run this command.

```
PS C:\MyProject> Remove-MergedBranch

Remove merged branch from MyProject?
2.1.1
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): n

Remove merged branch from MyProject?
dev1
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): y
Deleted branch dev1 (was 75f6ab8).

Remove merged branch from MyProject?
dev2
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): y
Deleted branch dev2 (was 75f6ab8).

Remove merged branch from MyProject?
patch-254
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): n

PS C:\MyProject>
```

By default you will be prompted to remove each branch.

## Test-WithCulture

When writing PowerShell commands, sometimes the culture you are running under becomes critical. For example, European countries use a different datetime format than North Americans which might present a problem with your script or command. Unless you have a separate computer running under the foreign culture, it is difficult to test. This command will allow you to test a scriptblock or even a file under a different culture, such as DE-DE for German.

```
PS C:\> Test-WithCulture fr-fr -Scriptblock {
    Get-winEvent -log system -max 500 |
    Select-Object -Property TimeCreated,ID,OpCodeDisplayname,Message |
    Sort-Object -property TimeCreated |
    Group-Object {$_.TimeCreated.ToShortDateString()} -NoElement}

Count Name
----- ----
165 10/07/2019
249 11/07/2019
17 12/07/2019
16 13/07/2019
20 14/07/2019
26 15/07/2019
7 16/07/2019
```

## Copy-Command

This command will copy a PowerShell command, including parameters and help to a new user-specified command. You can use this to create a "wrapper" function or to easily create a proxy function. The default behavior is to create a copy of the command complete with the original comment-based help block.

## Get-ParameterInfo

Using `Get-Command`, this function will return information about parameters for any loaded cmdlet or function. The common parameters like `Verbose` and `ErrorAction` are omitted. `Get-ParameterInfo` returns a custom object with the most useful information an administrator might need to know. The custom object includes default format views for a list and table.

```
PS C:\> Get-ParameterInfo Test-WSMan | Sort ParameterSet | Format-Table
```

ParameterSet: __AllParameterSets				
Name	Aliases	Mandatory	Position	Type
CertificateThumbprint		False	Named	System.String
Credential	cred,c	False	Named	System.Management.Automation.PSCredential
ComputerName	cn	False	0	System.String
Authentication	auth,am	False	Named	Microsoft.WSMan.Management.AuthenticationMechanism

ParameterSet: ComputerName				
Name	Aliases	Mandatory	Position	Type
UseSSL		False	Named	System.Management.Automation.SwitchParameter
Port		False	Named	System.Int32
ApplicationName		False	Named	System.String

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

```
PS C:\> Get-ParameterInfo -Command Get-Counter -Parameter computername
```

ParameterSet: __AllParameterSets	
Name	: computername
Aliases	: Cn
Mandatory	: False
IsDynamic	: False
Position	: Named
Type	: System.String[]
ValueFromPipeline	: False
ValueFromPipelineByPropertyName	: False

## New-PSFormatXML

When defining custom objects with a new typename, PowerShell by default will display all properties. However, you may wish to have a specific default view, be it a table or list. Or you may want to have different views display the object differently. Format directives are stored in `format.ps1xml` files which can be tedious to create. This command simplifies that process.

Define a custom object:

```
$tname = "myThing"
$obj = [PSCustomObject]@{
    PSTypeName      = $tname
    Name            = "Jeff"
    Date            = (Get-Date)
    Computername   = $env:computername
    OS              = (gcim win32_operatingsystem | Select-Object -Property Caption).Caption
}
$upParams = @{
    TypeName        = $tname
    MemberType      = "ScriptProperty"
    MemberName      = "Runtime"
    value           = {(Get-Date) - [datetime]"1/1/2019"}
    force           = $True
}
Update-TypeData @upParams
```

The custom object looks like this by default:

```
PS C:\> $obj
Name      : Jeff
Date      : 2/10/2019 8:49:10 PM
Computername : BOVINE320
OS        : Microsoft Windows 10 Pro
Runtime    : 40.20:49:43.9205882
```

Now you can create new formatting directives.

```
$tname = "myThing"
$params = @{
    Properties = "Name", "Date", "Computername", "OS"
    FormatType = "Table"
    Path       = "C:\scripts\$tname.format.ps1xml"
}
$obj | New-PSFormatXML @params

$params.Properties= "Name", "OS", "Runtime"
$params.Add("Viewname", "runtime")
$params.Add(append,$True)
$obj | New-PSFormatXML @params

$params.formatType = "list"
$params.remove("Properties")
$obj | New-PSFormatXML @params

Update-FormatData -appendpath $params.path
```

And here is what the object looks like now:

```
PS C:\> $obj

Name Date Computername Operating System
----- -----
Jeff 2/10/2019 8:49:10 PM BOVINE320 Microsoft Windows 10 Pro

PS C:\> $obj | Format-Table -View runtime

Name OS Runtime
----- -----
Jeff 40.20:56:24.5411481

PS C:\> $obj | Format-List

Name : Jeff
Date : Sunday, February 10, 2019
Computername : BOVINE320
OperatingSystem : Microsoft Windows 10 Pro
Runtime : 40.21:12:01
```

If you run this command from Visual Studio Code and specify `-Passthru`, the resulting file will be opened in your editor.

## Test-IsPSWindows

PowerShell Core introduced the `$IsWindows` variable. However it is not available on Windows PowerShell. Use this command to perform a simple test if the computer is either running Windows or using the Desktop PSEdition. The command returns `True` or `False`.

## Write-Detail

This command is designed to be used within your functions and scripts to make it easier to write a detailed message that you can use as verbose output. The assumption is that you are using an advanced function with a `Begin`, `Process` and `End` scriptblocks. You can create a detailed message to indicate what part of the code is being executed. The output can be configured to include a datetime stamp or just the time.

```
PS C:\> write-detail "Getting file information" -Prefix Process -Date
9/15/2018 11:42:43 [PROCESS] Getting file information
```

In a script you might use it like this:

```
Begin {
    Write-Detail "Starting $($myinvocation.mycommand)" -Prefix begin -time |
    Write-Verbose
    $tabs = "`t" * $tab
    Write-Detail "Using a tab of $tab" -Prefix BEGIN -time | Write-Verbose
} #begin
```

## Save-GitSetup

This command is intended for Windows users to easily download the latest 64bit version of Git.

```
PS C:\> Save-GitSetup -Path c:\work -Passthru

Directory: C:\work

Mode          LastWriteTime      Length Name
----          -----          ----  --
-a--  1/23/2020 4:31 PM    46476880 Git-2.25.0-64-bit.exe
```

You will need to manually install the file.

## Other

From time to time I will include additional items that you might find useful. One item that you get when you import this module is a custom format.ps1xml file for services. You can run `Get-Service` and pipe it to the table view.

```
Get-Service | Format-Table -view ansi
```

This will display the service status color-coded.

Stopped	WFDSConMgrSvc	Wi-Fi Direct Services Connection Manager ...
Stopped	WiaRpc	Still Image Acquisition Events
Stopped	WinDefend	Windows Defender Antivirus Service
Running	WinHttpAutoProxyS...	WinHTTP Web Proxy Auto-Discovery Service
Paused	Winmgmt	Windows Management Instrumentation
Running	WinRM	Windows Remote Management (WS-Management)
Stopped	wisvc	Windows Insider Service
Running	WlanSvc	WLAN AutoConfig
Stopped	wlidsvc	Microsoft Account Sign-in Assistant
Stopped	wlpasvc	Local Profile Assistant Service
Stopped	WManSvc	Windows Management Service
Stopped	wmiApSrv	WMI Performance Adapter
Stopped	wMPNetworkSvc	Windows Media Player Network Sharing Serv...
Stopped	workfolderssvc	Work Folders
Stopped	WpcMonSvc	Parental Controls
Stopped	WPDBusEnum	Portable Device Enumerator Service
Running	WpnService	Windows Push Notifications System Service
Running	WpnUserService_d9...	Windows Push Notifications User Service_d...
Running	wscsvc	Security Center
Running	WSearch	Windows Search

This will not work in the PowerShell ISE as it is not ANSI-aware.

## PSAnsiMap

I have done something similar for output from `Get-ChildItem`. The module includes a JSON file that is exported as a global variable called `PSAnsiFileMap`.

```
PS C:\> $PSAnsiFileMap
```

Description	Pattern	Ansi
PowerShell	\.ps(d m)?\$	----
Text	\.(txt) (md) (log)\$	
DataFile	\.(json) (xml) (csv)\$	
Executable	\.(exe) (bat) (cmd) (sh)\$	
Graphics	\.(jpg) (png) (gif) (bmp) (jpeg)\$	
Media	\.(mp3) (m4v) (wav) (au) (flac) (mp4)\$	
Archive	\.(zip) (rar) (tar) (gzip)\$	
TopContainer		
ChildContainer		

The map includes ANSI settings for different file types. You won't see the ANSI value in the output. The module will add a custom table view called `ansi` which you can use to display file results colorized in PowerShell 7.

PS C:\> dir c:\work\alpha -Recurse | format-table -view ansi

Directory: C:\work\Alpha

Mode	LastWriteTime	Length	Name
-da--	3/5/2020 4:46 PM	12109	bravo
-a---	11/8/2019 3:29 PM	12109	documents-log.csv
-a---	11/9/2019 9:00 AM	30335	dropbox-log.csv
-a---	11/9/2019 1:00 AM	671	GoogleDrive-log.csv
-a---	10/31/2019 1:42 PM	45	junk.txt
-a---	11/9/2019 9:03 AM	166435	Scripts-log.csv
-a---	11/10/2019 4:32 PM	2673	stuff.tmp
-a---	11/10/2019 12:49 PM	43	test.data

Directory: C:\work\Alpha\bravo

Mode	LastWriteTime	Length	Name
-d---	2/28/2020 11:17 AM		delta
da---	11/6/2017 4:21 PM		gamma
d---	2/28/2020 11:16 AM		images
-a---	11/6/2017 4:47 PM	636	data.txt
-a---	11/7/2019 10:32 AM	131	sample-1.json
-a---	11/7/2019 10:32 AM	131	sample-2.json
-a---	11/7/2019 10:32 AM	131	sample-3.json
-a---	11/7/2019 10:32 AM	131	sample-4.json
-a---	10/31/2019 5:25 PM	5769412	something2.xml
-a---	3/5/2020 4:46 PM	0	zz.foo

Directory: C:\work\Alpha\bravo\delta

Mode	LastWriteTime	Length	Name
-a---	6/1/2009 3:50 PM	888	FunctionDemo.ps1
-a---	4/17/2019 5:18 PM	1117	function-form.ps1
-a---	5/23/2007 11:39 AM	598	function-logstamp.ps1

The mapping file is user-customizable. Copy the `psansifilemap.json` file from the module's root directory to `$HOME`. When you import this module, if the file is found, it will be imported and used as `psansifilemap`, otherwise the module's file will be used.

The file will look like this:

```
[
  {
    "Description": "PowerShell",
    "Pattern": "\\.ps(d|m)?1$",
    "Ansi": "\u001b[38;2;252;127;12m"
  },
  {
    "Description": "Text",
    "Pattern": "\\.(txt)|(md)|(log)$",
    "Ansi": "\u001b[38;2;58;120;255m"
  },
  {
    "Description": "DataFile",
    "Pattern": "\\.(json)|(xml)|(csv)$",
    "Ansi": "\u001b[38;2;249;241;165m"
  },
  {
    "Description": "Executable",
    "Pattern": "\\.(exe)|(bat)|(cmd)|(sh)$",
    "Ansi": "\u001b[38;2;197;15;31m"
  },
  {
    "Description": "Graphics",
    "Pattern": "\\.(jpg)|(png)|(gif)|(bmp)|(jpeg)$",
    "Ansi": "\u001b[38;2;255;0;255m"
  },
  {
    "Description": "Media",
    "Pattern": "\\.(mp3)|(m4v)|(wav)|(au)|(flac)|(mp4)$",
    "Ansi": "\u001b[38;2;255;199;6m"
  },
  {
    "Description": "Archive",
    "Pattern": "\\.(zip)|(rar)|(tar)|(gzip)$",
    "Ansi": "\u001b[38;2;118;38;113m"
  },
  {
    "Description": "TopContainer",
    "Pattern": "",
    "Ansi": "\u001b[38;2;0;255;255m"
  },
  {
    "Description": "ChildContainer",
    "Pattern": "",
    "Ansi": "\u001b[38;2;255;255;0m"
  }
]
```

You can create or modify file groups. The Pattern value should be a regular expression pattern to match on the filename. Don't forget you will need to escape characters for the JSON format. The Ansi value will be an ANSI escape sequence. You can use \u001b for the `e character.

## PSSpecialChar

A number of the commands in this module can use special characters. To make it easier, when you import the module it will create a global variable that is a hash table of common special characters. Because it is a hashtable you can add ones you also use.

```
PS C:\> $PSSpecialChar
```

Name	Value
MediumShade	■
FullBlock	□
whiteSquare	◆
Heart	★
DarkShade	☆
SixPointStar	♠
Spade	○
whiteCircle	■
LightShade	▼
BlackSquare	■
DownTriangle	■
BlackSmallSquare	□
whiteSmallSquare	◊
Diamond	◊
whiteFace	☺
UpTriangle	▲
BlackFace	☺
Lozenge	◊
Club	♣
BlackCircle	●

```
PS C:\> $PSSpecialChar.blackcircle
```

```
•
```

```
PS C:\> $PSSpecialChar.blackcircle -as [int]
```

```
9679
```

```
PS C:\> [char]9679
```

```
•
```

```
PS C:\> ■
```

The names are the same as used in CharMap.exe. Don't let the naming confuse you. It may say BlackSquare

but the color will depend on how you use it.

```
Get-WindowsVersionString |  
Add-Border -border $PSSpecialChar.BlackSmallSquare █  
-ANSIBorder "$([char]0x1b)[38;5;214m"
```

```
PS C:\>  
PS C:\> Get-WindowsVersionString | Add-Border -border $PSSpecialChar.BlackSmallSquare -ANSIBorder "$([char]0x1b)[38;5;214m"  
4m"  
-----  
▪ BOVINE320 Windows 10 Pro Version Professional (OS Build 18363.836) ▪  
-----  
PS C:\>
```

## Sample Scripts

This PowerShell module contains a number of functions you might use to enhance your own functions and scripts. The [Samples](#) folder contains demonstration script files. You can access the folder in PowerShell using the `$PSSamplePath`.

```
dir $pssamplepath
```

The samples provide suggestions on how you might use some of the commands in this module. The scripts are offered AS-IS and are for demonstration purposes only.

```
PS C:\> . $PSSamplePath\ProcessPercent.ps1
```

Name	Id	Handles	WS(MB)	PctWS	
TabNine	35188	293	1384	10.73	███████████████████
Memory Compression	3044	0	1249	09.69	███████████████████
firefox	18936	1630	798	06.18	███████████████████
LenovoVantageService	5724	1273	784	06.08	███████████████████
dwm	1532	2835	382	02.96	██████
firefox	18368	3187	349	02.71	██████
firefox	21912	1573	338	02.62	██████
pwsh	25220	1183	311	02.41	██████
thunderbird	23268	2032	247	01.91	██████
powershell_ise	4896	946	244	01.89	██████
firefox	28208	901	224	01.74	██████
Code	34948	598	213	01.65	██████
powershell	24608	917	209	01.62	██████
pwsh	21864	1219	203	01.57	██████

## Open-PSScriptToolsHelp

I've created a PDF version of this document which I thought you might find useful since it includes screen shots and sample output rendered nicer than what you can get in PowerShell help. Run this to open the PDF using your default associated application.

---

[Open-PSScriptToolsHelp](#)

---

---

## Other Modules

If you find this module useful, you might also want to look at my PowerShell tools for:

- [Creating and managing custom type extensions](#)
- [Managing scheduled jobs](#)
- [Running remote commands outside of PowerShell Remoting.](#)
- [Keeping up to date with PowerShell 7.x releases](#)
- [Inventorying your PowerShell script library](#)

## Compatibility

Where possible these commands have been tested with PowerShell 7, but not every platform. If you encounter problems, have suggestions or other feedback, please post an [issue](#). It is assumed you will **not** be running these commands on any edition of PowerShell Core or any beta releases of PowerShell 7.

Last Updated 2020-09-29 12:53:26Z

# Module Commands

This section contains the same help content you would get from a PowerShell prompt using `Get-Help`. Note that code examples have been formatted to fit the 80 character page width. Don't assume you can run examples exactly as they are shown. Some of the help examples use special or custom characters which might not render properly in the PDF.

Remember, you can also view the online help for each command:

```
Help Convertto-WPFGrid -online
```

If you can't remember what commands are in this module, you can always ask PowerShell.

```
Get-Command -module PSScriptTools
```

Or use `Get-PSScriptTools`.

# Add-Border

## Synopsis

Create a text border around a string.

## Syntax

### single (Default)

```
Add-Border [-Text] <String> [-Character <String>] [-InsertBlanks]
[-Tab <Int32>] [-ANSIBorder <String>] [-ANSIText <String>] [<CommonParameters>]
```

### block

```
Add-Border [-TextBlock] <String[]> [-Character <String>] [-InsertBlanks]
[-Tab <Int32>] [-ANSIBorder <String>] [-ANSIText <String>] [<CommonParameters>]
```

## Description

This command will create a character or text based border around a line of text. You might use this to create a formatted text report or to improve the display of information to the screen.

## Examples

### Example 1

```
PS C:\> Add-Border "PowerShell Wins!"

*****
* PowerShell Wins! *
*****
```

### Example 2

```
PS C:\> Add-Border "PowerShell Wins!" -tab 1

*****
* PowerShell Wins! *
*****
```

Note that this example may not format properly in all consoles.



---

a diamond. Depending on how you are viewing this help content, it may not display properly.

## Parameters

### -Text

A single line of text that will be wrapped in a border.

```
Type: String
Parameter Sets: single
Aliases:

Required: True
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

### -TextBlock

A multi-line block of text. You might want to trim blank lines from the beginning, end or both.

```
Type: String[]
Parameter Sets: block
Aliases: tb

Required: True
Position: 1
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -Character

The character to use for the border. It must be a single character.

```
Type: String
Parameter Sets: (All)
Aliases: border

Required: False
Position: Named
Default value: *
Accept pipeline input: False
Accept wildcard characters: False
```

### -InsertBlanks

Insert blank lines before and after the text. The default behavior is to create a border box close to the text. See examples.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Tab

Insert X number of tabs.

Type: **Int32**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** 0  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -ANSIBorder

Enter an ANSI escape sequence to color the border characters.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -ANSIText

Enter an ANSI escape sequence to color the text.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### [System.String]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[New-ANSIBar](#)

# Compare-Module

## Synopsis

Compare PowerShell module versions.

## Syntax

```
Compare-Module [[-Name] <String>] [-Gallery <String>] [<CommonParameters>]
```

## Description

Use this command to compare module versions between what is installed against an online repository like the PSGallery. Results will be automatically sorted by module name.

## Examples

### Example 1

```
PS C:\> Compare-Module | Where-object {$_.UpdateNeeded}

Name          : DNSSuffix
OnlineVersion : 0.4.1
InstalledVersion : 0.2.0
PublishedDate   : 10/22/2018 8:21:46 PM
UpdateNeeded    : True

Name          : InvokeBuild
OnlineVersion : 5.4.2
InstalledVersion : 3.2.2
PublishedDate   : 12/7/2018 1:30:46 AM
UpdateNeeded    : True

...
```

List all modules that could be updated.

### Example 2

```
PS C:\> Compare-Module | Where UpdateNeeded |
Out-GridView -title "Select modules to update" -outputMode multiple |
Foreach-Object { Update-Module $_.name }
```

Compare modules and send results to Out-GridView. Use Out-GridView as an object picker to decide what modules to update.

**Example 3**

```
PS C:\> Compare-Module -name xWin* | Format-Table
```

Name	OnlineVersion	InstalledVersion	PublishedDate	UpdateNeeded
xWindowsUpdate	2.7.0.0	2.7.0.0,2.5.0.0	7/12/2017 10:43:54 PM	False
xWinEventLog	1.2.0.0	1.2.0.0	6/13/2018 8:06:45 PM	False

Compare all modules that start with xWin\* and display results in a table format.

**Example 4**

```
PS C:\> get-dscresource xAD* | Select-Object moduleName -Unique | Compare-Module
```

Name	:	xActiveDirectory
OnlineVersion	:	2.22.0.0
InstalledVersion	:	2.16.0.0,2.14.0.0
PublishedDate	:	10/25/2018 5:25:24 PM
UpdateNeeded	:	True
Name	:	xAdcsDeployment
OnlineVersion	:	1.4.0.0
InstalledVersion	:	1.1.0.0,1.0.0.0
PublishedDate	:	12/20/2017 10:10:43 PM
UpdateNeeded	:	True

Get all DSC Resources that start with xAD and select the corresponding module name. Since the module name will be listed for every resource, get a unique list and pipe that to Compare-Module.

## Parameters

### -Name

The name of a module to check. Wildcards are permitted.

```
Type: String
Parameter Sets: (All)
Aliases: modulename

Required: False
Position: 1
Default value: None
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: True
```

### -Gallery

Specify the remote repository or gallery to check.

Type: **String**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** PSGallery

**Accept pipeline input:** False

**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

[string]

## Outputs

PSCustomObject

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Find-Module](#)

[Get-Module](#)

[Update-Module](#)

# Compare-Script

## Synopsis

Compare PowerShell script versions.

## Syntax

```
Compare-Script [[-Name] <String>] [-Gallery <String>] [<CommonParameters>]
```

## Description

Use this command to compare script versions between what is installed against an online repository like the PSGallery. Results will be automatically sorted by the script name.

## Examples

### Example 1

```
PS C:\> Compare-Script | Where-object {$_.UpdateNeeded}

Name          : DNSSuffix
OnlineVersion : 0.4.1
InstalledVersion : 0.2.0
PublishedDate   : 10/22/2018 8:21:46 PM
UpdateNeeded    : True

Name          : InvokeBuild
OnlineVersion : 5.4.2
InstalledVersion : 3.2.2
PublishedDate   : 12/7/2018 1:30:46 AM
UpdateNeeded    : True
...
```

List all scripts that could be updated.

### Example 2

```
PS C:\> Compare-Script | Where UpdateNeeded |
Out-GridView -title "Select scripts to update" -outputMode multiple |
ForEach-Object { Update-Script $_.name }
```

Compare scripts and send results to Out-GridView. Use Out-GridView as an object picker to decide what scripts to update.

## Parameters

## -Name

The name of a script to check. Wildcards are permitted.

```
Type: String
Parameter Sets: (All)
Aliases: scriptname

Required: False
Position: 1
Default value: None
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: True
```

## -Gallery

Specify the remote repository or gallery to check.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: PSGallery
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

[string]

## Outputs

PSCustomObject

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Find-Script](#)

[Get-InstalledScript](#)

[Update-Script](#)

# Convert-CommandToHashtable

## Synopsis

Convert a PowerShell expression into a splatting equivalent.

## Syntax

```
Convert-CommandToHashtable [-Text] <String> [<CommonParameters>]
```

## Description

This command is intended to convert a long PowerShell expression with named parameters into a splatting alternative. The central concept is that you are editing a script file with a lengthy PowerShell expression using a number of parameters and you would like to turn it into splatting code.

## Examples

### Example 1

```
PS C:\> $text ="Get-Winevent -listlog p* -computername SRV1 -erroraction stop"
PS C:\> Convert-CommandToHashtable -Text $text | Set-Clipboard
```

The \$text variable might be a line of code from your script. The second line converts into a splatting sequence and copies it to the Windows clipboard so you can paste it back into your script. You could create a VS Code task sequence using this function.

## Parameters

### -Text

A PowerShell command using a single cmdlet or function, preferably with named parameters.

Type: **String**  
Parameter Sets: ([All](#))  
Aliases:  
  
Required: True  
Position: 0  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and

-WarningVariable. For more information, see about\_CommonParameters ( <http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

## Outputs

### [Hashtable]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Convert-HashtableToCode](#)

# Convert-EventLogRecord

## Synopsis

Convert EventLogRecords to structured objects.

## Syntax

```
Convert-EventLogRecord [-LogRecord] <EventLogRecord[]> [<CommonParameters>]
```

## Description

When you use Get-WinEvent, the results are objects you can work with in PowerShell. However, often times there is additional information that is part of the eventlog record, such as replacement strings, that are used to construct a message. This additional information is not readily exposed. You can use this command to convert results of a Get-WinEvent command into a PowerShell custom object with additional information. For best results you, should pipe the same event IDs to this command.

Note that not every event record exposes data that is compatible with this command. For those types of event log records, you will see a RawProperties property with most likely an array of strings. Use the Message property for more information.

## Examples

### Example 1

```
PS C:\> Get-WinEvent -FilterHashtable @{Logname = 'security';ID=5059} |  
Convert-EventLogRecord | Select-Object -Property TimeCreated,Subject*,  
Computername  
  
TimeCreated      : 1/20/2020 10:48:45 AM  
SubjectUserSid   : S-1-5-83-1-2951761591-1086169693-630393256-923523501  
SubjectUserName  : AFF04EB7-A25D-40BD-A809-9325ADD90B37  
SubjectDomainName: NT VIRTUAL MACHINE  
SubjectLogonId   : 0x7cbf5  
Computername     : Bovine320  
  
TimeCreated      : 1/20/2020 10:48:45 AM  
SubjectUserSid   : S-1-5-83-1-2951761591-1086169693-630393256-923523501  
SubjectUserName  : AFF04EB7-A25D-40BD-A809-9325ADD90B37  
SubjectDomainName: NT VIRTUAL MACHINE  
SubjectLogonId   : 0x7cbf5  
Computername     : Bovine320
```

**Example 2**

```
PS C:\> Get-WinEvent -FilterHashtable @{Logname = 'security';ID=4624} |  
-MaxEvents 100 -computername win10 | Convert-EventLogRecord |  
Where-Object {$_._LogonType -eq 3} |  
Select-Object -first 10 -property TargetUsername,IPAddress,  
TimeCreated,Computername | Format-Table
```

TargetUserName	IpAddress	TimeCreated	Computername
ArtD	fe80::ddae:8ade:c3ff:e584	1/20/2020 12:05:12 PM	WIN10.Company.Pri
WIN10\$	-	1/20/2020 11:56:52 AM	WIN10.Company.Pri
WIN10\$	-	1/20/2020 11:56:52 AM	WIN10.Company.Pri
WIN10\$	-	1/20/2020 11:56:52 AM	WIN10.Company.Pri
WIN10\$	-	1/20/2020 11:56:51 AM	WIN10.Company.Pri
ArtD	192.168.3.10	1/20/2020 11:45:31 AM	WIN10.Company.Pri
WIN10\$	::1	1/20/2020 11:39:52 AM	WIN10.Company.Pri
ArtD	192.168.3.10	1/20/2020 11:35:49 AM	WIN10.Company.Pri
ArtD	192.168.3.10	1/20/2020 11:34:36 AM	WIN10.Company.Pri
ArtD	192.168.3.10	1/20/2020 11:32:06 AM	WIN10.Company.Pri

This example filters on a property added by this command to only show interactive logons.

**Example 3**

```
PS C:\> Get-WinEvent -FilterHashtable @{Logname = 'system';  
ID =7040} -MaxEvent 10 | Convert-EventLogRecord |  
Select-Object -Property TimeCreated,@{Name="Service";Expression={$_.param4}},  
@{Name="OriginalState";Expression = {$_.param2}},  
@{Name="NewState";Expression={$_.param3}},Computername | Format-Table
```

TimeCreated	Service	OriginalState	NewState	Computername
1/20/2020 9:26:08 AM	BITS	demand start	auto start	Bovine320
1/20/2020 5:47:17 AM	BITS	auto start	demand start	Bovine320
1/20/2020 5:45:11 AM	BITS	demand start	auto start	Bovine320
1/20/2020 1:44:31 AM	BITS	auto start	demand start	Bovine320
1/20/2020 1:42:30 AM	BITS	demand start	auto start	Bovine320
1/19/2020 8:53:37 PM	BITS	auto start	demand start	Bovine320
1/17/2020 8:27:10 PM	TrustedInstaller	demand start	auto start	Bovine320
1/17/2020 8:27:10 PM	TrustedInstaller	auto start	demand start	Bovine320
1/17/2020 8:26:29 PM	TrustedInstaller	demand start	auto start	Bovine320
1/17/2020 8:26:20 PM	TrustedInstaller	auto start	demand start	Bovine320

Once you know the type of data, you can customize the output or build a script around it.

---

*Example 4*

```
PS C:\> Get-WinEvent -FilterHashtable @{Logname = "Application";  
ID=17137} -MaxEvents 1 | Convert-EventLogRecord
```

```
LogName      : Application  
RecordType   : Information  
TimeCreated  : 1/20/2020 2:31:52 PM  
ID          : 17137  
RawProperties : {TickleEventDB}  
Message      : Starting up database 'TickleEventDB'.  
Keywords     : {Classic}  
Source       : MSSQL$SQLEXPRESS  
Computername : Bovine320
```

This record doesn't have structured extra data. The replacement strings are stored as text so the command displays the data using the RawProperties property.

## Example 5

```
PS C:\> $all = New-PSSession -ComputerName 'win10','srv1','srv2','dom1'
PS C:\> $local = Get-Item Function:\Convert-EventLogRecord
PS C:\> Invoke-Command -ScriptBlock {
    New-item -Path Function: -Name $using:local.name -Value $using:local.ScriptBlock
} -Session $all
PS C:\> Invoke-Command {
    Get-WinEvent -FilterHashtable @{Logname='security';id=4624} -MaxEvents 10 |
    Convert-EventLogRecord |
    Select-Object -Property Computername,Time*,TargetUser*,
    TargetDomainName,Subject*} -session $all -HideComputerName |
    Select-Object -Property * -ExcludeProperty runspaceID

Computername      : WIN10.Company.Pri
TimeCreated       : 1/20/2020 5:21:17 PM
TargetUserSid     : S-1-5-18
TargetUserName   : SYSTEM
TargetDomainName : NT AUTHORITY
SubjectUserSid   : S-1-5-18
SubjectUserName  : WIN10$ 
SubjectDomainName: COMPANY
SubjectLogonId   : 0x3e7

Computername      : WIN10.Company.Pri
TimeCreated       : 1/20/2020 5:18:51 PM
TargetUserSid     : S-1-5-18
TargetUserName   : SYSTEM
TargetDomainName : NT AUTHORITY
SubjectUserSid   : S-1-5-18
SubjectUserName  : WIN10$ 
SubjectDomainName: COMPANY
SubjectLogonId   : 0x3e7

Computername      : WIN10.Company.Pri
TimeCreated       : 1/20/2020 5:16:07 PM
TargetUserSid     : S-1-5-21-278538743-3177530655-100218012-1105
TargetUserName   : ArtD
TargetDomainName : COMPANY.PRI
SubjectUserSid   : S-1-0-0
SubjectUserName  : -
SubjectDomainName: -
SubjectLogonId   : 0x0
...
...
```

The first command creates PSSessions to several remote computers. The local copy of this command is created in the remote PSSessions. Then event log data is retrieved in the remote sessions and converted using the Convert-EventlogRecord function in each session.

## Parameters

### -LogRecord

An event log record from the Get-WinEvent command.

Type: `EventLogRecord[]`  
Parameter Sets: (All)  
Aliases:  
  
Required: True  
Position: 1  
Default value: None  
Accept pipeline input: True (`ByValue`)  
Accept wildcard characters: False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

`[System.Diagnostics.Eventing.Reader.EventLogRecord[]]`

## Outputs

`PSCustomObject`

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-WinEvent](#)

# ConvertFrom-LexicalTimespan

## Synopsis

Convert a lexical timespan into a PowerShell timespan.

## Syntax

```
ConvertFrom-LexicalTimespan [-String] <String> [-AsString] [<CommonParameters>]
```

## Description

When working with some XML data, such as that from scheduled tasks, timespans or durations are stored in a lexical format like P0DT0H0M47S. You can use this command to convert that value into a timespan object.

## Examples

### Example 1

```
PS C:\> ConvertFrom-LexicalTimespan P0DT0H0M47S
```

```
Days          : 0
Hours         : 0
Minutes       : 0
Seconds       : 47
Milliseconds  : 0
Ticks         : 470000000
TotalDays     : 0.000543981481481481
TotalHours    : 0.01305555555555556
TotalMinutes  : 0.7833333333333333
TotalSeconds  : 47
TotalMilliseconds : 47000
```

### Example 2

```
PS C:\> Get-ScheduledTask -TaskName DailyWatcher |
Select-Object Taskname,
@{Name="ExecutionLimit";Expression = {
ConvertFrom-LexicalTimespan $_.settings.ExecutionTimeLimit }}
```

Taskname	ExecutionLimit
DailyWatcher	3.00:00:00

## Parameters

## -AsString

Format the timespan as a string

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -String

Enter a lexical time string like P23DT3H43M. This is case-sensitive.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### System.String

## Outputs

### String

### Timespan

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[ConvertTo-LexicalTimespan](#)

# ConvertFrom-Text

## Synopsis

Convert structured text to objects.

## Syntax

### File (Default)

```
ConvertFrom-Text [-Pattern] <Regex> [-Path] <String> [-TypeName <String>]
[-NoProgress] [<CommonParameters>]
```

### Inputobject

```
ConvertFrom-Text [-Pattern] <Regex> [-InputObject] <String>
[-TypeName <String>] [-NoProgress] [<CommonParameters>]
```

## Description

This command will take structured text such as from a log file and convert it to objects that you can use in the PowerShell pipeline. You can specify the path to a text file, or pipe content directly into this command. The piped content could even be output from command-line tools. You have to specify a regular expression pattern that uses named captures. The names will become property names in the custom objects.

The command will write a generic custom object to the pipeline. However, you can specify a custom type name. You might want to do this if you have your own format ps1xml file and want to handle formatting through that file.

## Examples

### Example 1

```
PS C:\> $b = "(?<Date>\d{2}-\d{2}-\d{4})\s\d{2}:\d{2}).*(?<Error>\d+),\s+(?<Step>.*):\s+(?<Action>\w+),\s+(?<Path>(\w+\\\)*\w+\.\w+)"
PS C:\> ConvertFrom-Text -pattern $b -path C:\windows\DtcInstall.log

Date    : 10-18-2018 10:49
Error   : 0
Step    : CMsdtcUpgradePlugin::PostApply
Action   : Enter
Path    : com\complus\dtc\dtc\msdtcstp\msdtcplugin.cpp

Date    : 10-18-2018 10:49
Error   : 0
Step    : CMsdtcUpgradePlugin::PostApply
Action   : Exit
Path    : com\complus\dtc\dtc\msdtcstp\msdtcplugin.cpp
...
```

The first command creates a variable to hold the regular expression pattern that defines named captures for content in the DtcInstall.log. The second line runs the command using the pattern and the log file.

## Example 2

```
PS C:\> $wu = "(?<Date>\d{4}-\d{2}-\d{2})\s+ (?<Time>(\d{2}:\d{2}:\d{2}))\s+ (?<PID>\d+)\s+ (?<TID>\w+)\s+ (?<Component>\w+)\s+ (?<Message>.*)"
```

```
PS C:\> $out = ConvertFrom-Text -pattern $wu -path C:\Windows\WindowsUpdate.log -noprogress
```

```
PS C:\> $out | Group-Object Component | Sort-Object Count
```

Count	Name	Group
20	DtaStor	{@{Date=2018-01-27; Time=07:19:584; PID=1...}
72	Setup	{@{Date=2018-01-27; Time=07:19:05:868; PID=1...}
148	SLS	{@{Date=2018-01-27; Time=07:19:05:086; PID=1...}
150	PT	{@{Date=2018-01-27; Time=07:19:08:946; PID=1...}
209	WuTask	{@{Date=2018-01-26; Time=20:05:28:483; PID=1...}
256	EP	{@{Date=2018-01-26; Time=21:21:23:341; PID=1...}
263	Handler	{@{Date=2018-01-27; Time=07:19:42:878; PID=3...}
837	Report	{@{Date=2018-01-26; Time=21:21:23:157; PID=1...}
900	IdleTmr	{@{Date=2018-01-26; Time=21:21:23:338; PID=1...}
903	Service	{@{Date=2018-01-26; Time=20:05:29:104; PID=1...}
924	Misc	{@{Date=2018-01-26; Time=21:21:23:033; PID=1...}
1062	DnldMgr	{@{Date=2018-01-26; Time=21:21:23:159; PID=1...}
2544	AU	{@{Date=2018-01-26; Time=19:55:27:449; PID=1...}
2839	Agent	{@{Date=2018-01-26; Time=21:21:23:045; PID=1...}}

```
PS C:\> $out | Where-Object {$_[datetime]$_.date -ge [datetime]"2/10/2018" -AND $_.component -eq "AU"} | Format-Table Date,Time,Message -wrap
```

Date	Time	Message
2018-02-10	05:36:44:183	##### AU: Initializing Automatic Updates #####
2018-02-10	05:36:44:184	Additional Service {117CAB2D-82B1-4B5A-A08C-4D62DBEE7782} with Approval type {Scheduled} added to AU services list
2018-02-10	05:36:44:184	AIR Mode is disabled
2018-02-10	05:36:44:185	# Approval type: Scheduled (User preference)
2018-02-10	05:36:44:185	# Auto-install minor updates: Yes (User preference)
2018-02-10	05:36:44:185	# ServiceTypeDefault: Service 117CAB2D-82B1-4B5A-A08C-4D62DBEE7782 Approval type: (Scheduled)
2018-02-10	05:36:44:185	# Will interact with non-admins (Non-admins are elevated (User preference))
2018-02-10	05:36:44:204	WARNING: Failed to get Wu Exemption info from NLM, assuming not exempt, error = 0x80070490
2018-02-10	05:36:44:213	AU finished delayed initialization
2018-02-10	05:38:01:000	#####
...		

In this example, the WindowsUpdate log is converted from text to objects using the regular expression pattern. Given the size of the log file this process can take some time to complete so the progress bar is turned off to improve performance.

## Example 3

```
PS C:\> Get-Content c:\windows\windowsupdate.log -totalcount 50 | ConvertFrom-Text $wu
```

This example gets the first 50 lines from the Windows update log and converts that to objects using the pattern from the previous example.

## Example 4

```
PS C:\> $c = "(?<Protocol>\w{3})\s+ (?<LocalIP>(\d{1,3}\.){3}\d{1,3}):\s+ (?<LocalPort>\d+)\s+ (?<ForeignIP>.*):\s+ (?<ForeignPort>\d+)\s+ (?<State>\w+)?"
PS C:\> netstat | select -skip 4 | ConvertFrom-Text $c |
Format-Table -AutoSize
```

Protocol	LocalIP	LocalPort	ForeignIP	ForeignPort	State
TCP	127.0.0.1	19872	Novo8	50835	ESTABLISHED
TCP	127.0.0.1	50440	Novo8	50441	ESTABLISHED
TCP	127.0.0.1	50441	Novo8	50440	ESTABLISHED
TCP	127.0.0.1	50445	Novo8	50446	ESTABLISHED
TCP	127.0.0.1	50446	Novo8	50445	ESTABLISHED
TCP	127.0.0.1	50835	Novo8	19872	ESTABLISHED
TCP	192.168.6.98	50753	74.125.129.125	5222	ESTABLISHED

The first command creates a variable to be used with output from the Netstat command which is used in the second command.

## Example 5

```
PS C:\> $arp = "(?<IPAddress>(\d{1,3}\.){3}\d{1,3})\s+ (?<MAC>(\w{2}-){5}\w{2})\s+ (?<Type>\w+)"
PS C:\> arp -g -N 172.16.10.22 | Select-Object -skip 3 |
ForEach-Object {$_.Trim()} |
ConvertFrom-Text $arp -noprogress -typename arpData
```

IPAddress	MAC	Type
172.16.10.1	00-13-d3-66-50-4b	dynamic
172.16.10.100	00-0d-a2-01-07-5d	dynamic
172.16.10.101	2c-76-8a-3d-11-30	dynamic
172.16.10.121	00-0e-58-ce-8b-b6	dynamic
172.16.10.122	1c-ab-a7-99-9a-e4	dynamic
172.16.10.124	00-1e-2a-d9-cd-b6	dynamic
172.16.10.126	00-0e-58-8c-13-ac	dynamic
172.16.10.128	70-11-24-51-84-60	dynamic
...		

The first command creates a regular expression for the ARP command. The second prompt shows the ARP command being used to select the content, trimming each line, and then converting the output to text using the regular expression named pattern. This example also defines a custom type name for the output.

# Parameters

## -InputObject

Any text that you want to pipe into this command. It can be a certain number of lines from a large text or log file. Or the output of a command line tool. Be sure to filter out blank lines.

**Type:** `String`  
**Parameter Sets:** Inputobject  
**Aliases:**

**Required:** True  
**Position:** 1  
**Default value:** None  
**Accept pipeline input:** True (`ByValue`)  
**Accept wildcard characters:** False

## -NoProgress

By default this command will display a progress bar to inform the user on the status. For large data sets this can impact performance. Use this parameter to suppress the progress messages.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -Path

The filename and path to the text or log file.

```
Type: String
Parameter Sets: File
Aliases: file

Required: True
Position: 1
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Pattern

A regular expression pattern that uses named captures. This parameter has an aliases of regex and rx.

```
Type: Regex
Parameter Sets: (All)
Aliases: regex, rx

Required: True
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -TypeName

Enter an optional typename for the object output. If you don't use one, the command will write a generic custom object to the pipeline.

Type: **String**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** None

**Accept pipeline input:** False

**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

[**string**[]]

## Outputs

**PSCustomObject**[]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Content](#)

[About\\_Regular\\_Expressions](#)

# ConvertFrom-UTCTime

## Synopsis

Convert a datetime value from universal.

## Syntax

```
ConvertFrom-UTCTime [-DateTime] <DateTime> [<CommonParameters>]
```

## Description

Use this command to convert a universal datetime object into local time.

This command was introduced in v2.3.0.

## Examples

### Example 1

```
PS C:\> ConvertFrom-UTCTime "18:00"  
Monday, March 4, 2019 1:00:00 PM
```

Covert the time 18:00 for the current day from universal time to local time. This result reflects Eastern Time which on this date is UTC-5.

## Parameters

### -DateTime

Enter a Universal Datetime value

Type: `DateTime`  
Parameter Sets: ([All](#))  
Aliases:  
  
`Required:` True  
`Position:` 0  
`Default value:` None  
`Accept pipeline input:` True ([ByValue](#))  
`Accept wildcard characters:` False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and

---

-WarningVariable. For more information, see about\_CommonParameters ( <http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**System.DateTime**

## Outputs

**System.DateTime**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[ConvertTo-UTCTime](#)

[Get-Date](#)

# Convert-HashtableString

## Synopsis

Convert a hashtable string into a hashtable object.

## Syntax

```
Convert-HashtableString [-Text] <String> [<CommonParameters>]
```

## Description

This function is similar to Import-PowerShellDataFile. But where that command can only process a file, this command will take any hashtable-formatted string and convert it into an actual hashtable.

## Examples

### Example 1

```
PS C:\> get-content c:\work\test.psd1 | unprotect-cmsmessage | Convert-HashtableString
```

Name	Value
CreatedBy	BOVINE320\Jeff
CreatedAt	10/02/2018 21:28:47 UTC
Computername	Think51
Error	
Completed	True
Date	10/02/2018 21:29:35 UTC
Scriptblock	restart-service spooler -force
CreatedOn	BOVINE320

The test.psd1 file is protected as a CMS Message. In this example, the contents are decoded as a string which is then in turn converted into an actual hashtable.

## Parameters

### -Text

Enter your hashtable string.

Type: **String**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** True (**ByValue**)  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### System.String

## Outputs

### [ hashtable ]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Import-PowerShellDatafile](#)

[Convert-HashtableToCode](#)

# Convert-HashtableToCode

## Synopsis

Convert a hashtable to a string representation.

## Syntax

### psd1 (Default)

```
Convert-HashtableToCode [-Hashtable] <Hashtable> [-Indent <Int32>]  
[<CommonParameters>]
```

### inline

```
Convert-HashtableToCode [-Hashtable] <Hashtable> [-Inline] [<CommonParameters>]
```

## Description

Use this command to convert a hashtable into its text or string equivalent.

## Examples

### Example 1

```
PS C:\> $h = @{Name="SRV1";Asset=123454;Location="Omaha"}  
PS C:\> Convert-HashtableToCode $h  
@{  
    Name = 'SRV1'  
    Asset = 123454  
    Location = 'Omaha'  
}
```

Convert a hashtable object to a string equivalent that you can copy into your script.

### Example 2

```
PS C:\> Convert-HashtableToCode $h -inline  
  
@{Name = 'SRV1';Asset = 123454;Location = 'Omaha'}
```

Create an inline string version of the hashtable.

## Parameters

## -Hashtable

A hashtable to convert. In can be standard or ordered hashtable.

```
Type: Hashtable
Parameter Sets: (All)
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## -Indent

Specify the number of tabs to indent. You shouldn't need this parameter. It exists for situations where there are nested hashtables.

```
Type: Int32
Parameter Sets: psd1
Aliases: tab

Required: False
Position: Named
Default value: 1
Accept pipeline input: False
Accept wildcard characters: False
```

## -Inline

Write the hashtable as an inline expression.

```
Type: SwitchParameter
Parameter Sets: inline
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.Collections.Hashtable**

## Outputs

**System.String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Convert-HashtableString](#)

# ConvertTo-Hashtable

## Synopsis

Convert an object into a hashtable.

## Syntax

```
ConvertTo-Hashtable [-InputObject] <Object> [-NoEmpty] [-Exclude <String[]>]
[-Alphabetical] [<CommonParameters>]
```

## Description

This command will take an object and create a hashtable based on its properties. You can have the hashtable exclude some properties as well as properties that have no value.

## Examples

### Example 1

```
PS C:\> Get-Process -id $pid |
Select-Object name,id,handles,workingset |
ConvertTo-Hashtable

Name                Value
----              -----
WorkingSet          418377728
Name                powershell_ise
Id                  3456
Handles             958
```

### Example 2

```
PS C:\> $hash = Get-Service spooler |
ConvertTo-Hashtable -Exclude CanStop,CanPauseAndContinue -NoEmpty
PS C:\> $hash

Name                Value
----              -----
ServiceType         Win32OwnProcess, InteractiveProcess
ServiceName         spooler
ServiceHandle       SafeServiceHandle
DependentServices   {Fax}
ServicesDependedOn {RPCSS, http}
Name                spooler
Status              Running
MachineName         .
RequiredServices    {RPCSS, http}
DisplayName         Print Spooler
```

This created a hashtable from the Spooler service object, skipping empty properties and excluding CanStop and

---

CanPauseAndContinue.

### Example 3

```
PS C:\> Get-Service bits |  
Select-Object Name,Displayname,Status,  
@{Name="Computername";Expression={$_.Machinename}} |  
ConvertTo-Hashtable -Alphabetical  
  
Name  
----  
Computername  
Displayname  
Name  
Status  
  
Value  
-----  
. Background Intelligent Transfer Service  
bits  
Running
```

Convert an object to a hashtable and order the properties alphabetically.

## Parameters

### -InputObject

A PowerShell object to convert to a hashtable.

```
Type: Object  
Parameter Sets: (All)  
Aliases:  
  
Required: True  
Position: 1  
Default value: None  
Accept pipeline input: True (ByValue)  
Accept wildcard characters: False
```

### -NotEmpty

Do not include object properties that have no value.

```
Type: SwitchParameter  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: Named  
Default value: False  
Accept pipeline input: False  
Accept wildcard characters: False
```

### -Exclude

An array of property names to exclude from the hashtable.

```
Type: String[]
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Alphabetical

Create a hashtable with property names arranged alphabetically.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### [Object]

## Outputs

### [System.Collections.Specialized.OrderedDictionary]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

This was originally described at: <http://jdhitsolutions.com/blog/2013/01/convert-powershell-object-to-hashtable-revised>

## Related Links

[About\\_Hash\\_Tables](#)

[Get-Member](#)

# ConvertTo-LexicalTimespan

## Synopsis

Convert a timespan to lexical time.

## Syntax

```
ConvertTo-LexicalTimespan [-Timespan] <TimeSpan> [<CommonParameters>]
```

## Description

Convert a timespan into a lexical version that you can insert into an XML document.

## Examples

### Example 1

```
PS C:\> ConvertTo-LexicalTimespan (New-Timespan -Days 7)  
P7D
```

You can insert this value into an XML document where you need to represent a time span.

## Parameters

### -Timespan

Enter a timespan object

Type: `TimeSpan`  
Parameter Sets: (`All`)  
Aliases:  
  
`Required:` True  
`Position:` 0  
`Default value:` None  
`Accept pipeline input:` True (`ByValue`)  
`Accept wildcard characters:` False

## CommonParameters

This cmdlet supports the common parameters: `-Debug`, `-ErrorAction`, `-ErrorVariable`, `-InformationAction`, `-InformationVariable`, `-OutVariable`, `-OutBuffer`, `-PipelineVariable`, `-Verbose`, `-WarningAction`, and `-WarningVariable`. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.TimeSpan**

## Outputs

**String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[ConvertFrom-LexicalTimespan](#)

# ConvertTo-LocalTime

## Synopsis

Convert a foreign time to local.

## Syntax

```
ConvertTo-LocalTime [-Datetime] <DateTime> [-UTCOffset] <TimeSpan>
[-DaylightSavingTime] [<CommonParameters>]
```

## Description

It can be tricky sometimes to see a time in a foreign location and try to figure out what that time is locally. This command attempts to simplify this process. In addition to the remote time, you need the base UTC offset for the remote location. You can use Get-Timezone or Get-TZData to help. See examples.

The parameter for DaylightSavingTime is to indicate that the remote location is observing DST. You can use this with the location's standard UTC offset, or you can specify an offset that takes DST into account.

## Examples

### Example 1

```
PS C:\> ConvertTo-LocalTime "3/15/2019 7:00AM" 8:00:00
Thursday, March 14, 2019 7:00:00 PM
```

Convert a time that is in Singapore to local (Eastern) time.

### Example 2

```
PS C:\> Get-TimeZone -ListAvailable | where-object id -match hawaii

Id          : Hawaiian Standard Time
DisplayName : (UTC-10:00) Hawaii
StandardName : Hawaiian Standard Time
DaylightName : Hawaiian Daylight Time
BaseUtcOffset : -10:00:00
SupportsDaylightSavingTime : False

PS C:\> ConvertTo-LocalTime "10:00AM" -10:00:00
Thursday, March 14, 2019 4:00:00 PM
```

In this example, the user first determines the UTC offset for Hawaii. Then 10:00AM in say Honolulu, is converted to local time which in this example is in the Eastern Time zone.

## Parameters

### -Datetime

Enter a non-local date time

```
Type: DateTime
Parameter Sets: (All)
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -UTCOffset

Enter the location's' UTC Offset. You can use Get-Timezone to discover it.

```
Type: TimeSpan
Parameter Sets: (All)
Aliases: offset

Required: True
Position: 1
Default value: None
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: False
```

### -DaylightSavingTime

Indicate that the foreign location is using Daylight Saving Time

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: dst

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

## Outputs

### DateTime

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-TimeZone](#)

[Get-Date](#)

[Get-MyTimeInfo](#)

[Get-TZList](#)

[ConvertFrom-UTCTime](#)

[ConvertTo-UTCTime](#)

# ConvertTo-Markdown

## Synopsis

Convert pipeline output to a markdown document.

## Syntax

```
ConvertTo-Markdown [[-InputObject] <Object>] [-Title <String>]
[-PreContent <String[]>] [-PostContent <String[]>] [-Width <Int32>] [-AsTable]
[<CommonParameters>]
```

## Description

This command is designed to accept pipelined output and create a markdown document. The pipeline output will be formatted as a text block or you can specify a table. You can optionally define a title, content to appear before the output and content to appear after the output.

The command does not create a text file. You need to pipe results from this command to a cmdlet like Out-File or Set-Content. See examples.

## Examples

### Example 1

```
PS C:\> Get-Service Bits,Winrm |
ConvertTo-Markdown -title "Service Check" -precontent "## $($env:computername)"'

# Service Check

## THINK51

\n\n\n\text

Status      Name          DisplayName
-----      --          -----
Running     Bits          Background Intelligent Transfer Ser...
Running     Winrm         Windows Remote Management (WS-Manag...
\n\n\n
```

Create markdown output from a Get-Service command.

### Example 2

```
PS C:\> Get-Service Bits,Winrm |
ConvertTo-Markdown -title "Service Check" -precontent "## $($env:computername)"'
-postcontent "_report $(Get-Date)_" | Out-File c:\work\svc.md
```

Re-run the previous command and save output to a file.

### Example 3

```

PS C:\> $computers = "srv1","srv2","srv4"
PS C:\> $Title = "System Report"
PS C:\> $footer = "_report run by $($env:USERDOMAIN)\$($env:USERNAME)_"
PS C:\> $sb = {
    $os = Get-CimInstance -classname win32_operatingsystem -property caption,
    lastbootUptime
    \[PSCustomObject\]@{
        PSVersion = $PSVersionTable.PSVersion
        OS = $os.caption
        Uptime = (Get-Date) - $os.lastbootUpTime
        SizeFreeGB = (Get-Volume -DriveLetter C).SizeRemaining /1GB
    }
}
PS C:\> $out = ConvertTo-Markdown -title $Title
PS C:\> foreach ($computer in $computers) {
    $out+= Invoke-command -scriptblock $sb -Computer $computer -HideComputerName |
    Select-Object -Property * -ExcludeProperty RunspaceID |
    ConvertTo-Markdown -PreContent "## $($computer.ToUpper())"
}
PS C:\>$out +== ConvertTo-Markdown -PostContent $footer
PS C:\>$out | Set-Content c:\work\report.md

```

Here is an example that creates a series of markdown fragments for each computer and at the end creates a markdown document.

## Parameters

### -Inputobject

Typically the results of a PowerShell command or expression.

```

Type: Object
Parameter Sets: (All)
Aliases:

Required: False
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False

```

### -Title

Specify a top level title. You do not need to include any markdown.

Type: **String**  
Parameter Sets: ([All](#))  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

## -PreContent

Enter whatever content you want to appear before converted input. You can use whatever markdown you wish.

Type: **String[]**  
Parameter Sets: ([All](#))  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

## -PostContent

Enter whatever content you want to appear after converted input. You can use whatever markdown you wish.

Type: **String[]**  
Parameter Sets: ([All](#))  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

## -Width

Specify the document width. Depending on what you intend to do with the markdown from this command you may want to adjust this value.

Type: **Int32**  
Parameter Sets: ([All](#))  
Aliases:  
  
Required: False  
Position: Named  
Default value: 80  
Accept pipeline input: False  
Accept wildcard characters: False

## -AsTable

Format the incoming data as a markdown table. This works best with similar content such as the result of running a PowerShell command.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

[object]

## Outputs

System.String[]

## Notes

Learn more about PowerShell: <https://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Convertto-HTML](#)

[Out-File](#)

# ConvertTo-UTCTime

## Synopsis

Convert a local datetime to universal time.

## Syntax

```
ConvertTo-UTCTime [[ -DateTime] <DateTime>] [-AsString] [<CommonParameters>]
```

## Description

Convert a local datetime to universal time. The default is now but you can specify a datetime value. You also have an option to format the result as a sortable string.

This command was introduced in v2.3.0.

## Examples

### Example 1

```
PS C:\> get-date  
Monday, March 4, 2019 12:51:47 PM  
  
PS C:\> ConvertTo-UTCTime  
Monday, March 4, 2019 5:51:49 PM
```

### Example 2

```
PS C:\> ConvertTo-UTCTime -asString  
2019-03-04 17:51:47Z
```

## Parameters

### -DateTime

Enter a Datetime value

Type: **DateTime**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** 0  
**Default value:** now  
**Accept pipeline input:** True ([ByValue](#))  
**Accept wildcard characters:** False

## -AsString

Convert the date time value to a sortable string. This is the same thing as running a command like "{0:u}" -f (Get-Date).ToUniversalTime()

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

[System.DateTime](#)

## Outputs

[System.DateTime](#)

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[ConvertFrom-UTCTime](#)

[Get-Date](#)

# ConvertTo-WPFGrid

## Synopsis

Send command output to an interactive WPF-based grid.

## Syntax

### input (Default)

```
ConvertTo-WPFGrid [[-Title] <String>] [[-Timeout] <Int32>] [-Refresh]
[-Gridlines <String>] [-InitializationScript <ScriptBlock>]
[-UseLocalVariable <String[]>] [-UserProfile] [<CommonParameters>]
```

### Input

```
ConvertTo-WPFGrid [[-InputObject] <PSObject>] [[-Title] <String>]
[[-Timeout] <Int32>] [-Refresh] [-Gridlines <String>]
[-InitializationScript <ScriptBlock>] [-UseLocalVariable <String[]>]
[-UserProfile] [<CommonParameters>]
```

### scriptblock

```
ConvertTo-WPFGrid [-Scriptblock <ScriptBlock>] [[-Title] <String>]
[[-Timeout] <Int32>] [-Refresh] [-Gridlines <String>]
[-InitializationScript <ScriptBlock>] [-UseLocalVariable <String[]>]
[-UserProfile] [<CommonParameters>]
```

## Description

This command is an alternative to Out-GridView. It works much the same way. Run a PowerShell command and pipe it to this command. The output will be displayed in an auto-sized data grid. You can click on column headings to sort. You can resize columns and you can re-order columns. You will want to be selective about which properties you pipe through to this command. See examples.

You can specify a timeout value which will automatically close the form. If you specify a timeout and the Refresh parameter, then the contents of the datagrid will automatically refresh using the timeout value as an integer. This will only work when you pipe a PowerShell expression to ConvertTo-WPFGrid as one command. This will fail if you break the command in the PowerShell ISE or use a nested prompt. Beginning with v2.4.0 the form now has a Refresh button which will automatically refresh the datagrid. You should set a refresh interval that is greater than the time it takes to complete the command.

Because the grid is running in a new background runspace, it does not automatically inherit anything from your current session. However, you can use the -UserProfile parameter which will load your user profile scripts into the runspace. You can specify a list of locally defined variables to be used in the form. Use the variable name without the \$. Finally, you can also use the -InitializationScript parameter and specify a scriptblock of

---

PowerShell code to initialize the runspace. This is helpful when you need to dot source external scripts or import modules not in your module path.

This command runs the WPF grid in a new runspace so your PowerShell prompt will not be blocked. However, after closing the form you may be left with the runspace. You can use Remove-Runspace to clean up or wait until you restart PowerShell.

This command requires a Windows platform.

## Examples

### Example 1

```
PS C:\> Get-Process | Sort-Object WS -Descending |
Select-object -first 20 ID,Name,WS,VM,PM,Handles,StartTime |
ConvertTo-WPFGGrid -Refresh -timeout 20 -Title "Top Processes"
```

Get the top 20 processes based on the value of the WorkingSet property and display selected properties in the WPF Grid. The contents will automatically refresh every 20 seconds. You will need to manually close the form.

### Example 2

```
PS C:\> $vmhost = "CHI-HVR2"
PS C:\> Get-VM -computername $VMHost | Select Name,State,Uptime,
@{Name="AssignedMB";Expression={$_.MemoryAssigned/1mb -as [int]}},
@{Name="DemandMB";Expression={$_.MemoryDemand/1mb -as [int]}} |
ConvertTo-WPFGGrid -title "VM Report $VMHost" -timeout 30 -refresh
-useLocalVariable VMHost
```

Get Hyper-V virtual machine information and refresh every 30 seconds. Because the command is using a locally defined variable it is also being used in the form. Note that this would be written as one long pipelined expression. It is formatted here for the sake of the help documentation.

### Example 3

```
PS C:\> Get-VMData -host CHI-HVR2 |
ConvertTo-WPFGGrid -title "VM Data" -refresh -timeout 60 -useprofile
```

This example uses a hypothetical command that might be defined in a PowerShell profile script. ConvertTo-WPFGGrid will load the profile scripts so that the data can be updated every 60 seconds.

### Example 4

```
PS C:\> (Get-ProcessData -Computername $computers).Where({$_.WorkingSet -ge 100mb}) |
ConvertTo-WPFGGrid -Title "Process Report" -UseLocalVariable computers -InitializationScript { . C:\scripts\Get-ProcessData.ps1 } -Refresh -Timeout 30
```

This command runs a function that is defined in a script file. In order for the form to refresh, it must also dot source the script which is happening with the InitializationScript parameter. The example is also loading the local \$computers variable so that it too is available upon refresh.

## Parameters

### -InputObject

Typically the results of a PowerShell command or expression. You should select the specific properties you wish to display.

```
Type: PSObject
Parameter Sets: Input
Aliases:

Required: False
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

### -Title

Specify a title for your form.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 2
Default value: ConvertTo-WPFGrid
Accept pipeline input: False
Accept wildcard characters: False
```

### -Timeout

By default the grid will remain displayed until you manually close it. But you can specify a timeout interval in seconds. The minimum accepted value is 5 seconds. If you use this parameter with -Refresh, then the datagrid will be refreshed with results of the PowerShell expression you piped to ConvertTo-WPFGrid.

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: False
Position: 3
Default value: 0
Accept pipeline input: False
Accept wildcard characters: False
```

### -Refresh

If you specify this parameter and a Timeout value, this command will refresh thedatagrid with the PowerShell expression piped into ConvertTo-WPFGrid. You should use a value that is longer than the time it takes to

---

complete the command that generates your data.

This parameter will only work if you are using Convertto-WPFGrid at the end of a pipelined expression. See examples.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -UseProfile

Load your PowerShell profiles into the background runspace.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: profile

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Scriptblock

Enter a scriptblock that will generate data to be populated in the form

```
Type: ScriptBlock
Parameter Sets: scriptblock
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -UseLocalVariable

Load locally defined variables into the background runspace

```
Type: String[]
Parameter Sets: (All)
Aliases: var

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -InitializationScript

Run this scriptblock to initialize the background runspace. You might need to dot source a script file or load a non-standard module.

```
Type: ScriptBlock
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Gridlines

Control how grid lines are displayed in the form. You may not want to have any or perhaps only vertical or horizontal lines.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### [PSObject]

## Outputs

### None

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Out-GridView](#)

[ConvertTo-HTML](#)

[ConvertTo-Markdown](#)

# Copy-Command

## Synopsis

Copy a PowerShell command.

## Syntax

```
Copy-Command [-Command] <String> [[-NewName] <String>] [-IncludeDynamic]
[-AsProxy] [-UseForwardHelp] [<CommonParameters>]
```

## Description

This command will copy a PowerShell command, including parameters and help to a new user-specified command. You can use this to create a "wrapper" function or to easily create a proxy function. The default behavior is to create a copy of the command complete with the original comment-based help block.

For best results, run this in the PowerShell ISE or Visual Studio code, the copied command will be opened in a new tab or file.

## Examples

### Example 1

```
PS C:\> Copy-Command Get-Process Get-MyProcess
```

Create a copy of Get-Process called Get-MyProcess.

### Example 2

```
PS C:\> Copy-Command Get-Eventlog -asproxy -useforwardhelp
```

Create a proxy function for Get-Eventlog and use forwarded help links.

### Example 3

```
PS C:\> Copy-Command Get-ADComputer Get-MyADComputer -includedynamic
```

Create a wrapper function for Get-ADComputer called Get-MyADComputer. Due to the way the Active Directory cmdlets are written, most parameters appear to be dynamic so you need to include dynamic parameters otherwise there will be no parameters in the final function.

## Parameters

## -Command

The name of a PowerShell command, preferably a cmdlet but that is not a requirement. You can specify an alias and it will be resolved.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: True
Position: 1
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -NewName

Specify a name for your copy of the command. If no new name is specified, the original name will be used.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 2
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -IncludeDynamic

The command will only copy explicitly defined parameters unless you specify to include any dynamic parameters as well. If you copy a command and it seems to be missing parameters, re-copy and include dynamic parameters.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -AsProxy

Create a traditional proxy function.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -UseForwardHelp

By default the copy process will create a comment-based help block with the original command's help which you can then edit to meet your requirements. Or you can opt to retain the forwarded help links to the original command.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**None**

## Outputs

**[system.string[]]**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Command](#)

# Copy-HelpExample

## Synopsis

Copy code snippet from help examples.

## Syntax

```
Copy-HelpExample [-Name] <String> [-Path <String>] [-UseGridView]  
[<CommonParameters>]
```

## Description

This command is intended to make it easier to copy code snippets from help examples to the clipboard. You can select one or more examples which have been trimmed of comments, blank lines and most prompts. Some code examples contain the output or have several lines of code. You will need to manually delete what you don't want. If this command is run on a Windows system you have a dynamic parameter to use Out-GridView to display your choices. When prompted enter a comma separated list of the examples you wish to copy. Otherwise, the command will display a console-based menu. Note that if you are using the PowerShell ISE you will be forced to use Out-GridView.

## Examples

## Example 1

```
PS C:\> Copy-HelpExample -Name Stop-Process
```

### Code Samples

**Each** help example is numbered to the left. At the prompt below, select the code **samples** you want to copy to the clipboard. Separate multiple values with a **comma**.

**Some** example code includes the output.

[1] **Example 1:** Stop all instances of a process

```
Stop-Process -Name "notepad"
```

[2] **Example 2:** Stop a specific instance of a process

```
Stop-Process -Id 3952 -Confirm -PassThru
```

#### Confirm

Are you sure you want to perform this action?

Performing operation "Stop-Process" on Target "notepad (3952)".

Handles	NPM(K)	PM(K)	WS(K)	VM(M)	CPU(s)	Id	ProcessName
41	2	996	3212	31		3952	notepad

[3] **Example 3:** Stop a process and detect that it has stopped

```
calc
$p = Get-Process -Name "calc"
Stop-Process -InputObject $p
Get-Process | Where-Object {$_._HasExited}
```

[4] **Example 4:** Stop a process not owned by the current user

```
Get-Process -Name "lsass" | Stop-Process
```

```
Stop-Process : Cannot stop process 'lsass (596)' because of the following error
: Access is denied
At line:1 char:34
+ Get-Process -Name "lsass" | Stop-Process <<<
```

```
[ADMIN]: Get-Process -Name "lsass" | Stop-Process
```

#### Warning!

Are you sure you want to perform this action?

Performing operation 'Stop-Process' on Target 'lsass(596)'

[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "Y"):

```
[ADMIN]: Get-Process -Name "lsass" | Stop-Process -Force
```

```
[ADMIN]:
```

Please select items to copy to the clipboard by **number**. Separate multiple entries with a **comma**. Press Enter alone to cancel:

The console menu will be displayed using ANSI. Enter a comma separated list of numbers for the items to copy to the clipboard.

## Parameters

### -Name

Enter the name of the PowerShell command.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Path

Gets help that explains how the cmdlet works in the specified provider path. Enter a PowerShell provider path.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -UseGridView

Select help examples using Out-GridView. This parameter is only available on Windows systems. The parameter has an alias of 'ogv'.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:** ogv

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

**None**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

Get-Help

# Copy-PSFunction

## Synopsis

Copy a local PowerShell function to a remote session.

## Syntax

```
Copy-PSFunction [-Name] <String[]> -Session <PSSession> [-Force] [<CommonParameters>]
```

## Description

This command is designed to solve the problem when you want to run a function loaded locally on a remote computer. Copy-PSFunction will copy a PowerShell function that is loaded in your current PowerShell session to a remote PowerShell session. The remote session must already be created. The copied function only exists remotely for the duration of the remote PowerShell session.

If the function relies on external or additional files, you will have to copy them to the remote session separately.

## Examples

### Example 1

```
PS C:\> "Get-LastBoot","Get-DiskFree" | Copy-PSFunction -session $S
```

Copy the local functions Get-LastBoot and Get-DiskFree to a previously created PSSession saved as \$S. You could then run the function remotely using Invoke-Command.

## Parameters

### -Force

Overwrite an existing function with the same name. The default behavior is to skip existing functions.

Type: **SwitchParameter**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** None

**Accept pipeline input:** False

**Accept wildcard characters:** False

## -Name

Enter the name of a local function.

```
Type: String[]
Parameter Sets: (All)
Aliases:

Required: True
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## -Session

Specify an existing PSSession.

```
Type: PSSession
Parameter Sets: (All)
Aliases:

Required: True
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.String[]**

## Outputs

**Deserialized.System.Management.Automation.FunctionInfo**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Copy-Item](#)

# Find-CimClass

## Synopsis

Search CIM for a class.

## Syntax

```
Find-CimClass [-Classname] <String> [-Exclude <String>]
[-Computername <String>] [<CommonParameters>]
```

## Description

This function is designed to search an entire CIM repository for a class name. Sometimes, you may have a guess about a class name but not know the full name or even the correct namespace. Find-CimClass will recursively search for a given classname. You can use wildcards and search remote computers.

This command requires a Windows platform.

## Examples

### Example 1

```
PS C:\> Find-CimClass -Classname *protection*
```

NameSpace: Root/CIMV2/mdm/dmmap

CimClassName	CimClassMethods	CimClassProperties
MDM_AppLocker_EnterpriseDataProt...	{}	{InstanceID, Parent...
MDM_AppLocker_EnterpriseDataProt...	{}	{InstanceID, Parent...
MDM_EnterpriseDataProtection	{}	{InstanceID, Parent...
MDM_EnterpriseDataProtection_Set...	{}	{AllowAzureRMSForED...
MDM_Policy_Config01_DataProtecti...	{}	{AllowDirectMemoryA...
MDM_Policy_Result01_DataProtecti...	{}	{AllowDirectMemoryA...
MDM_Reportng_EnterpriseDataProt...	{}	{InstanceID, LogCou...
MDM_Reportng_EnterpriseDataProt...	{}	{InstanceID, Logs, ...
MDM_WindowsAdvancedThreatProtect	{}	{InstanceID, Offboa...
MDM_WindowsAdvancedThreatProtect	{}	{GroupIds, Instance...
MDM_WindowsAdvancedThreatProtect	{}	{Criticality, Grou ...
MDM_WindowsAdvancedThreatProtect	{}	{InstanceID, LastCo...

NameSpace: Root/Microsoft/SecurityClient

CimClassName	CimClassMethods	CimClassProperties
ProtectionTechnologyStatus	{}	{PackedXml, SchemaV...
...		

## Example 2

```
PS C:\> Find-CimClass -Classname *volume* -Exclude "win32_Perf*"
```

Search for any class with 'volume' in the name but exclude anything that starts with 'win32\_Perf'.

## Parameters

### -Classname

Enter the name of a CIM/WMI class. Wildcards are permitted.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: True
```

### -Computername

Enter the name of a computer to search.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: localhost
Accept pipeline input: False
Accept wildcard characters: False
```

### -Exclude

Enter a pattern for class names to EXCLUDE from the results. You can use wildcards or regular expressions.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**None**

## Outputs

**Microsoft.Management.Infrastructure.CimClass**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources>

## Related Links

[Get-CimClass](#)

# Format-Percent

## Synopsis

Format a value as a percentage.

## Syntax

### None (Default)

```
Format-Percent [-Value] <Object> [-Total] <Object> [-Decimal <Int32>]
[<CommonParameters>]
```

## String

```
Format-Percent [-Value] <Object> [-Total] <Object> [-Decimal <Int32>]
[-AsString] [<CommonParameters>]
```

## Description

This command calculates a percentage of a value from a total, with the formula  $(\text{value}/\text{total}) * 100$ . The default is to return a value to 2 decimal places but you can configure that with -Decimal. There is also an option to format the percentage as a string which will include the % symbol.

## Examples

### Example 1

```
PS C:\> Format-Percent -value 1234.567 -total 5000 -decimal 4
24.6913
```

Calculate a percentage from 1234.567 out of 5000 (i.e.  $1234.567/5000$ ) to 4 decimal points.

### Example 2

```
PS C:\> Get-CimInstance win32_operatingsystem -computer chi-dc04 |
Select-Object PSComputerName,TotalVisibleMemorySize,
@{Name="PctFreeMem";Expression={
    Format-Percent $_.FreePhysicalMemory $_.TotalVisibleMemorySize}}
```

PSComputerName	TotalVisibleMemorySize	PctFreeMem
chi-dc04	1738292	23.92

## Example 3

```
PS C:\> Get-CimInstance win32_operatingsystem -computer chi-dc04 |  
Select-Object PSComputerName,TotalVisibleMemorySize,  
@{Name="PctFreeMem";Expression={[  
    Format-Percent $_.FreePhysicalMemory $_.TotalVisibleMemorySize -asString]}}  
  
PSComputerName          TotalVisibleMemorySize      PctFreeMem  
-----                  -----  
chi-dc04                1738292                 23.92%
```

## Parameters

### -Value

The numerator value.

Type: Object  
Parameter Sets: (All)  
Aliases: X, Numerator  
  
Required: True  
Position: 1  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -Total

The denominator value.

Type: Object  
Parameter Sets: (All)  
Aliases: Y, Denominator  
  
Required: True  
Position: 2  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -Decimal

The number of decimal places to return between 0 and 15.

Type: **Int32**  
Parameter Sets: (**All**)  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** 2  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -AsString

Write the result as a string.

Type: **SwitchParameter**  
Parameter Sets: String  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### System.Object

## Outputs

### System.Double

### System.String

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Format-Value](#)

[Format-String](#)

# Format-String

## Synopsis

Options for formatting strings.

## Syntax

```
Format-String [-Text] <String> [-Reverse] [-Case <String>] [-Replace <Hashtable>]
[-Randomize] [<CommonParameters>]
```

## Description

Use this command to apply different types of formatting to strings. You can apply multiple transformations.

They are applied in this order:

- 1) Reverse
- 2) Randomization
- 3) Replace
- 4) Case

## Examples

### Example 1

```
PS C:\> "P@ssw0rd" | Format-String -Reverse

dr0wss@P
```

### Example 2

```
PS C:\> "P@ssw0rd" | Format-String -Reverse -Randomize

rs0Pd@ws
```

### Example 3

```
PS C:\> $env:computername | Format-String -Case Lower

win81-ent-01
```

### Example 4

```
PS C:\> Format-String "p*wer2she!!" -Case Alternate

P*WeR2ShE!!
```

### Example 5

```
PS C:\> Format-String "alphabet" -Randomize -Replace @{a="@";e=3} -Case Alternate  
3bP1@tH@
```

### Example 6

```
PS C:\> "pOWERSHELL" | Format-String -Case Toggle  
PowerShell
```

## Parameters

### -Text

Any string you want to format.

```
Type: String  
Parameter Sets: (All)  
Aliases:  
  
Required: True  
Position: 1  
Default value: None  
Accept pipeline input: True (ByValue)  
Accept wildcard characters: False
```

### -Reverse

Reverse the text string.

```
Type: SwitchParameter  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: Named  
Default value: False  
Accept pipeline input: False  
Accept wildcard characters: False
```

### -Case

Valid values are Upper, Lower, Proper, Alternate, and Toggle.

Proper case will capitalize the first letter of the string.

Alternate case will alternate between upper and lower case, starting with upper case, e.g. PoWeRsHeLl

Toggle case will make upper case lower and vice versa, e.g. Powershell -> pOWERSHELL

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Replace

Specify a hashtable of replacement values. The hashtable key is the string you want to replace and the value is the replacement (see examples). Replacement keys are CASE SENSITIVE.

Type: **Hashtable**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Randomize

Re-arrange the text in a random order.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### System.String

## Outputs

### System.String

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Format-Value](#)

[Format-Percent](#)

# Format-Value

## Synopsis

Format a numeric value.

## Syntax

### Default (Default)

```
Format-Value [-InputObject] <Object> [[-Unit] <String>] [-Decimal <Int32>]  
[<CommonParameters>]
```

## Number

```
Format-Value [-InputObject] <Object> [-Decimal <Int32>] [-AsNumber]  
[<CommonParameters>]
```

## Auto

```
Format-Value [-InputObject] <Object> [-Decimal <Int32>] [-Autodetect]  
[<CommonParameters>]
```

## Currency

```
Format-Value [-InputObject] <Object> [-AsCurrency] [<CommonParameters>]
```

## Description

This command will format a given numeric value. By default it will treat the number as an integer. Or you can specify a certain number of decimal places. The command will also allow you to format the value in KB, MB, etc.

You can let the command auto-detect the value and divide by an appropriate value.

## Examples

### Example 1

```
PS C:\> Get-CimInstance -class win32_logicaldisk -filter "DriveType=3" |  
Select-Object DeviceID,  
@{Name="SizeGB";Expression={$_.size | Format-Value -unit GB}},  
@{Name="FreeGB";Expression={$_.freespace | Format-Value -unit GB -decimal 2}}  
  
DeviceID          SizeGB        FreeGB  
-----          -----  
C:                200          124.97  
D:                437          29.01  
E:                25           9.67
```

### Example 2

```
PS C:\> (Get-Process chrome | measure ws -sum ).sum |  
Format-Value -Autodetect -verbose -Decimal 4  
  
VERBOSE: Starting: Format-Value  
VERBOSE: Status: Using parameter set Auto  
VERBOSE: Status: Formatting 965332992  
VERBOSE: Status: Using Autodetect  
VERBOSE: ..as MB  
VERBOSE: Status: Reformatting 920.61328125  
VERBOSE: ..to 4 decimal places  
920.6133  
VERBOSE: Ending: Format-Value
```

### Example 3

```
PS C:\> 3456.5689 | Format-Value -AsCurrency  
  
$3,456.57
```

Format a value as currency.

### Example 4

```
PS C:\> 1234567.8973 | Format-Value -AsNumber -Decimal 2  
  
1,234,567.90
```

Format the value as a number to 2 decimal points.

## Parameters

### -InputObject

Type: **Object**

Parameter Sets: ([All](#))

Aliases:

Required: True

Position: 2

Default value: None

Accept pipeline input: True ([ByValue](#))

Accept wildcard characters: False

## -Unit

The unit of measurement for your value. Valid choices are "KB", "MB", "GB", "TB", and "PB".

If you don't specify a unit, the value will remain as is, although you can still specify the number of decimal places.

Type: **String**

Parameter Sets: Default

Aliases:

Required: False

Position: 1

Default value: None

Accept pipeline input: False

Accept wildcard characters: False

## -Decimal

The number of decimal places to return between 0 and 15.

Type: **Int32**

Parameter Sets: Default, Number, Auto

Aliases:

Required: False

Position: Named

Default value: 0

Accept pipeline input: False

Accept wildcard characters: False

## -Autodetect

Attempt to autodetect and format the value.

```
Type: SwitchParameter
Parameter Sets: Auto
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -AsCurrency

Format the numeric value as currency using detected cultural settings. The output will be a string.

```
Type: SwitchParameter
Parameter Sets: Currency
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -AsNumber

Format the numeric value as a number using detected cultural settings for a separator like a comma. If the incoming value contains decimal points, by default they will be removed unless you use -Decimal.

The output will be a string.

```
Type: SwitchParameter
Parameter Sets: Number
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

## **System.Object**

# **Outputs**

## **System.Object**

## **Notes**

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## **Related Links**

[Format-String](#)

[Format-Percent](#)

# Get-FileItem

## Synopsis

A PowerShell version of the Where CLI command.

## Syntax

### Default (Default)

```
Get-FileItem [-Pattern] <String[]> [-Regex] [-Full] [-Quiet] [-First]  
[<CommonParameters>]
```

## Path

```
Get-FileItem [-Pattern] <String[]> [-Regex] [-Path <String[]>] [-Recurse]  
[-Full] [-Quiet] [-First] [<CommonParameters>]
```

## Description

This is an enhanced, PowerShell version of the WHERE command from the traditional CLI which will find files in %PATH% that match a particular pattern.

## Examples

### Example 1

```
PS C:\> Get-Fileitem notepad.exe  
  
C:\Windows\system32\notepad.exe  
C:\Windows\notepad.exe
```

Find notepad.exe in %PATH% and return the full file name. This is the default behavior.

### Example 2

```
PS C:\> PSWhere foo.exe -quiet  
  
False
```

Search for foo.exe and return \$True if found. This command is using the PSWhere alias.

### Example 3

```
PS C:\> Get-FileItem "^\d+\S+.txt" -Regex -path c:\scripts -full
```

**Directory:** C:\scripts

Mode	LastWriteTime	Length	Name
-a---	12/5/2007	2:19 PM	30146 1000FemaleNames.txt
-a---	12/5/2007	2:19 PM	29618 1000MaleNames.txt
-a---	6/2/2010	11:02 AM	31206 1000names.txt
-a---	6/3/2010	8:52 AM	3154 100names.txt
-a---	4/13/2012	10:27 AM	3781 13ScriptBlocks-v2.txt
-a---	8/13/2010	10:41 AM	3958 13ScriptBlocks.txt
-a---	2/7/2011	1:37 PM	78542 2500names.txt
-a---	2/8/2011	9:43 AM	157396 5000names.txt

Find all TXT files in C:\Scripts that start with a number and display full file information.

## Parameters

### -Pattern

The name of the file to find. Separate multiple entries with a comma. Wildcards are allowed. You can also specify a regular expression pattern by including the -REGEX parameter.

Type: **String[]**  
 Parameter Sets: **(All)**  
 Aliases:  
  
**Required:** True  
**Position:** 1  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

### -Regex

Indicates that the pattern is a regular expression.

Type: **SwitchParameter**  
 Parameter Sets: **(All)**  
 Aliases:  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Path

The folders to search other than %PATH%.

```
Type: String[]
Parameter Sets: Path
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Recurse

Used with -Path to indicate a recursive search.

```
Type: SwitchParameter
Parameter Sets: Path
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -Full

Write the full file object to the pipeline. The default is just the full name.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -Quiet

Returns True if a match is made. This parameter will override -Full.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -First

Stop searching after the pattern is found. Don't search any more paths.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### Strings

### Outputs

## String, Boolean or File

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-ChildItem](#)

[Where.exe](#)

# Get-FolderSizeInfo

## Synopsis

Get folder size information.

## Syntax

```
Get-FolderSizeInfo [-Path] <String[]> [-Hidden] [<CommonParameters>]
```

## Description

This command is an alternative to discovering the size of a folder, or at least an easier method. Use the -Hidden parameter to include hidden files in the output. The measurement will include all files in all sub-folders.

Note that this command has been optimized for performance, but if you have a lot of files to count that will take time, especially when using Windows PowerShell. In fact, when querying system folders like C:\Windows on a Windows PowerShell platform, you might get better results including hidden files. Due to the nature of the .NET Framework changes, you might see different results for the same folder when run in PowerShell 7 compared to Windows PowerShell 5.1.

## Examples

### Example 1

```
PS C:\> Get-FolderSizeInfo -Path d:\temp
```

Computername	Path	TotalFiles	TotalSize
BOVINE320	D:\temp	48	121824451

### Example 2

```
PS C:\> Get-FolderSizeInfo -Path d:\temp -hidden
```

Computername	Path	TotalFiles	TotalSize
BOVINE320	D:\temp	146	125655552

Include hidden files.

*Example 3*

```
PS C:\> Get-ChildItem d:\ -Directory | Get-FolderSizeInfo |
Where-Object TotalSize -gt 1MB | Sort-Object TotalSize -Descending |
Format-Table -View mb
```

Computername	Path	TotalFiles	TotalSizeMB
BOVINE320	D:\VMDisks	18	114873.7246
BOVINE320	D:\ISO	17	42526.8204
BOVINE320	D:\SQLServer2017Media	1	710.8545
BOVINE320	D:\officeViewers	4	158.9155
BOVINE320	D:\Temp	48	116.1809
BOVINE320	D:\Sysinternals	153	59.6169
BOVINE320	D:\blog	41	21.9948
BOVINE320	D:\BackTemp	2	21.6734
BOVINE320	D:\rip	3	11.1546
BOVINE320	D:\logs	134	3.9517
BOVINE320	D:\2016	5	1.5608

Get the top level directories from D and pipe them to Get-FolderSizeInfo. Items with a total size of greater than 1MB are sorted on the total size and then formatted as a table using a built-in view called MB which formats the total size in MB. There are also views named KB,GB and TB to display formatted results accordingly..

*Example 4*

```
PS C:\> Get-Childitem c:\work -Directory | Get-FolderSizeInfo -Hidden |
Where-Object {$_.totalsize -ge 2mb} | Format-Table -view name
```

Path: C:\work

Name	TotalFiles	TotalKB
A	20	5843.9951
keepass	15	5839.084
PowerShellBooks	26	4240.3779
sunday	47	24540.6523

Get all sub-folders under C:\work greater than 2MB in size and display using the Name table view.

## Parameters

### -Hidden

Include hidden directories.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Path

Enter a file system path like C:\Scripts.

```
Type: String[]
Parameter Sets: (All)
Aliases: PSPath

Required: True
Position: 0
Default value: None
Accept pipeline input: True (ByPropertyName, ByValue)
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### System.String[]

## Outputs

### FolderSizeInfo

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Test-EmptyFolder](#)

[Get-ChildItem](#)

---

## Measure-Object

# Get-GitSize

## Synopsis

Get the size of .git folder.

## Syntax

```
Get-GitSize [[-Path] <String>] [<CommonParameters>]
```

## Description

When using git, it creates a hidden folder for change tracking. Because the file is hidden it is easy to overlook how large it might become. The command uses a formatting file to display a default view. There is an additional table view called MB that you can use.

## Examples

### Example 1

```
PS C:\Scripts\PiedPiper> Get-GitSize
```

Path	Files	SizeKB
C:\scripts\PiedPiper	751	6859.9834

Get the size of the .git folder from the current path.

### Example 2

```
PS C:\> Get-ChildItem c:\scripts -Directory | Get-GitSize | Sort-Object -property Size -descending | Select-Object -first 5 -property Computername,Name,Files,Size
```

Computername	Name	Files	Size
WIN10DSK2	PSAutoLab	526	193760657
WIN10DSK2	DevOps-Courses	29	53298180
WIN10DSK2	PSScriptTools	751	7024623
WIN10DSK2	PSGUI	32	6705894
WIN10DSK2	DscWorkshop	24	5590511

Get the directories under C:\Scripts that have a .git folder and sort on the Size property in descending order. Then select the first 5 directories and use the specified properties.

### Example 3

```
PS S:\PSReleaseTools> Get-GitSize | Format-Table -view mb
```

Path	Files	SizeMB
---	-----	-----
C:\scripts\PSReleaseTools	440	3.0588

Get the git folder size and format using the MB table view.

## Parameters

### -Path

The path to the parent folder, not the .git folder.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:** pspath  
  
**Required:** False  
**Position:** 1  
**Default value:** current location  
**Accept pipeline input:** True ([ByPropertyName](#), [ByValue](#))  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### [System.String]

## Outputs

### gitSize

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

This is a variation of code posted at <https://gist.github.com/jdhitsolutions/cbdc7118f24ba551a0bb325664415649>

## Related Links

[Get-ChildItem](#)

[Measure-Object](#)

[Remove-MergedBranch](#)

# Get-ModuleCommand

## Synopsis

Get a summary of module commands.

## Syntax

### name (Default)

```
Get-ModuleCommand [-Name] <String> [-ListAvailable] [<CommonParameters>]
```

### fqdn

```
Get-ModuleCommand -FullyQualifiedNamespace <ModuleSpecification> [-ListAvailable] [<CommonParameters>]
```

## Description

This is an alternative to Get-Command to make it easier to see at a glance what commands are contained within a module and what they can do. By default, Get-ModuleCommand looks for loaded modules. Use -ListAvailable to see commands in module not currently loaded. Note that if the help file is malformed or missing, you might get oddly formatted results.

## Examples

### Example 1

```
PS C:\> Get-ModuleCommand PSCalendar

ModuleName: PSCalendar

Name           Alias Synopsis
----           --- 
Get-Calendar   cal   Displays a visual representation of a calendar.
Show-Calendar  scal  Display a colorized calendar month in the console.
Show-GuiCalendar gcal  Display a WPF-based calendar
```

Get module commands using the default formatted view. You can install this module from the PowerShell Gallery.

**Example 2**

```
PS C:\> Get-ModuleCommand smbshare -ListAvailable | format-list

Name      : Block-SmbShareAccess
Alias     : blsmba
Synopsis   : Adds a deny ACE for a trustee to the security descriptor of the SMB share.

Name      : Close-SmbOpenFile
Alias     : cssmbo
Synopsis   : Closes a file that is open by one of the clients of the SMB server.

Name      : Close-SmbSession
Alias     : cssmbse
Synopsis   : Ends forcibly the SMB session.

...
```

Using the default list view.

**Example 3**

```
PS C:\> Get-ModuleCommand PSScriptTools | format-table -view verb

Verb: Add


| Name              | Alias | Type     | Synopsis                              |
|-------------------|-------|----------|---------------------------------------|
| <b>Add-Border</b> |       | Function | Create a text border around a string. |



Verb: Compare


| Name                  | Alias | Type     | Synopsis                            |
|-----------------------|-------|----------|-------------------------------------|
| <b>Compare-Module</b> | cmo   | Function | Compare PowerShell module versions. |



Verb: Convert


| Name                              | Alias | Type     | Synopsis  |
|-----------------------------------|-------|----------|---|
| <b>Convert-CommandtoHashtable</b> |       | Function | Convert a PowerShell expression into a <b>hashtable</b> . |
| Convert-EventLogRecord            | clr   | Function | Convert EventLogRecords to structured <b>objects</b> .    |


...
```

Display commands using a custom table view called 'Verb'.

## Parameters

### **-FullyQualifiedName**

Specifies names of modules in the form of ModuleSpecification objects. The FullyQualifiedName parameter

accepts a module name that is specified in the following formats:

```
@{ModuleName = "modulename"; ModuleVersion = "version_number"}
```

```
@{ModuleName = "modulename"; ModuleVersion = "version_number"; Guid = "GUID"}
```

ModuleName and ModuleVersion are required, but Guid is optional.

You cannot specify the FullyQualifiedName parameter in the same command as a Name parameter.

Type: **ModuleSpecification**

Parameter Sets: fqdn

Aliases:

Required: True

Position: Named

Default value: None

Accept pipeline input: False

Accept wildcard characters: False

## -ListAvailable

Indicates that this cmdlet gets all installed modules. Get-Module gets modules in paths listed in the PSModulePath environment variable. Without this parameter, Get-ModuleCommand gets only the modules that are both listed in the PSModulePath environment variable, and that are loaded in the current session.

ListAvailable does not return information about modules that are not found in the PSModulePath environment variable, even if those modules are loaded in the current session.

Type: **SwitchParameter**

Parameter Sets: (All)

Aliases:

Required: False

Position: Named

Default value: None

Accept pipeline input: False

Accept wildcard characters: False

## -Name

The name of an installed module.

Type: **String**

Parameter Sets: name

Aliases:

Required: True

Position: 0

Default value: None

Accept pipeline input: False

Accept wildcard characters: False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### ModuleCommand

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Command](#)

[Get-Module](#)

# Get-MyAlias

## Synopsis

Get non-default aliases defined in the current session.

## Syntax

```
Get-MyAlias [-NoModule] [<CommonParameters>]
```

## Description

Often you might define aliases for functions and scripts you use all of time. It may difficult sometimes to remember them all or to find them in the default Get-Alias output. This command will list all currently defined aliases that are not part of the initial PowerShell state.

The PSScriptTools module also includes a custom formatting file for alias objects which you can use with Get-Alias or Get-MyAlias. See examples.

## Examples

### Example 1

CommandType	Name	Version	Source
Alias	abt -> Get-AboutInfo		
Alias	bv -> Brave		
Alias	cal -> Get-Calendar	1.11.0	PSCalendar
Alias	cc -> Copy-Command	2.27.0	PSScriptTools
Alias	cfn -> New-CustomFileName	2.27.0	PSScriptTools
Alias	CFS -> ConvertFrom-String	3.1.0.0	Microsoft.PowerShell.Utility
Alias	cft -> ConvertFrom-Text	2.27.0	PSScriptTools
Alias	chc -> Convert-HashTableToCode	2.27.0	PSScriptTools
Alias	che -> Copy-HelpExample	2.27.0	PSScriptTools
Alias	cl -> Create-List		
Alias	clr -> Convert-EventLogRecord	2.27.0	PSScriptTools
Alias	clt -> ConvertTo-LocalTime	2.27.0	PSScriptTools
Alias	cmo -> Compare-Module	2.27.0	PSScriptTools
...			

Get all aliases that aren't par of the initial session state. This will include aliases defined in any modules you have loaded.

*Example 2*

CommandType	Name	Version	Source
Alias	abt -> Get-AboutInfo		
Alias	bv -> Brave		
Alias	cl -> Create-List		

Get defined aliases that don't belong to a module. These should be aliases you have defined in stand-alone scripts or your profile.

*Example 3*

PS C:\> Get-MyAlias -NoModule   Format-Table -View options				
Name	Definition	Options	ModuleName	Version
abt	Get-AboutInfo	None		
bv	Brave	None		
cl	Create-List	None		
np	notepad	ReadOnly		

Get your aliases and pipe to format table using a custom view defined by the PSScriptTools module.

## Parameters

### -NoModule

Only show aliases that DO NOT belong to a module.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

---

## Outputs

### **System.Management.Automation.AliasInfo**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Alias](#)

# Get-MyTimeInfo

## Synopsis

Display a time settings for a collection of locations.

## Syntax

```
Get-MyTimeInfo [[-Locations] <OrderedDictionary>] [-HomeTimeZone <String>]
[-DateTime <DateTime>] [-AsTable] [-AsList] [<CommonParameters>]
```

## Description

This command is designed to present a console-based version of a world clock. You provide a hashtable of locations and their respective time zones and the command will write a custom object to the pipeline. Be aware that TimeZone names may vary depending on the .NET Framework version. You may need to enumerate using a command like [System.TimeZoneInfo]::GetSystemTimeZones().ID or the Get-TZList command.

A Note on Formatting:

Normally, a PowerShell command should write an object to the pipeline and then you could use Format-Table or Format-List as you wanted. Those commands will in fact still work. However, given the way this command writes to the pipeline, that is with dynamically generated properties, it is difficult to create the usual format ps1xml file. To provide some nicer formatting this command has optional parameters to help your format the output. Note that even though it may look like a table, the output object will be a string.

This command was added in v2.3.0.

## Examples

### Example 1

```
P{S C:\>Get-MyTimeInfo

Now : 3/4/2019 1:28:43 PM
Home : 3/4/2019 1:28:43 PM
UTC : 3/4/2019 6:28:43 PM
Singapore : 3/5/2019 2:28:43 AM
Seattle : 3/4/2019 10:28:43 AM
Stockholm : 3/4/2019 7:28:43 PM
IsDaylightSavings : False
```

Default output is a custom object with each timezone as a property.

**Example 2**

```
Get-MyTimeInfo -AsTable
```

**Now:** 03/04/2019 13:28:11  
**UTC:** 03/04/2019 18:28:11

Home	Singapore	Seattle	Stockholm	IsDaylightSavings
3/4/2019 1:28:11 PM	3/5/2019 2:28:11 AM	3/4/2019 10:28:11 AM	3/4/2019 7:28:11 PM	False

Display current time information as a table. The output is a string.

**Example 3**

```
PS C:\> Get-MyTimeInfo -AsList
```

**Now:** 03/04/2019 13:27:03  
**UTC:** 03/04/2019 18:27:03

<b>Home</b>	:	3/4/2019 1:27:03 PM
<b>Singapore</b>	:	3/5/2019 2:27:03 AM
<b>Seattle</b>	:	3/4/2019 10:27:03 AM
<b>Stockholm</b>	:	3/4/2019 7:27:03 PM
<b>IsDaylightSavings</b>	:	False

Get current time info formatted as a list.

**Example 4**

```
PS C:\> $loc = [ordered]@{"Hong Kong"="China Standard Time";Honolulu="Hawaiian Standard Time";Mumbai = "India Standard Time"}
```

```
PS C:\> Get-MyTimeInfo -Locations $loc -ft
```

**Now:** 03/04/2019 13:26:23  
**UTC:** 03/04/2019 18:26:23

Home	Hong Kong	Honolulu	Mumbai	IsDaylightSavings
3/4/2019 1:26:23 PM	3/5/2019 2:26:23 AM	3/4/2019 8:26:23 AM	3/4/2019 11:56:23 PM	False

Using a custom location hashtable, get time zone information formatted as a table. This example is using the **-ft** alias for the **AsTable** parameter. Even though this is formatted as a table the actual output is a string.

**Example 5**

```
PS C:\> Get-MyTimeInfo -Locations ([ordered]@{Seattle="Pacific Standard time";"New Zealand" = "New Zealand Standard Time"}) -HomeTimeZone "central standard time" | Select Now,Home,Seattle,'New Zealand'
```

Now	Home	Seattle	New Zealand
3/4/2019 1:18:36 PM	3/4/2019 12:18:36 PM	3/4/2019 10:18:36 AM	3/5/2019 7:18:36 AM

This is a handy command when traveling and your laptop is using a locally derived time and you want to see the time in other locations. It is recommended that you set a **PSDefaultParameter** value for the **HomeTimeZone** parameter in your PowerShell profile.

## Parameters

### -Locations

Use an ordered hashtable of location names and timezones. You can find timezones with the Get-TimeZone cmdlet or through the .NET Framework with an expression like

```
[System.TimeZoneInfo]::GetSystemTimeZones()
```

The hashtable key should be the location or city name and the value should be the time zone ID. Be careful as it appears time zone IDs are case-sensitive.

The default value is:

```
[ordered]@{
    Singapore = "Singapore Standard Time";
    Seattle   = "Pacific Standard Time";
    Stockholm = "Central Europe Standard Time";
}
```

You might want to define a default value in \$PSDefaultParameterValue with your own defaults.

It is recommended you limit this hashtable to no more than 5 locations, especially if you want to format the results as a table.

Type: **OrderedDictionary**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** 1  
**Default value:** see note  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

### -HomeTimeZone

Specify the timezone ID of your home location. You might want to set this as a PSDefaultParameterValue

Type: **String**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** Eastern Standard Time  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -DateTime

Specify the datetime value to use. The default is now.

```
Type: DateTime
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: $(Get-Date)
Accept pipeline input: False
Accept wildcard characters: False
```

## -AsTable

Display the results as a formatted table. This parameter has an alias of ft.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: ft

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -AsList

Display the results as a formatted list. This parameter has an alias of fl.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: fl

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### Datetime

### Outputs

### myTimeInfo

### System.String

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-TimeZone](#)

# Get-MyVariable

## Synopsis

Get all user defined variables.

## Syntax

```
Get-MyVariable [[ -Scope ] <String>] [-NoTypeInformation] [<CommonParameters>]
```

## Description

This function will return all variables not defined by PowerShell or by this function itself. The default is to return all user-created variables from the global scope but you can also specify a scope such as script, local or a number 0 through 5. The command will also display the value type for each variable. If you want to suppress this output use the -NoTypeInformation switch.

This function is designed to work with the PowerShell console, NOT the the PowerShell ISE.

## Examples

### Example 1

```
PS C:\> Get-MyVariable

Name Value          Type
---- --          -----
a    bits           ServiceController
dt   10/22/2018 10:49:38 AM DateTime
foo  123           Int32
r    {1, 2, 3, 4...} Object[]
```

Depending on the value and how PowerShell chooses to display it, you may not see the type.

### Example 2

```
PS C:\> Get-MyVariable | Select-Object name,type

Name Type
---- --
a    ServiceController
dt   DateTime
foo  Int32
r    Object[]
```

*Example 3*

```
PS C:\> Get-MyVariable | Export-Clixml myvar.xml
PS C:\> import-clixml .\myvar.xml |
ForEach-Object {set-variable -Name $_.name -Value $_.value}
```

You can then import this xml file in another session to restore these variables.

*Example 4*

```
PS C:\> function foo {
    c:\scripts\Get-MyVariable2.ps1;
    $a=4;$b=2;$c=$a*$b;
    Get-MyVariable -notypeinformation -scope 1 -verbose;
    $c
}

PS C:\> foo
VERBOSE: Getting system defined variables
VERBOSE: Found 49
VERBOSE: Getting current variables in 1 scope
VERBOSE: Found 27
VERBOSE: Filtering variables

Name                Value
----                -----
a                  4
b                  2
c                  8
VERBOSE: Finished getting my variables
8
```

This sample function dot sources the script with this function. Within the function, Get-MyVariable is called specifying scope 1, or the parent scope. Scope 0 would be the scope of the Get-MyVariable function. Here's the result.

*Example 5*

```
PS C:\> Get-MyVariable | where {$_.type -eq "Scriptblock"} |
Select-Object name,value

Name                Value
----                -----
bigp               ps | where {$_.ws -gt 100mb}
dirt               Param(\[string\]$Path=$env:temp) Get-C...
disk               Param (\[string\]$computername=$env:co...
run                gsv | where {$_.status -eq "running"}
up                 Param(\[string\]$computername=$env:com...
```

Get all my variables that are scriptblocks.

## Parameters

## -Scope

The scope to query. The default is the Global scope but you can also specify Local, Script, Private or a number between 0 and 3 where 0 is the current scope, 1 is the parent scope, 2 is the grandparent scope and so on.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 1
Default value: Global
Accept pipeline input: False
Accept wildcard characters: False
```

## -NoTypeInformation

If specified, suppress the type information for each variable value.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

## Outputs

### System.Management.Automation.PSVariable

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

An earlier version of this function is described at <http://jdhitsolutions.com/blog/2012/05/get-my-variable->

---

revisited

## Related Links

[Get-Variable](#)

[About\\_Variables](#)

[About\\_Scope](#)

# Get-ParameterInfo

## Synopsis

Retrieve command parameter information.

## Syntax

```
Get-ParameterInfo [-Command] <String> [-Parameter <String>]  
[<CommonParameters>]
```

## Description

Using Get-Command, this function will return information about parameters for any loaded cmdlet or function. The common parameters like Verbose and ErrorAction are omitted. Get-ParameterInfo returns a custom object with the most useful information an administrator might need to know. See examples.

## Examples

*Example 1*

```
PS C:\> Get-ParameterInfo Get-Service

ParameterSet: Default

Name : Name
Aliases : ServiceName
Mandatory : False
IsDynamic : False
Position : 0
Type : System.String[]
ValueFromPipeline : True
ValueFromPipelineByPropertyName : True

ParameterSet: __AllParameterSets

Name : ComputerName
Aliases : Cn
Mandatory : False
IsDynamic : False
Position : Named
Type : System.String[]
ValueFromPipeline : False
ValueFromPipelineByPropertyName : True

Name : DependentServices
Aliases : DS
Mandatory : False
IsDynamic : False
Position : Named
Type : System.Management.Automation.SwitchParameter
ValueFromPipeline : False
ValueFromPipelineByPropertyName : False
...
```

Return parameter information for Get-Service using the default list view.

*Example 2*

```
PS C:\> Get-ParameterInfo mkdir |
Select-Object Name,Type,Position,parameterset

Name      Type          Position ParameterSet
----      ---          ----- -----
Path      System.String[]    0      pathSet
Path      System.String[]    0      nameSet
Name      System.String      Named   nameSet
Value     System.Object      Named   __AllParameterSets
Force     System.Management.Automation.SwitchParameter  Named   __AllParameterSets
Credential System.Management.Automation.PSCredential  Named   __AllParameterSets
UseTransaction System.Management.Automation.SwitchParameter  Named   __AllParameterSets
```

Get selected parameter information for the mkdir command.

*Example 3*

```
PS C:\> Get-ParameterInfo Test-WSMan | Sort ParameterSet | Format-Table
```

**ParameterSet:** \_\_AllParameterSets

Name	Aliases	Mandatory	Position	Type
<b>CertificateThumbprint</b>		False	Named	System.String
<b>Credential</b>	cred,c	False	Named	System.Management.Automation...
<b>ComputerName</b>	cn	False	0	System.String
<b>Authentication</b>	auth,am	False	Named	Microsoft.WSMan.Management....

**ParameterSet:** ComputerName

Name	Aliases	Mandatory	Position	Type
<b>UseSSL</b>		False	Named	System.Management.Automation.Swit...
<b>Port</b>		False	Named	System.Int32
<b>ApplicationName</b>		False	Named	System.String

Get all parameters from Test-WSMan and display details as a formatted table. The object type from Get-ParameterInfo has a default table view.

*Example 4*

```
PS C:\> Get-ParameterInfo -Command Get-Counter -Parameter computername
```

**ParameterSet:** \_\_AllParameterSets

<b>Name</b>	:	computername
<b>Aliases</b>	:	Cn
<b>Mandatory</b>	:	False
<b>IsDynamic</b>	:	False
<b>Position</b>	:	Named
<b>Type</b>	:	System.String[]
<b>ValueFromPipeline</b>	:	False
<b>ValueFromPipelineByPropertyName</b>	:	False

Get details on the Computername parameter of the Get-Counter cmdlet.

## Parameters

### -Command

The name of a cmdlet or function. The parameter has an alias of Name.

```
Type: String
Parameter Sets: (All)
Aliases: name

Required: True
Position: 1
Default value: None
Accept pipeline input: True (ByPropertyName, ByValue)
Accept wildcard characters: False
```

## -Parameter

{{Fill Parameter Description}}

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

[string]

## Outputs

**PSPrinterInfo**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

Get-Command

# Get-PathVariable

## Synopsis

Get information from locations in %PATH%.

## Syntax

```
Get-PathVariable [[-Scope] <String>] [<CommonParameters>]
```

## Description

Use this command to test the locations specified in the %PATH% environment variable. On Windows platforms you can distinguish between settings set per machine and those set per user. On non-Windows platforms the scope will be Process.

## Examples

### *Example 1*

```
PS C:\> Get-PathVariable

Scope   UserName Path                                Exists
-----  -----
User    Jeff      C:\Program Files\kdiff3           True
User    Jeff      C:\Program Files (x86)\Bitvise SSH Client True
User    Jeff      C:\Program Files\OpenSSH            True
...
Machine Jeff      C:\WINDOWS                         True
Machine Jeff      C:\WINDOWS\system32                True
Machine Jeff      C:\WINDOWS\System32\Wbem          True
...
```

### *Example 2*

```
PS /home/jeff> Get-PathVariable | Where-Object {-Not $_.exists}

Scope      : Process
Computername : Bovine320
UserName   : jeff
Path       : /snap/bin
Exists     : False
```

This example is on a Linux platform, finding locations that don't exist or can be verified. You could run the same command on Windows.

## Parameters

## -Scope

On Windows platforms you can distinguish between Machine and User specific settings.

```
Type: String
Parameter Sets: (All)
Aliases:
Accepted values: All, User, Machine

Required: False
Position: 0
Default value: All
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### EnvPath

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

# Get-PowerShellEngine

## Synopsis

Get the path to the current PowerShell engine.

## Syntax

```
Get-PowerShellEngine [-Detail]
```

## Description

Use this command to find the path to the PowerShell executable, or engine that is running your current session. The default is to provide the path only. But you can also get detailed information

## Examples

### Example 1

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

C:\WINDOWS\System32\WindowsPowerShell\v1.0\powershell.exe

### Example 2

```
PS C:\> Get-PowerShellEngine -Detail
```

<b>Path</b>	:	C:\WINDOWS\System32\WindowsPowerShell\v1.0\powershell.exe
<b>FileVersion</b>	:	10.0.15063.0 ( <b>WinBuild.160101.0800</b> )
<b>PSVersion</b>	:	5.1.15063.502
<b>ProductVersion</b>	:	10.0.15063.0
<b>Edition</b>	:	Desktop
<b>Host</b>	:	Visual Studio Code Host
<b>Culture</b>	:	en-US
<b>Platform</b>	:	

Result from running in the Visual Studio Code integrated PowerShell terminal

### Example 3

```
PS C:\> Get-PowerShellEngine -Detail

Path          : C:\Program Files\PowerShell\7-preview\pwsh.exe
FileVersion   : 7.0.0.0
PSVersion     : 7.0.0-rc.2
ProductVersion: 7.0.0-rc.2 SHA: d99b325861d3c15271367a0cece3037d76230e34
Edition       : Core
Host          : ConsoleHost
Culture       : en-US
Platform      : Win32NT
```

Result from running in a PowerShell 7 release candidate session on Windows 10

## Parameters

### -Detail

Include additional information. Not all properties may have values depending on operating system and PowerShell version.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## Inputs

## Outputs

[string]

[PSCustomObject]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

\$PSVersionTable

\$Host

Get-Process

# Get-PSLocation

## Synopsis

Get common location values.

## Syntax

```
Get-PSLocation [<CommonParameters>]
```

## Description

This command will write an object to the pipeline that displays the values of common file locations. You might find this helpful when scripting cross-platform.

## Examples

### Example 1

```
PS C:\> Get-PSLocation

Temp      : C:\Users\Jeff\AppData\Local\Temp\
Home      : C:\Users\Jeff\Documents
Desktop   : C:\Users\Jeff\Desktop
PowerShell : C:\Users\Jeff\Documents\WindowsPowerShell
```

Results on a Windows system.

### Example 2

```
PS C:\> Get-PSLocation

Temp      : /tmp/
Home      : /home/jeff
Desktop   :
PowerShell : /home/jeff/.config/powershell
```

Results on a Linux system running PowerShell Core.

## Parameters

### CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**None**

## Outputs

**System.Object**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Location](#)

[Set-Location](#)

# Get-PSProfile

## Synopsis

Get PowerShell profile locations

## Syntax

```
Get-PSProfile [<CommonParameters>]
```

## Description

This command is designed for Windows-based systems to show all possible PowerShell profile scripts. Including those for VS Code and the PowerShell ISE.

## Examples

### Example 1

```
PS C:\> Get-PSProfile

Name: PowerShell

Scope          Path                               Exists
----          ---                               -----
AllUsersCurrentHost   C:\Program Files\PowerShell\7\Microsoft.PowerShell_profile.ps1   False
AllUsersAllHosts     C:\Program Files\PowerShell\7\profile.ps1                      False
CurrentUserAllHosts  C:\Users\Jeff\Documents\PowerShell\profile.ps1                  True
CurrentUserCurrentHost C:\Users\Jeff\Documents\PowerShell\Microsoft.PowerShell_profile.ps1 True

Name: Windows PowerShell

Scope          Path                               Exists
----          ---                               -----
AllUsersCurrentHost   C:\WINDOWS\System32\WindowsPowerShell\v1.0\Microsoft.PowerShell_profile.ps1 True
AllUsersAllHosts     C:\WINDOWS\System32\WindowsPowerShell\v1.0\profile.ps1                True
CurrentUserAllHosts  C:\Users\Jeff\Documents\WindowsPowerShell\profile.ps1              True
CurrentUserCurrentHost C:\Users\Jeff\Documents\WindowsPowerShell\Microsoft.PowerShell_profile.ps1 True

Name: VSCode PowerShell

Scope          Path                               Exists
----          ---                               -----
CurrentUserCurrentHost C:\Users\Jeff\Documents\PowerShell\Microsoft.VSCode_profile.ps1 True
AllUsersCurrentHost   C:\Program Files\PowerShell\7\Microsoft.VSCode_profile.ps1        False
...
```

The command has a default formatted table view.

## Example 2

```
PS C:\> Get-PSProfile | Where-Object Exists | Format-List
```

Name: PowerShell

```
Scope      : CurrentUserAllHosts
Path       : C:\Users\Jeff\Documents\PowerShell\profile.ps1
Exists     : True
LastModified : 9/9/2020 2:35:45 PM
```

```
Scope      : CurrentUserCurrentHost
Path       : C:\Users\Jeff\Documents\PowerShell\Microsoft.PowerShell_profile.ps1
Exists     : True
LastModified : 9/9/2020 2:03:44 PM
```

Name: Windows PowerShell

```
Scope      : AllUsersCurrentHost
Path       : C:\WINDOWS\System32\WindowsPowerShell\v1.0\Microsoft.PowerShell_profile.ps1
Exists     : True
LastModified : 10/9/2017 4:08:35 PM
...
```

The command has a default list view.

## Parameters

### CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### PSProfilePath

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

# Get-PSScriptTools

## Synopsis

Get a summary of PSScriptTools commands.

## Syntax

```
Get-PSScriptTools [CommonParameters]
```

## Description

You can use this command to get a summary display of functions included in the PSScriptTools module.

## Examples

### Example 1

```
PS C:\> Get-PSScriptTools

Verb: Add
Name          Alias          Synopsis
---          ---          ---
Add-Border    Create a text border around a string.

Verb: Compare
Name          Alias          Synopsis
---          ---          ---
Compare-Module cmo          Compare PowerShell module versions.

Verb: Convert
Name          Alias          Synopsis
---          ---          ---
Convert-CommandToHashtable
Convert-EventLogRecord      clr          Convert EventLogRecords to struct...
Convert-HashtableString
Convert-HashtableToCode
...                      ...          Convert a hashtable to a string r...
```

## Example 2

```
PS C:\> Get-PSScriptTools | Where-Object alias |  
Select-Object Name,alias,Synopsis  
  
Name           Alias Synopsis  
---  
Compare-Module cmo   Compare PowerShell module versions.  
Convert-EventLogRecord clr   Convert EventLogRecords to structured objects  
ConvertFrom-Text cft   Convert structured text to objects.  
ConvertFrom-UTCTime frut  Convert a datetime value from universal  
ConvertTo-LocalTime clt   Convert a foreign time to local  
...
```

List commands with defined aliases in the PSScriptTools module.

## Parameters

### CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### PSScriptTool

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Command](#)

[Get-Module](#)

[Open-PSScriptToolsHelp](#)

# Get-PSWho

## Synopsis

Get PowerShell user summary information.

## Syntax

```
Get-PSWho [-AsString] [<CommonParameters>]
```

## Description

This command will provide a summary of relevant information for the current user in a PowerShell session. You might use this to troubleshoot an end-user problem running a script or command.

The default behavior is to write an object to the pipeline, but you can use the -AsString parameter to force the command to write a string. This makes it easier to use in your scripts with Write-Verbose.

## Examples

### Example 1

```
PS C:\> Get-PSWho

User          : BOVINE320\Jeff
Elevated      : True
Computername  : BOVINE320
OperatingSystem: Microsoft Windows 10 Pro [64-bit]
OSVersion     : 10.0.18363
PSVersion     : 5.1.18362.145
Edition       : Desktop
PSHost        : ConsoleHost
WSMan         : 3.0
ExecutionPolicy: RemoteSigned
Culture       : English (United States)
```

### Example 2

```
PS /home/jhicks> Get-PSWho

User          : jeff
Elevated      : NA
Computername  : Bovine320
OperatingSystem: Linux 4.4.0-18362-Microsoft #476-Microsoft Fri Nov 01 16:53:00 PST 2019
OSVersion     : Ubuntu 18.04.3 LTS
PSVersion     : 7.0.0-rc.2
Edition       : Core
PSHost        : ConsoleHost
WSMan         : 3.0
ExecutionPolicy: Unrestricted
Culture       : Invariant Language (Invariant Country)
```

### Example 3

```
PS C:\> Get-PSWho

User          : BOVINE320\Jeff
Elevated      : True
Computername  : BOVINE320
OperatingSystem: Microsoft Windows 10 Pro [64-bit]
OSVersion     : 10.0.18363
PSVersion     : 7.0.0-rc.2
Edition       : Core
PSHost        : ConsoleHost
WSMan         : 3.0
ExecutionPolicy: RemoteSigned
Culture       : English (United States)
```

### Example 4

```
PS C:\> Get-PSWho -asString | Set-Content c:\test\who.txt
```

## Parameters

### -AsString

Write the summary object as a string. This can be useful when you want to save the information in a log file.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

none

## Outputs

## PSWho

### [System.String]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-CimInstance](#)

[Get-ExecutionPolicy](#)

[\\$PSVersionTable](#)

[\\$Host](#)

# Get-TZData

## Synopsis

Get time zone details.

## Syntax

```
Get-TZData [-TimeZoneArea] <String> [-Raw] [<CommonParameters>]
```

## Description

This command uses a free and publicly available REST API offered by <http://worldtimeapi.org> to get information about a time zone. You can use Get-TZList to find an area and this command to display the details. The time zone area name is case-sensitive. The default is to write a custom object to the pipeline, but you also have an option of seeing the raw data that is returned from the API. On PowerShell Core, the raw data will be slightly different.

Note that if the site is busy you may get an error. If that happens, wait a minute and try again.

## Examples

### Example 1

```
PS C:\> Get-TZData Australia/Hobart

PS C:\> Get-TZData Australia/Hobart

Timezone          Label      Offset    DST        Time
-----          -----      -----    --  -----
Australia/Hobart AEDT     11:00:00  True   3/16/2019 5:35:46 AM
```

Get time zone information for Hobart.

### Example 2

```
PS C:\> Get-TZData Asia/Tokyo -Raw

week_number : 11
utc_offset  : +09:00
unixtime    : 1552674997
timezone    : Asia/Tokyo
dst_until   :
dst_from    :
dst         : False
day_of_year : 75
day_of_week : 6
datetime    : 2019-03-16T03:36:37.829505+09:00
abbreviation: JST
```

---

Get time zone information for Tokyo as a raw format.

### Example 3

```
PS C:\> Get-TZList Antarctica | Get-TZData | Sort-Object Offset
```

Timezone	Label	Offset	DST	Time
Antarctica/Rothera	-03	-03:00:00	False	3/15/2019 3:39:59 PM
Antarctica/Palmer	-03	-03:00:00	False	3/15/2019 3:39:59 PM
Antarctica/Troll	+00	00:00:00	False	3/15/2019 6:40:00 PM
Antarctica/Syowa	+03	03:00:00	False	3/15/2019 9:39:59 PM
Antarctica/Mawson	+05	05:00:00	False	3/15/2019 11:39:59 PM
Antarctica/Vostok	+06	06:00:00	False	3/16/2019 12:40:00 AM
Antarctica/Davis	+07	07:00:00	False	3/16/2019 1:39:58 AM
Antarctica/Casey	+08	08:00:00	False	3/16/2019 2:39:58 AM
Antarctica/DumontDUrville	+10	10:00:00	False	3/16/2019 4:39:58 AM
Antarctica/Macquarie	+11	11:00:00	False	3/16/2019 5:39:58 AM

Get all time zone areas in Antarctica and pipe them to Get-TZData to retrieve the details.

### Example 4

```
PS C:\> Get-TZData Europe/Rome | ConvertTo-LocalTime -Datetime "3/15/2019 4:00PM"
```

Friday, March 15, 2019 11:00:00 AM

Convert the datetime in Rome to local time, which in this example is Eastern time.

## Parameters

### -Raw

Return raw, unformatted data. Due to the way PowerShell Core automatically wants to format date time strings, raw output had to be slightly adjusted.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -TimeZoneArea

Enter a timezone location like Pacific/Auckland. It is case sensitive. Use Get-TZList to retrieve a list of areas.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** True ([ByValue](#))  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**System.String**

## Outputs

**PSCustomObject**

**TimeZoneData**

## Notes

Learn more about PowerShell:<http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-TZList](#)

# Get-TZList

## Synopsis

Get a list of time zone areas.

## Syntax

### zone (Default)

```
Get-TZList [-TimeZoneArea] <String> [<CommonParameters>]
```

### all

```
Get-TZList [-All] [<CommonParameters>]
```

## Description

This command uses a free and publicly available REST API offered by <http://worldtimeapi.org> to get a list of time zone areas. You can get a list of all areas or by geographic location. Use Get-TZData to then retrieve details. You must have http access to the Internet for this command to work. Note that if the site is busy you may get an error. If that happens, wait a minute and try again.

## Examples

### Example 1

```
PS C:\> Get-TZList -all

Africa/Abidjan
Africa/Accra
Africa/Algiers
Africa/Bissau
Africa/Cairo
...
```

Get a list of all time zone areas.

## Example 2

```
PS C:\> Get-TZList Atlantic

Atlantic/Azores
Atlantic/Bermuda
Atlantic/Canary
Atlantic/Cape_Verde
Atlantic/Faroe
Atlantic/Madeira
Atlantic/Reykjavik
Atlantic/South_Georgia
Atlantic/Stanley
```

Get all time zone areas in the Atlantic region.

## Parameters

### -All

Get a list of all timezone areas

```
Type: SwitchParameter
Parameter Sets: all
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -TimeZoneArea

Specify a time zone region.

```
Type: String
Parameter Sets: zone
Aliases:
Accepted values: Africa, America, Antarctica, Asia, Atlantic, Australia, Europe, Indian, Pacific

Required: True
Position: 0
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?linkid=113259>)

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LinkID=113216).

## Inputs

### System.String

## Outputs

### string

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-TZData](#)

# Get-WhoIs

## Synopsis

Lookup WhoIS data for a given IPv4 address.

## Syntax

```
Get-WhoIs [-IPAddress] <String> [<CommonParameters>]
```

## Description

This command queries the ARIN database to lookup WhoIs information for a given IPv4 address.

## Examples

### Example 1

```
PS C:\> get-whois 208.67.222.222 | select-object -Property *
```

IP	:	208.67.222.222
Name	:	OPENDNS-NET-1
RegisteredOrganization	:	Cisco OpenDNS, LLC
City	:	San Francisco
StartAddress	:	208.67.216.0
EndAddress	:	208.67.223.255
NetBlocks	:	208.67.216.0/21
Updated	:	3/2/2012 8:03:18 AM

### Example 2

```
PS C:\> '1.1.1.1','8.8.8.8','208.67.222.222' | get-whois
```

Name	IP	RegisteredOrganization	NetBlocks	Updated
APNIC-1	1.1.1.1	Asia Pacific Network Information Centre	1.0.0.0/8	7/30/2010 8:23:43 AM
LVLT-GOGL-8-8-8	8.8.8.8	Google LLC	8.8.8.0/24	3/14/2014 3:52:05 PM
OPENDNS-NET-1	208.67.222.222	Cisco OpenDNS, LLC	208.67.216.0/21	3/2/2012 8:03:18 AM

## Parameters

### -IPAddress

Enter a valid IPV4 address to lookup with WhoIs. It is assumed all of the octets are less than 254.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** True ([ByPropertyName](#), [ByValue](#))  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### System.String

## Outputs

## WhoIsResult

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Invoke-RestMethod](#)

# Get-WindowsVersion

## Synopsis

Get Windows version information.

## Syntax

```
Get-WindowsVersion [[-Computername] <String[]>] [-Credential <PSCredential>]
[-UseSSL] [-ThrottleLimit <Int32>] [-Authentication <String>] [<CommonParameters>]
```

## Description

This is a PowerShell version of the winver.exe utility. This command uses PowerShell remoting to query the registry on a remote machine to retrieve Windows version information. The parameters are the same as in Invoke-Command.

If you are querying the local computer, all other parameters will be ignored.

## Examples

### Example 1

```
PS C:\>Get-WindowsVersion

Computername: BOVINE320

ProductName      EditionID      ReleaseID  Build  InstalledUTC
-----          -----          -----      -----  -----
Windows 10 Pro    Professional   1909       18363  7/5/2019 10:54:49 PM
```

Query the local host.

**Example 2**

```
PS C:\> Get-WindowsVersion -Computername srv1,srv2,win10 -Credential $art
```

Computername:	WIN10			
<b>ProductName</b>	EditionID	ReleaseID	Build	InstalledUTC
Windows 10 Enterprise Evaluation	EnterpriseEval	1903	18362	2/6/2020 5:28:34 PM

Computername:	SRV1			
<b>ProductName</b>	EditionID	ReleaseID	Build	InstalledUTC
Windows Server 2016 Standard Evaluation	ServerStandardEval	1607	14393	2/6/2020 5:27:42 PM

Computername:	SRV2			
<b>ProductName</b>	EditionID	ReleaseID	Build	InstalledUTC
Windows Server 2016 Standard Evaluation	ServerStandardEval	1607	14393	2/6/2020 5:28:13 PM

Get Windows version information from remote computers using an alternate credential.

**Example 3**

```
PS C:\> Get-WindowsVersion -Computername Dom1 | Select-Object *
```

<b>ProductName</b>	: Windows Server 2016 Standard Evaluation
<b>EditionID</b>	: ServerStandardEval
<b>ReleaseID</b>	: 1607
<b>Build</b>	: 14393.3474
<b>Branch</b>	: rs1_release
<b>InstalledUTC</b>	: 2/6/2020 5:18:50 PM
<b>Computername</b>	: DOM1

## Parameters

### -Computername

Specifies the computers on which the command runs. The default is the local computer.

When you use the ComputerName parameter, Windows PowerShell creates a temporary connection that is used only to run the specified command and is then closed. If you need a persistent connection, use the Session parameter.

Type the NETBIOS name, IP address, or fully qualified domain name of one or more computers in a comma-separated list. To specify the local computer, type the computer name, localhost, or a dot (.).

To use an IP address in the value of ComputerName , the command must include the Credential parameter. Also, the computer must be configured for HTTPS transport or the IP address of the remote computer must be

included in the WinRM TrustedHosts list on the local computer. For instructions for adding a computer name to the TrustedHosts list, see "How to Add a Computer to the Trusted Host List" in about\_Remote\_Troubleshooting.

On Windows Vista and later versions of the Windows operating system, to include the local computer in the value of ComputerName , you must open Windows PowerShell by using the Run as administrator option.

```
Type: String[]
Parameter Sets: (All)
Aliases:

Required: False
Position: 1
Default value: $env:COMPUTERNAME
Accept pipeline input: True (ByPropertyName, ByValue)
Accept wildcard characters: False
```

## -Credential

Specifies a user account that has permission to perform this action. The default is the current user.

Type a user name, such as User01 or Domain01\User01. Or, enter a PSCredential object, such as one generated by the Get-Credential cmdlet. If you type a user name, this cmdlet prompts you for a password.

```
Type: PSCredential
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -UseSSL

Indicates that this cmdlet uses the Secure Sockets Layer (SSL) protocol to establish a connection to the remote computer. By default, SSL is not used.

WS-Management encrypts all Windows PowerShell content transmitted over the network. The UseSSL parameter is an additional protection that sends the data across an HTTPS, instead of HTTP.

If you use this parameter, but SSL is not available on the port that is used for the command, the command fails.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -ThrottleLimit

Specifies the maximum number of concurrent connections that can be established to run this command. If you omit this parameter or enter a value of 0, the default value, 32, is used.

The throttle limit applies only to the current command, not to the session or to the computer.

Type: **Int32**  
Parameter Sets: (**All**)

**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** 0  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Authentication

Specifies the mechanism that is used to authenticate the user's credentials. The acceptable values for this parameter are:

- Default
- Basic
- Credssp
- Digest
- Kerberos
- Negotiate
- NegotiateWithImplicitCredential

The default value is Default.

CredSSP authentication is available only in Windows Vista, Windows Server 2008, and later versions of the Windows operating system.

For information about the values of this parameter, see the description of the AuthenticationMechanismEnumeration (<http://go.microsoft.com/fwlink/?LinkID=144382>) in the Microsoft Developer Network (MSDN) library.

 Credential Security Support Provider (CredSSP) authentication, in which the user's credentials are passed to a remote computer to be authenticated, is designed for commands that require authentication on more than one resource, such as accessing a remote network share. This mechanism increases the security risk of the remote operation. If the remote computer is compromised, the credentials that are passed to it can be used to control the network session.

Type: **String**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** Default

**Accept pipeline input:** False

**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### System.String

## Outputs

## WindowsVersion

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-WindowsVersionString](#)

[WinVer.exe](#)

[Invoke-Command](#)

# Get-WindowsVersionString

## Synopsis

Get Windows version information.

## Syntax

```
Get-WindowsVersionString [[-Computername] <String[]>]
[-Credential <PSCredential>] [-UseSSL] [-ThrottleLimit <Int32>]
[-Authentication <String>] [<CommonParameters>]
```

## Description

This is a PowerShell version of the winver.exe utility. This command uses PowerShell remoting to query the registry on a remote machine to retrieve Windows version information. The parameters are the same as in Invoke-Command. The command writes a string of version information.

If you are querying the local computer, all other parameters will be ignored.

## Examples

### Example 1

```
PS C:\> Get-WindowsVersionString -Computername win10 -credential company\artd
WIN10 Windows 10 Enterprise (OS Build 15063.1418)
```

Get a string version of Windows version information from a remote computer and use an alternate credential.

### Example 2

```
PS C:\> Get-WindowsVersionString
BOVINE320 Windows 10 Pro Version Professional (OS Build 17763.253)
```

Get version information for the local host.

## Parameters

### -Computername

Specifies the computers on which the command runs. The default is the local computer.

When you use the ComputerName parameter, Windows PowerShell creates a temporary connection that is used only to run the specified command and is then closed. If you need a persistent connection, use the Session parameter.

Type the NETBIOS name, IP address, or fully qualified domain name of one or more computers in a comma-

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separated list. To specify the local computer, type the computer name, localhost, or a dot (.).

To use an IP address in the value of ComputerName , the command must include the Credential parameter. Also, the computer must be configured for HTTPS transport or the IP address of the remote computer must be included in the WinRM TrustedHosts list on the local computer. For instructions for adding a computer name to the TrustedHosts list, see "How to Add a Computer to the Trusted Host List" in about\_Remote\_Troubleshooting.

On Windows Vista and later versions of the Windows operating system, to include the local computer in the value of ComputerName , you must open Windows PowerShell by using the Run as administrator option.

```
Type: String[]
Parameter Sets: (All)
Aliases:

Required: False
Position: 1
Default value: $env:COMPUTERNAME
Accept pipeline input: True (ByPropertyName, ByValue)
Accept wildcard characters: False
```

## -Credential

Specifies a user account that has permission to perform this action. The default is the current user.

Type a user name, such as User01 or Domain01\User01. Or, enter a PSCredential object, such as one generated by the Get-Credential cmdlet. If you type a user name, this cmdlet prompts you for a password.

```
Type: PSCredential
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -UseSSL

Indicates that this cmdlet uses the Secure Sockets Layer (SSL) protocol to establish a connection to the remote computer. By default, SSL is not used.

WS-Management encrypts all Windows PowerShell content transmitted over the network. The UseSSL parameter is an additional protection that sends the data across an HTTPS, instead of HTTP.

If you use this parameter, but SSL is not available on the port that is used for the command, the command fails.

Type: **SwitchParameter**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** False

**Accept pipeline input:** False

**Accept wildcard characters:** False

## -ThrottleLimit

Specifies the maximum number of concurrent connections that can be established to run this command. If you omit this parameter or enter a value of 0, the default value, 32, is used.

The throttle limit applies only to the current command, not to the session or to the computer.

Type: **Int32**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** 0

**Accept pipeline input:** False

**Accept wildcard characters:** False

## -Authentication

Specifies the mechanism that is used to authenticate the user's credentials. The acceptable values for this parameter are:

- Default
- Basic
- Credssp
- Digest
- Kerberos
- Negotiate
- NegotiateWithImplicitCredential

The default value is Default.

CredSSP authentication is available only in Windows Vista, Windows Server 2008, and later versions of the Windows operating system.

For information about the values of this parameter, see the description of the AuthenticationMechanismEnumeration (<http://go.microsoft.com/fwlink/?LinkID=144382>) in the Microsoft Developer Network (MSDN) library.



Credential Security Support Provider (CredSSP) authentication, in which the user's credentials are passed to a remote computer to be authenticated, is designed for commands that require authentication on more than one resource, such as accessing a remote network share. This mechanism increases the security risk of the remote operation. If the remote computer is compromised, the credentials that are passed to it can be used to control the network session.

**Type:** `String`

Parameter Sets: ([All](#))

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** Default

**Accept pipeline input:** False

**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#) (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### System.String

## Outputs

### System.String

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-WindowsVersion](#)

[Winver.exe](#)

# Invoke-InputBox

## Synopsis

Launch a graphical input box.

## Syntax

### plain (Default)

```
Invoke-InputBox [-Title <String>] [-Prompt <String>]
[-BackgroundColor <String>] [<CommonParameters>]
```

### secure

```
Invoke-InputBox [-Title <String>] [-Prompt <String>] [-AsSecureString]
[-BackgroundColor <String>] [<CommonParameters>]
```

## Description

Use this command as a graphical replacement for Read-Host. The command will write either a string or a secure string to the pipeline. You can customize the prompt, title and background color.

This command requires a Windows platform.

## Examples

### Example 1

```
PS C:\> $name = Invoke-Inputbox -prompt "Enter a user name" -title "New User"
```

### Example 2

```
PS C:\> $pass = Invoke-Inputbox -prompt "Enter a new password"
          -title "New User" -asSecureString -background red
```

Get a secure string value from the user. This example also changes the form background to red.

## Parameters

### -AsSecureString

Use to mask the entry and return a secure string.

```
Type: SwitchParameter
Parameter Sets: secure
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -BackgroundColor

Set the form background color. You can use a value like 'red' or a '#c0c0c0'.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: White
Accept pipeline input: False
Accept wildcard characters: False
```

## -Prompt

Enter a prompt. No more than 50 characters.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: "Please enter a value"
Accept pipeline input: False
Accept wildcard characters: False
```

## -Title

Enter the title for the input box. No more than 25 characters.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: "User Input"
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**None**

## Outputs

**System.String**

**System.Security.SecureString**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Read-Host](#)

[New-WPFMessageBox](#)

# Join-Hashtable

## Synopsis

Combine two hashtables into one.

## Syntax

```
Join-Hashtable [[-First] <Hashtable>] [[-Second] <Hashtable>] [-Force]
[<CommonParameters>]
```

## Description

This command will combine two hashtables into a single hashtable. Normally this is as easy as \$hash1+\$hash2. But if there are duplicate keys, this will fail. Join-Hashtable will test for duplicate keys. If any of the keys from the first, or primary hashtable are found in the secondary hashtable, you will be prompted for which to keep. Or you can use -Force which will always keep the conflicting key from the first hashtable.

The original hashtables will not be modified.

## Examples

### Example 1

```
PS C:\> $a=@{Name="Jeff";Count=3;Color="Green"}
PS C:\> $b=@{Computer="HAL";Enabled=$True;Year=2020;Color="Red"}
PS C:\> Join-Hashtable $a $b
Duplicate key Color
A Green
B Red
Which key do you want to KEEP \[AB\]? A
```

Name	Value
---	-----
Year	2020
Name	Jeff
Enabled	True
Color	Green
Computer	HAL
Count	3

## Example 2

```
PS C:\>$c == Join-Hashtable $a $b -force
PS C:\> $c
```

Name	Value
Year	2020
Name	Jeff
Enabled	True
Color	Green
Computer	HAL
Count	3

## Parameters

### -First

The primary hashtable. If there are any duplicate keys and you use -Force, values from this hashtable will be kept.

Type: **Hashtable**  
 Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** 1  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

### -Second

The secondary hashtable.

Type: **Hashtable**  
 Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** 2  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

### -Force

Do not prompt for conflicts. Always keep the key from the first hashtable.

Type: **SwitchParameter**

Parameter Sets: (**All**)

**Aliases:**

**Required:** False

**Position:** Named

**Default value:** False

**Accept pipeline input:** False

**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

[ **hashtable**]

## Outputs

[ **hashtable**]

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[About\\_Hash\\_Tables](#)

# New-ANSIBar

## Synopsis

Create an ANSI colored bar.

## Syntax

### standard (Default)

```
New-ANSIBar -Range <Int32[]> [-Spacing <Int32>] [-Character <String>] [-Gradient] [<CommonParameters>]
```

### custom

```
New-ANSIBar -Range <Int32[]> [-Spacing <Int32>] [-Custom <Char>] [-Gradient] [<CommonParameters>]
```

## Description

You can use this command to create colorful bars using ANSI escape sequences based on a 256 color scheme. The default behavior is to create a gradient bar that goes from first to last values in the range and then back down again. Or you can create a single gradient that runs from the beginning of the range to the end. You can use one of the default characters or specify a custom one.

You can learn more about ANSI escape codes at [https://en.wikipedia.org/wiki/ANSI\\_escape\\_code](https://en.wikipedia.org/wiki/ANSI_escape_code).

## Examples

### Example 1

```
PS C:\> New-ANSIBar -range (232..255)
```

This will create a grayscale gradient bar that goes from dark to light to dark.

### Example 2

```
PS C:\> New-ANSIBar -range (46..51) -Character BlackSquare -Spacing 3
```

### Example 3

```
PS C:\> New-ANSIBar -range (214..219) -Gradient -Spacing 5 -Character DarkShade
```

## Parameters

## -Character

Specify a character to use for the bar.

```
Type: String
Parameter Sets: standard
Aliases:
Accepted values: FullBlock, LightShade, MediumShade, DarkShade, BlackSquare, WhiteSquare

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Custom

Specify a custom character.

```
Type: Char
Parameter Sets: custom
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Gradient

Display as a single gradient from the first value to the last.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Range

Enter a range of 256 color values, e.g. (232..255)

Type: `Int32[]`  
Parameter Sets: ([All](#))  
Aliases:  
  
`Required:` True  
`Position:` Named  
`Default value:` None  
`Accept pipeline input:` False  
`Accept wildcard characters:` False

## -Spacing

How many characters do you want in the bar of each value? This will increase the overall length of the bar.

Type: `Int32`  
Parameter Sets: ([All](#))  
Aliases:  
  
`Required:` False  
`Position:` Named  
`Default value:` None  
`Accept pipeline input:` False  
`Accept wildcard characters:` False

## CommonParameters

This cmdlet supports the common parameters: `-Debug`, `-ErrorAction`, `-ErrorVariable`, `-InformationAction`, `-InformationVariable`, `-OutVariable`, `-OutBuffer`, `-PipelineVariable`, `-Verbose`, `-WarningAction`, and `-WarningVariable`. For more information, see [about\\_CommonParameters](#).

## Inputs

**None**

## Outputs

**System.String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[New-RedGreenGradient](#)

[Write-ANSIProgress](#)

# New-CustomFileName

## Synopsis

Create a custom file name based on a template.

## Syntax

```
New-CustomFileName [-Template] <String> [-Case <String>] [<CommonParameters>]
```

## Description

This command will generate a custom file name based on a template string that you provide. You can create a template string using any of these variables. Most of these should be self-explanatory

- %username
- %computername
- %year - 4 digit year
- %yr - 2 digit year
- %monthname - The abbreviated month name
- %month - The month number
- %dayofweek - The full name of the week day
- %day
- %hour - the hour of the day in 12 hour format to 2 digits
- %hour24 - the hour of the day in 24 hour format to 2 digits
- %minute
- %seconds
- %time - A compact string of HourMinuteSecond
- %string - A random string
- %guid

You can also insert a random number using %# with a # character for each digit. If you want a 2 digit random number use %. If you want 6 digits, use %.

The command will attempt to preserve case for any non-pattern string, but you should separate it from other placeholder patterns with one of these characters: - ( ) [ ] or a . Using an underscore will not work.

Another option, is to turn the entire custom name into upper or lower case.

## Examples

*Example 1*

```
PS C:\> New-CustomFileName %computername_%day%monthname%yr-%time.log
COWPC_28Nov18-142138.log
```

*Example 2*

```
PS C:\> New-CustomFileName %dayofweek-%####.dat
Tuesday-3128.dat
```

Create a custom file name using the day of the week and a 4 digit random number.

*Example 3*

```
PS C:\> New-CustomFileName %username-%string.tmp -Case Upper
JEFF-Z0XUMFS.TMP
```

Create an upper case custom file name. The %string placeholder will be replaced with a random 8 character string.

*Example 4*

```
PS C:\> Join-Path c:\work (New-CustomFilename "%Year%Monthname-LOG-%computername[%username].txt" -case lower)
c:\work\2018nov-log-bovine320[jeff].txt
```

Create a lower case filename using Join-Path. This command does not create the file, it only generates a name for you to use.

*Example 5*

```
PS C:\> 1..10 | foreach-object {
    $file = New-Item (Join-Path c:\work\data (New-CustomFileName %string-%####.dat))
    $stream = $file.open("OpenOrCreate")
    $stream.Seek((Get-Random -minimum 250 -Maximum 2KB), "Begin") | Out-Null
    $stream.WriteByte(0)
    $stream.Close()
    $file
}
```

**Directory:** C:\work\data

Mode	LastWriteTime	Length	Name
-a----	3/15/2019 4:46 PM	976	rcphz2nj-6431.dat
-a----	3/15/2019 4:46 PM	1797	viz32er5-0526.dat
-a----	3/15/2019 4:46 PM	1775	k2mukuv4-8267.dat
-a----	3/15/2019 4:46 PM	666	0encqdlt-8753.dat
-a----	3/15/2019 4:46 PM	513	dbswpufj-6314.dat
-a----	3/15/2019 4:46 PM	371	qlkdufp0-0481.dat
-a----	3/15/2019 4:46 PM	2010	5cxq3tb5-5624.dat
-a----	3/15/2019 4:46 PM	2043	mcvoh4n5-8041.dat
-a----	3/15/2019 4:46 PM	1048	4iwibnmf-1584.dat
-a----	3/15/2019 4:46 PM	378	fgsj0rtd-2894.dat

Create 10 dummy files with random names and sizes.

## Parameters

### -Case

Some values like username or computername might be in different case than what you want. You can use the default value, or return a value that is all upper or lower case.

```
Type: String
Parameter Sets: (All)
Aliases:
Accepted values: Lower, Upper, Default

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -Template

A string that defines the naming pattern based on a set of placeholders. You can create a template string using any of these variables, including the % symbol.

- %username
- %computername
- %year - 4 digit year
- %yr - 2 digit year
- %monthname - The abbreviated month name
- %month - The month number
- %dayofweek - The full name of the week day
- %day
- %hour - the hour of the day in 12 hour format to 2 digits
- %hour24 - the hour of the day in 24 hour format to 2 digits
- %minute
- %seconds
- %time - A compact string of HourMinuteSecond
- %string - A random string
- %guid
- %# - a random number matching the number of # characters

Type: **String**

Parameter Sets: (**All**)

Aliases:

Required: True

Position: 0

Default value: None

Accept pipeline input: False

Accept wildcard characters: False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**None**

## Outputs

**System.String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[New-RandomFileName](#)

# New-PSDriveHere

## Synopsis

Create a new PSDrive at the current location.

## Syntax

### Folder (Default)

```
New-PSDriveHere [[-Path] <String>] [-First] [-SetLocation] [-Passthru]
[-WhatIf] [-Confirm] [<CommonParameters>]
```

### Name

```
New-PSDriveHere [[-Path] <String>] [[-Name] <String>] [-SetLocation]
[-Passthru] [-WhatIf] [-Confirm] [<CommonParameters>]
```

## Description

This function will create a new PSDrive at the specified location. The default is the current location, but you can specify any PSPath. The function will take the last word of the path and use it as the name of the new PSDrive. If you prefer to use the first word of the location, use -First. If you prefer to specify a totally different name, then use the -Name parameter.

This command will not write anything to the pipeline unless you use -Passthru.

## Examples

### Example 1

```
PS C:\users\jeff\documents\Enterprise Mgmt Webinar\> New-PSDriveHere
```

This will create a new PSDrive called Webinar rooted to the current location.

### Example 2

```
PS C:\users\jeff\documents\Enterprise Mgmt Webinar\> New-PSDriveHere -first
```

This will create a new PSDrive called Enterprise rooted to the current location.

### Example 3

```
PS C:\> New-PSDriveHere HKLM:\software\microsoft -passthru |  
Select-Object -ExpandProperty Name  
  
microsoft
```

### Example 4

```
PS C:\> New-PSDriveHere -Path "\\\NAS\files\powershell" -Name PSFiles
```

Create a new PSDrive called PSFiles rooted to the specified path.

### Example 5

```
PS C:\Users\Jeff\Documents\DeepDive\> New-PSDriveHere . DeepDive -setlocation  
PS DeepDive:\>
```

Create a new PSDrive and change location to it.

## Parameters

### -Path

The path for the new PSDrive. The default is the current location.

```
Type: String  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: 1  
Default value: .  
Accept pipeline input: False  
Accept wildcard characters: False
```

### -Name

The name for the new PSDrive. The default is the last word in the specified location, unless you use -First.

```
Type: String  
Parameter Sets: Name  
Aliases:  
  
Required: False  
Position: 2  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False
```

## -First

Use the first word of the current location for the new PSDrive.

```
Type: SwitchParameter
Parameter Sets: Folder
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -SetLocation

Set location to this new drive. This parameter has an alias of CD.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cd

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: wi

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Confirm

Prompts you for confirmation before running the cmdlet.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cf

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Passthru

Pass the new PSDrive object to the pipeline.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**None**

## Outputs

**None**

## System.Management.Automation.PSDrive

## Notes

Originally published at <http://jdhitsolutions.com/blog/2010/08/New-PSDriveHere/>

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-PSDrive](#)

[New-PSDrive](#)

# New-PSFormatXML

## Synopsis

Create or modify a format.ps1xml file.

## Syntax

```
New-PSFormatXML [-InputObject] <Object> [[-Properties] <String[]>]
[-Typename <String>] [[-FormatType] <String>] [[-ViewName] <String>]
[-Path] <String> [-GroupBy <String>] [-Wrap] [-Append] [-Passthru] [-WhatIf]
[-Confirm] [<CommonParameters>]
```

## Description

When defining custom objects with a new typename, PowerShell by default will display all properties. However, you may wish to have a specific default view, be it a table or list. Or you may want to have different views display the object differently. Format directives are stored in format.ps1xml files which can be tedious to create. This command simplifies that process.

Pipe an instance of your custom object to this function and it will generate a format.ps1xml file based on either all the properties or a subset that you provide. You can repeat the process to add additional views. When finished, edit the format.ps1xml file and fine tune it. The file will have notes on how to substitute script blocks. If you run this command inside the Visual Studio Code PowerShell Integrated Console and use -Passthru, the new file will automatically be opened in your editor.

Note that table views are set to Autosize. But the table definition will include best guesses for column widths. If you prefer a more granular approach you can delete the Autosize tag and experiment with varying widths. Don't forget to run Update-FormatData to load your new file. You may need to start a new PowerShell session to fully test changes.

## Examples

### Example 1

```
PS C:\> $tname = "myThing"
PS C:\> $obj = [PSCustomObject]@{
    PSTypeName      = $tname
    Name            = "Jeff"
    Date            = (Get-Date)
    Computername   = $env:computername
    OS              = (Get-Ciminstance win32_operatingsystem).caption
}
PS C:\> $upParams = @{
    TypeName        = $tname
    MemberType      = "ScriptProperty"
    MemberName      = "Runtime"
    Value           = {(Get-Date) - [datetime]"1/1/2019"}
    Force           = $True
}
PS C:\> Update-TypeData @upParams
PS C:\> $obj

Name        : Jeff
Date       : 2/10/2019 8:49:10 AM
Computername : BOVINE320
OS         : Microsoft Windows 10 Pro
Runtime     : 40.20:49:43.9205882
```

This example begins by creating a custom object. You might normally do this in a script or module.

### Example 2

```
PS C:\> $fmt = "C:\scripts\$tname.format.ps1xml"
PS C:\> $obj | New-PSFormatXML -Prop Name,Date,Computername,OS -path $fmt
PS C:\> $obj | New-PSFormatXML -Prop Name,OS,Runtime -view runtime -path $fmt -append
PS C:\> $obj | New-PSFormatXML -FormatType List -path $fmt -append
```

The object is then piped to New-PSFormatXML to generate a new format.ps1xml file. Subsequent commands add more formatted views. When the file is completed it can be modified. Note that these examples are using shortened parameter names.

**Example 3**

```
PS C:\> Update-FormatData -appendpath "C:\work\$tname.format.ps1xml"
PS C:\> $obj

Name Date Computername Operating System
-----
Jeff 2/10/2019 8:49:10 AM BOVINE320 Microsoft Windows 10 Pro

PS C:\> $obj | Format-Table -View runtime

Name OS Runtime
-----
Jeff 40.20:56:24.5411481

PS C:\> $obj | Format-List

Name : Jeff
Date : Sunday, February 10, 2019
Computername : BOVINE320
OperatingSystem : Microsoft Windows 10 Pro
Runtime : 40.21:12:01
```

After the format.ps1xml file is applied, the object can be formatted as designed.

**Example 4**

```
PS C:\> $obj | New-PSFormatXML -view computer -Group Computername
-path "c:\work\$tname.format.ps1xml" -append
PS C:\> Update-FormatData -appendpath "C:\work\$tname.format.ps1xml"
PS C:\> $obj | Format-Table -View computer

Computername: BOVINE320

Name Date OS Runtime
----- -- -----
Jeff 2/10/2019 8:49:10 AM Microsoft Windows 10 Pro 40.20:56:24.5411481
```

This adds another view called Computer that groups objects on the Computername property.

**Example 5**

```
PS C:\>$params = @{
Properties = "DisplayName"
FormatType = "Wide"
Path = "C:\work\svc.format.ps1xml"
GroupBy = "Status"
ViewName ="Status"
}
PS C:\> Get-Service bits | New-PSFormatXML @params
PS C:\> Update-FormatData $params.path
```

This will create a custom format file for service objects. This will create a wide display using the DisplayName property. Once loaded into PowerShell, you can run a command like this:

Get-Service	Sort-Object Status	Format-Wide -view Status
-------------	--------------------	--------------------------

## Example 6

```
PS C:\> '' | Select-Object -Property Name,Size,Date,Count,Age |  
New-PSFormatXML -Typename myThing -Path c:\scripts\mything.format.ps1xml
```

This is an example of creating a formatting file from an empty object. Normally, you would first define your object and verify it has all the properties you need and then you would create the formatting file. But you may want to create the formatting file in parallel using an older technique like this.

## Parameters

### -Append

Append the new view to an existing format.ps1xml file. You need to make sure that view names are unique. With the exception of default. You can have multiple default views as long as they are different types, such as table and list.

```
Type: SwitchParameter  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False
```

### -Confirm

Prompts you for confirmation before running the cmdlet.

```
Type: SwitchParameter  
Parameter Sets: (All)  
Aliases: cf  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False
```

### -FormatType

Specify whether to create a table, list, or wide view.

**Type:** `String`  
Parameter Sets: ([All](#))  
**Aliases:**  
Accepted values: Table, List, Wide  
  
**Required:** False  
**Position:** 2  
**Default** value: Table  
**Accept** pipeline input: False  
**Accept** wildcard characters: False

## -InputObject

Specify an object to analyze and generate or update a ps1xml file. All you need is one instance of the object. Ideally, the object will have values for all properties.

**Type:** `Object`  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** True  
**Position:** 0  
**Default** value: None  
**Accept** pipeline input: True ([ByValue](#))  
**Accept** wildcard characters: False

## -Passthru

Write the ps1xml file object to the pipeline. If you run this command inside the VS Code PowerShell integrated console and use this parameter, the file will be opened in the editor.

**Type:** `SwitchParameter`  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default** value: None  
**Accept** pipeline input: False  
**Accept** wildcard characters: False

## -Path

Enter full filename and path for the format.ps1xml file.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: True
Position: 4
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Properties

Enter a set of properties to include. If you don't specify anything then all properties will be used. When creating a Wide view you should only specify a single property.

```
Type: String[]
Parameter Sets: (All)
Aliases:

Required: False
Position: 1
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -ViewName

Enter the name of your view.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 3
Default value: default
Accept pipeline input: False
Accept wildcard characters: False
```

## -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: wi

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Typename

Specify the object typename. If you don't, then the command will use the detected object type from the Inputobject.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -GroupBy

Specify a property name to group on. You can edit the file if you need to change how it is displayed and/or calculated.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Wrap

Wrap long lines. This only applies to Tables.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.Object**

## Outputs

**None**

**System.IO.FileInfo**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Update-FormatData](#)

# New-RandomFileName

## Synopsis

Create a random file name.

## Syntax

### none (Default)

```
New-RandomFileName [-Extension <String>] [<CommonParameters>]
```

### temp

```
New-RandomFileName [-Extension <String>] [-UseTempFolder] [<CommonParameters>]
```

### home

```
New-RandomFileName [-Extension <String>] [-UseHomeFolder] [<CommonParameters>]
```

## Description

Create a new random file name. The default is a completely random name including the extension. But you can also create a filename that includes either the TEMP folder or the user's home folder. In the case of a Windows system, the home folder will be the documents folder.

This command does not create the file, it only generates a name for you to use.

## Examples

### Example 1

```
PS C:\> new-randomfilename  
fykxecvh.ipw
```

### Example 2

```
PS C:\> new-randomfilename -extension dat  
emevgq3r.dat
```

Specify a file extension.

### Example 3

```
PS C:\> new-randomfilename -extension log -UseHomeFolder  
C:\Users\Jeff\Documents\kbyw4fda.log
```

Create a random file name using the user's home folder. In Windows this will be the Documents folder.

### Example 4

```
PS /mnt/c/scripts> new-randomfilename -home -Extension tmp  
/home/jhicks/oces0epq.tmp
```

Create a random file name using the user's home folder on a Linux installation.

## Parameters

### -Extension

Use a specific extension. Do not include the period.

Type: **String**  
Parameter Sets: **(All)**  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

### -UseHomeFolder

Include the user's HOME folder.

Type: **SwitchParameter**  
Parameter Sets: **home**  
**Aliases:** home  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

### -UseTempFolder

Include the TEMP folder.

Type: **SwitchParameter**  
Parameter Sets: temp  
**Aliases:** temp

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**None**

## Outputs

**System.String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[New-CustomFileName](#)

# New-RedGreenGradient

## Synopsis

Create an ANSI gradient from red to green.

## Syntax

```
New-RedGreenGradient [[-Percent <Double>] [-Step <Int32>] [-Character <Char>]
[<CommonParameters>]]
```

## Description

You can use this command to create an ANSI colored gradient bar running from red to green. By specifying a percentage, you can provide a visual representation. The closer the percent value is to 1 the more green will be displayed. Use the -Step parameter to adjust the bar length. The smaller the step the longer the bar.

## Examples

### Example 1

```
PS C:\> New-RedGreenGradient -Percent .75
```

This will display a red to green gradient bar.

### Example 2

```
PS C:\> Get-Volume |
Where {$_.FileSystemType -eq 'NTFS' -AND $_.DriveLetter -match "[C-Zc-z]" } |
Sort-Object -property DriveLetter |
Select-Object -property DriveLetter, FileSystemLabel,
@{Name="FreeGB"; Expression={Format-Value -Input $_.SizeRemaining -Unit GB}},
@{Name = "PctFree"; Expression = {
$pct = Format-Percent -Value $_.SizeRemaining -Total $_.Size -Decimal 2;
"{1} {0}" -f $($New-RedGreenGradient -Percent ($pct/100) -Step 6), $pct}}
DriveLetter FileSystemLabel FreeGB PctFree
-----
C Windows          92 38.84 ☻-^â-^â-^â-^â-^â-^â-^â-^â-^â-^â-^â-^â-^â-
D Data             104 21.82 ☻-^â-^â-^â-^â-^â-^â-^â-^â-^â-
```

The bar graph will be colored from red towards green. This example is using format command from the PSScriptTools module.

## Parameters

## -Character

Specify a character to use for the gradient bar

```
Type: Char
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: [char]0x2588
Accept pipeline input: False
Accept wildcard characters: False
```

## -Percent

Specify a percentage as a decimal value like .35

```
Type: Double
Parameter Sets: (All)
Aliases:

Required: False
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Step

Specify a relative bar length between 2 and 10. The smaller the number the longer the bar.

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: 5
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

## None

## Outputs

### System.String

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[New-ANSIBar](#)

[Write-ANSIProgress](#)

# New-WPFMessageBox

## Synopsis

Display a customizable WPF-based message box.

## Syntax

### standard (Default)

```
New-WPFMessageBox [-Message] <String> [-Title <String>] [-Icon <String>]  
[-ButtonSet <String>] [-Background <String>] [-Quiet] [<CommonParameters>]
```

### custom

```
New-WPFMessageBox [-Message] <String> [-Title <String>] [-Icon <String>]  
[-CustomButtonSet <OrderedDictionary>] [-Background <String>] [-Quiet]  
[<CommonParameters>]
```

## Description

This function creates a Windows Presentation Foundation (WPF) based message box. This is intended to replace the legacy MsgBox function from VBScript and the Windows Forms library. The command uses a set of predefined button sets, each of which will close the form and write a value to the pipeline.

```
OK      = 1  
Cancel  = 0  
Yes    = $True  
No     = $False
```

You can also create an ordered hashtable of your own buttons and values. See examples. If you prefer to simply display the form, you can use the -Quiet parameter to suppress any output. PowerShell will block until a button is clicked or the form dismissed.

This command requires a Windows platform.

## Examples

### Example 1

```
PS C:\> New-WPFMessageBox -Message "Are you sure you want to do this?"  
-Title Confirm -Icon Question -ButtonSet YesNo  
False
```

---

Display a Yes/No message box. The value of the clicked button will be written to the pipeline. It is assumed you would use this in a script and have logic to determine what to do based on the value.

### Example 2

```
PS C:\> New-WPFMessageBox -Message "Press OK when ready to continue."
-TITLE "User Deletion" -Quiet -Background crimson -Icon Shield
```

Display a message box with a crimson background and using the Shield icon. No value will be written to the pipeline and PowerShell will wait until OK is clicked or the form dismissed.

### Example 3

```
PS C:\> New-WPFMessageBox -Message "Select a system option from these choices:"
-TITLE "You Decide" -Background cornsilk -Icon Warning
-CustomButtonSet ([ordered]@{ "Reboot"=1;"Shutdown"=2;"Cancel"=3})
```

Create a custom message box with a user-defined set of buttons.

## Parameters

### -Background

You can specify any console color or any value from <https://docs.microsoft.com/en-us/dotnet/api/system.windows.media.brushes?view=netframework-4.7.2>. You can use the name or the code. Keep in mind there are no provisions to change the font color.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: White
Accept pipeline input: False
Accept wildcard characters: False
```

### -ButtonSet

Select a pre-defined set of buttons. Each button will close the form and write a value to the pipeline. This can serve as the "return value" of the form.

OK = 1

Cancel = 0

Yes = \$True

No = \$False

Type: **String**  
Parameter Sets: standard  
**Aliases:**  
Accepted values: OK, OKCancel, YesNo

**Required:** False  
**Position:** Named  
**Default** value: OK  
**Accept** pipeline input: False  
**Accept** wildcard characters: False

## -CustomButtonSet

You can specify your own button set defined in an ordered hashtable. Buttons will be displayed in order from left to right. You can display up to 3 buttons. The key should be the text to display and the value should be the value you expect to write to the pipeline. It is recommended that you keep the button text short. The first letter of each key will automatically be formatted as an accelerator so you should make sure each key starts with a different letter. The first key will also be set as the default.

Type: **OrderedDictionary**  
Parameter Sets: custom  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default** value: None  
**Accept** pipeline input: False  
**Accept** wildcard characters: False

## -Icon

Select one of the standard system icons.

Type: **String**  
Parameter Sets: (All)  
**Aliases:**  
Accepted values: Information, Warning, Error, Question, Shield  
  
**Required:** False  
**Position:** Named  
**Default** value: Information  
**Accept** pipeline input: False  
**Accept** wildcard characters: False

## -Message

Enter the text message to display.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Quiet

Suppress any pipeline output.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Title

Enter the text to be displayed in the title bar. You should keep this brief.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#) (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

## Outputs

**System.Int32**

**System.Boolean**

**System.String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Invoke-InputBox](#)

# Open-PSScriptToolsHelp

## Synopsis

Open the PSScriptTools manual.

## Syntax

```
Open-PSScriptToolsHelp [<CommonParameters>]
```

## Description

This command will launch a PDF manual for all commands in the PSScriptTools module. It is assumed you have a default application for PDF files.

## Examples

### Example 1

```
PS C:\> Open-PSScriptToolsHelp
```

## Parameters

### CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### None

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Help](#)

# Optimize-Text

## Synopsis

Clean and optimize text input.

## Syntax

### default (Default)

```
Optimize-Text [[-Text] <String[]>] [-Filter <Regex>] [-Ignore <String>]  
[-ToUpper] [<CommonParameters>]
```

### object

```
Optimize-Text [[-Text] <String[]>] [-Filter <Regex>][-Ignore <String>]  
[-ToUpper] [-PropertyName <String>] [<CommonParameters>]
```

## Description

Use this command to clean and optimize content from text files. Sometimes text files have blank lines or the content has trailing spaces. These sorts of issues can cause problems when passing the content to other commands.

This command will strip out any lines that are blank or have nothing by white space, and trim leading and trailing spaces. The optimized text is then written back to the pipeline. Optionally, you can specify a property name. This can be useful when your text file is a list of computer names and you want to take advantage of pipeline binding. See examples.

If your text file has commented lines, use the ignore parameter. As long as the character is the first non-whitespace character in the line, the line will be treated as a comment and ignored.

Finally, you can use the -Filter parameter to specify a regular expression pattern to further filter what text is written to the pipeline. The filter is applied after leading and trailing spaces have been removed and before any text is converted to upper case.

## Examples

*Example 1*

```
PS C:\> Get-Content c:\scripts\computers.txt

win10-ent-01
srv1
srv2
dc01

app02

PS C:\> Get-Content c:\scripts\computers.txt | Optimize-Text
win10-ent-01
srv1
quark
dc01
app02
```

The first example shows malformed text file. In the second command it has been optimized or normalized.

*Example 2*

```
PS C:\> Get-Content c:\scripts\computers.txt |
Optimize-Text -property computername

computername
-----
win10-ent-01
srv1
quark
dc01
app02
```

Using the same text file, the command creates a custom object using the Computername property.

*Example 3*

```
PS C:\> Get-Content computers.txt | Optimize-Text -prop computername |
Where-Object {Test-Connection $_.computername -Count 1 -ea silentlycontinue} |
Get-Service bits | Select-Object Name,Status,Machinename

Name          Status MachineName
----          -----
bits          Running win10-ent-01
bits          Running dc01
bits          Running app02
```

Optimize the computer names in computers.txt and add a Computername property. Test each computer, ignoring those that fail, and get the Bits service on the ones that can be pinged.

**Example 4**

```
PS C:\> Get-Content .\ChicagoServers.txt |
Optimize-Text -Ignore "#" -Property ComputerName

ComputerName
-----
chi-fp01
chi-fp02
chi-core01
chi-test
chi-dc01
chi-dc02
chi-dc04
chi-db01
```

Optimize the text file ignoring any lines that start with the # character.

**Example 5**

```
PS C:\> Get-Content .\ChicagoServers.txt |
Optimize-Text -filter "dc\d{2}" -ToUpper -PropertyName Computername |
Test-Connection -count 1

Source      Destination    IPV4Address    IPV6Address    Bytes    Time(ms)
-----      -----
win10-ENT-01  CHI-DC01    172.16.30.200          32        0
win10-ENT-01  CHI-DC02    172.16.30.201          32        0
win10-ENT-01  CHI-DC04    172.16.30.203          32        0
```

Get names from text file that match the pattern, turn into an object with a property name and pipe to Test-Connection.

## Parameters

### **-Text**

The text to be optimized. Typically read in from a file.

Type: `String[]`  
Parameter Sets: default  
Aliases:  
  
Required: False  
Position: 1  
Default value: None  
Accept pipeline input: True (`ByValue`)  
Accept wildcard characters: False

```
Type: String[]
Parameter Sets: object
Aliases:

Required: False
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## -Filter

Use a regular expression pattern to filter. The filtering is applied after leading and trailing spaces have been trimmed and before text can be converted to upper case.

```
Type: Regex
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -PropertyName

Assign each line of text a property name. This has the effect of turning your text file into an array of objects with a single property.

```
Type: String
Parameter Sets: object
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Ignore

Specify a character that will be interpreted as a comment character. It must be the first word character in a line. These lines will be ignored. This parameter has an alias of 'comment'.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:** comment  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -ToUpper

Write text output as upper case.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**System.String**

## Outputs

**System.String**

**System.Management.Automation.PSObject**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

This function was originally described at <http://jdhitsolutions.com/blog/2014/09/using-optimized-text-files-in-powershell>

## Related Links

[Get-Content](#)

# Out-ConditionalColor

## Synopsis

Display colorized pipelined output.

## Syntax

### property (Default)

```
Out-ConditionalColor [-PropertyConditions] <Hashtable> -Property <String>
-InputObject <PSObject[]> [<CommonParameters>]
```

### conditions

```
Out-ConditionalColor [-Conditions] <OrderedDictionary>
-InputObject <PSObject[]> [<CommonParameters>]
```

## Description

This command is designed to take pipeline input and display it in a colorized format, based on a set of conditions. Unlike Write-Host which doesn't write to the pipeline, this command will write to the pipeline. You can get colorized data and save the output to a variable at the same time, although you'll need to use the common OutVariable parameter (see examples).

The default behavior is to use a hash table with a property name and color. The color must be one of the standard console colors used with Write-Host.

```
$c = @{Stopped='Red';Running='Green'}
```

You can then pipe an expression to this command, specifying a property name and the hash table. If the property matches the key name, the output for that object will be colored using the corresponding hash table value.

```
Get-Service -displayname windows* | Out-ConditionalColor $c -property status
```

Or you can do more complex processing with an ordered hash table constructed using this format:

```
[ordered]@{ <comparison scriptblock> = <color>}
```

The comparison scriptblock can use \$PSItem.

```
$h=[ordered]@{  
    {$psitem.ws -gt 500mb}='red'  
    {$psitem.ws -gt 300mb}='yellow'  
    {$psitem.ws -gt 200mb}='cyan'  
}  
  
Get-Process | Out-ConditionalColor $h
```

When doing a complex comparison you must use an [ordered] hashtable as each key will be processed in order using an If/ElseIf statement.

This command should be the last part of any pipelined expression. If you pipe to anything else, such as Sort-Object, you will lose your color formatting. Do any other sorting or filtering before piping to this command.

This command works best in the PowerShell console. It won't do anything in the PowerShell ISE.

## LIMITATIONS

Due to the nature of PowerShell's formatting system there are some limitations with this command. If the first item in your output matches one of your conditions, any text before it, such as headers, will also be colorized. This command will have no affect if the incoming object does not have a defined format view. This means you can't pipe custom objects or something using Select-Object that only includes selected properties to this command.

## Examples

### Example 1

```
PS C:\> Get-Service -displayname windows* |  
Out-ConditionalColor -propertyconditions @{{Stopped='Red'}} -property Status
```

Get all services where the display name starts with windows and display stopped services in red.

### Example 2

```
PS C:\> Get-Service -displayname windows* |  
Out-ConditionalColor @{{Stopped='Red'}} status -ov winstop
```

Repeat the previous example, but also save the output to the variable winstop. When you look at \$Winstop you'll see the services, but they won't be colorized. This example uses the parameters positionally.

### Example 3

```
PS C:\> Get-EventLog system -newest 50 |  
Out-ConditionalColor @{{error='red';warning='yellow'}}  
Enter a property name: entrytype
```

Get the newest 50 entries from the System event log. Display errors in red and warnings in yellow. If you don't specify a property you will be prompted.

### Example 4

```
PS C:\> $c =[ordered]@{  
    {$psitem.length -ge 1mb}='red';  
    {$psitem.length -ge 500KB}='yellow';  
    {$psitem.length -ge 100KB}='cyan'}
```

The first command creates an ordered hashtable based on the Length property.

### Example 5

```
PS C:\> dir c:\scripts\*.doc,c:\scripts\*.pdf,c:\scripts\*.xml |  
Out-ConditionalColor $c
```

The next command uses it to get certain file types in the scripts folder and display the selected properties in color depending on the file size.

## Parameters

### -Conditions

Use an ordered hashtable for more complex processing. See examples.

Type: **OrderedDictionary**  
Parameter Sets: conditions  
Aliases:  
  
Required: True  
Position: 0  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -InputObject

Output from a PowerShell expression that you want to colorize.

Type: **PSObject[]**  
Parameter Sets: (**All**)  
Aliases:  
  
Required: True  
Position: Named  
Default value: None  
Accept pipeline input: True (**ByValue**)  
Accept wildcard characters: False

### -Property

When using a simple hash table, specify the property to compare which will be done by using the -eq operator.

Type: **String**  
Parameter Sets: property  
**Aliases:**

Required: True  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

## -PropertyConditions

Use a simple hashtable for basic processing or an ordered hash table for complex.

Type: **Hashtable**  
Parameter Sets: property  
**Aliases:**

Required: True  
Position: 0  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### **System.Management.Automation.PSObject[]**

## Outputs

### **System.Object**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

Originally published at: <http://jdhitsolutions.com/blog/powershell/3462/friday-fun-Out-ConditionalColor/>

## Related Links

[About\\_Hash\\_Tables](#)

[Show-Tree](#)

# Out-More

## Synopsis

Send "pages" of objects to the pipeline.

## Syntax

```
Out-More [-InputObject] <Object[]> [[-Count] <Int32>] [-ClearScreen]
```

## Description

This function is designed to display groups or "pages" of objects to the PowerShell pipeline. It is modeled after the legacy More.com command line utility. By default the command will write out objects out to the pipeline in groups of 50. You will be prompted after each grouping.

Pressing M or Enter will get the next group. Pressing A will stop paging and display all of the remaining objects. Pressing N will display the next object. Press Q to stop writing anything else to the pipeline.

Note that you may encounter an error message when quitting prematurely, especially on non-Windows platforms. You can ignore these errors.

## Examples

### Example 1

```
PS C:\> Get-Process | Out-More -count 10



| Handles | NPM(K) | PM(K) | WS(K)  | VM(M) | CPU(s) | ID   | SI | ProcessName        |
|---------|--------|-------|--------|-------|--------|------|----|--------------------|
| 103     | 9      | 1448  | 4220   | 67    | 0.02   | 1632 | 0  | BtwRSupportService |
| 80      | 9      | 3008  | 8588   | ...27 | 21.00  | 5192 | 1  | conhost            |
| 40      | 5      | 752   | 2780   | ...82 | 0.00   | 5248 | 0  | conhost            |
| 53      | 7      | 972   | 3808   | ...07 | 0.02   | 6876 | 1  | conhost            |
| 482     | 17     | 1932  | 3692   | 56    | 0.91   | 708  | 0  | csrss              |
| 520     | 30     | 2488  | 134628 | 180   | 31.67  | 784  | 1  | csrss              |
| 408     | 18     | 6496  | 12436  | ...35 | 0.56   | 1684 | 0  | dasHost            |
| 180     | 14     | 3348  | 6748   | 66    | 0.50   | 4688 | 0  | devmonsrv          |


\[M\]ore \[A\]ll \[N\]ext \[Q\]uit


```

Display processes in groups of 10.

### Example 2

```
PS C:\> dir c:\work -file -Recurse | Out-More -ClearScreen | tee -Variable work
```

List all files in C:\Work and page them to Out-More using the default count, but after clearing the screen first. The results are then piped to Tee-Object which saves them to a variable.

## Parameters

### -InputObject

```
Type: Object[]
Parameter Sets: (All)
Aliases:

Required: True
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

### -Count

The number of objects to group together in a page.

```
Type: Int32
Parameter Sets: (All)
Aliases: i

Required: False
Position: 2
Default value: 50
Accept pipeline input: False
Accept wildcard characters: False
```

### -ClearScreen

Clear the screen prior to writing data to the pipeline.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cls

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## Inputs

### System.Object[]

## Outputs

---

## System.Object

### Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

This command was first demonstrated at <http://jdhitsolutions.com/blog/powershell/4707/a-better-powershell-more/>

### Related Links

more

# Out-VerboseTee

## Synopsis

Write to the Verbose stream and a file.

## Syntax

```
Out-VerboseTee -Value <Object> [-Path] <String> [-Encoding <Encoding>]
[-Append] [<CommonParameters>]
```

## Description

This command is intended to let you see your verbose output and write the verbose messages to a log file. It will only work if the verbose pipeline is enabled, usually when your command is run with `-Verbose`. This function is designed to be used within your scripts and functions. You either have to hard code a file name or find some other way to define it in your function or control script. You could pass a value as a parameter or set it as a `PSDefaultParameterValue`.

This command has an alias of `Tee-Verbose`.

You might use it like this in a script.

```
Begin {
```

```
$log = New-RandomFilename -useTemp -extension log
Write-Detail "Starting $($myinvocation.mycommand)" -Prefix begin | Tee-Verbose $log
Write-Detail "Logging verbose output to $log" -prefix begin | Tee-Verbose -append
Write-Detail "Initializing data array" -Prefix begin | Tee-Verbose $log -append
$data = @()
```

```
} #begin
```

When the command is run with `-Verbose` you will see the verbose output and it will be saved to the specified log file.

## Examples

## Example 1

```
PS C:\> $VerbosePreference = "continue"
PS C:\> $log = New-CustomFileName ".\VerboseLog_%time.txt"
PS C:\> Write-Detail "This is a verbose log test" | Out-VerboseTee -path $log
PS C:\> Get-Content $log
11/29/2017 08:21:31:0704 [PROCESS] This is a verbose log test
PS C:\> $verbosePreference = "silentlyContinue"
```

Normally you would use this command inside a function or script, but you can run it from the console if you want to understand how it works.

## Parameters

### -Append

Append to the specified text file.

Type: **SwitchParameter**  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -Encoding

Specify a file encoding.

Type: **Encoding**  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -Path

The path for the output file.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Value

The message to be displayed as a verbose message and saved to the file.

Type: **Object**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** True  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** True ([ByValue](#))  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**System.Object**

## Outputs

**System.Object**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Write-Verbose](#)

[Write-Detail](#)

---

## Tee-Object

# Remove-MergedBranch

## Synopsis

Removed merged git branches.

## Syntax

```
Remove-MergedBranch [-Force] [-WhatIf] [-Confirm] [<CommonParameters>]
```

## Description

When using git you may create a number of branches. Presumably you merge these branches into the main or master branch. The development or patching branch remains. You can use git to remove branches. Or use this command to remove all merged branches other than master and the current branch. You must be in the root of your project to run this command.

## Examples

### Example 1

```
PS C:\MyProject> Remove-MergedBranch

Remove merged branch from MyProject?
2.1.1
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): n

Remove merged branch from MyProject?
dev1
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): y
Deleted branch dev1 (was 75f6ab8).

Remove merged branch from MyProject?
dev2
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): y
Deleted branch dev2 (was 75f6ab8).

Remove merged branch from MyProject?
patch-254
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): n
PS C:\MyProject>
```

By default you will be prompted to remove each branch.

### Example 2

```
PS C:\MyProject> Remove-MergedBranch -force
Deleted branch 2.1.1 (was 75f6ab8).
Deleted branch patch-254 (was 75f6ab8).
```

Remove all branches with no prompting.

## Parameters

### -Confirm

Prompts you for confirmation before running the cmdlet.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cf

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -Force

Remove all merged branches except current and master with no prompting.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: wi

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**None**

## Outputs

**String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

git.exe

[Get-GitSize](#)

# Remove-Runspace

## Synopsis

Remove a runspace from your session.

## Syntax

### id (Default)

```
Remove-Runspace [-ID] <Int32> [-WhatIf] [-Confirm] [<CommonParameters>]
```

### runspace

```
Remove-Runspace [-Runspace] <Runspace> [-WhatIf] [-Confirm] [<CommonParameters>]
```

## Description

During the course of your PowerShell work, you may discover that some commands and scripts can leave behind runspaces. You may even deliberately be creating additional runspaces. These runspaces will remain until you exit your PowerShell session. Or use this command to cleanly close and dispose of runspaces. You cannot remove any runspace with an availability of Busy or that is already closing.

This command does not write anything to the pipeline.

## Examples

### Example 1

```
PS C:\> Remove-Runspace -id 18 -WhatIf
What if: Performing the operation "Remove-Runspace" on target "18 - Runspace18".
```

Show what would have happened to remove runspace with an ID of 18.

### Example 2

```
PS C:\> Get-Runspace | where ID -gt 1 | Remove-Runspace
```

Get all runspaces with an ID greater than 1, which is typically your session, and remove the runspace.

## Parameters

## -Confirm

Prompts you for confirmation before running the cmdlet.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cf

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -ID

The runspace ID number.

```
Type: Int32
Parameter Sets: id
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Runspace

A runspace presumably piped into this command using Get-Runspace.

```
Type: Runspace
Parameter Sets: runspace
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
**Aliases:** wi  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**System.Management.Automation.Runspaces.Runspace**

## Outputs

**None**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Runspace](#)

# Rename-Hashtable

## Synopsis

Rename a hashtable key.

## Syntax

### Pipeline (Default)

```
Rename-Hashtable [-InputObject] <Object> [-Key] <String> [-NewKey] <String>
[-Passthru] [-Scope <String>] [-WhatIf] [-Confirm] [<CommonParameters>]
```

### Name

```
Rename-Hashtable [-Name] <String> [-Key] <String> [-NewKey] <String>
[-Passthru] [-Scope <String>] [-WhatIf] [-Confirm] [<CommonParameters>]
```

## Description

This command will rename a key in an existing hashtable or ordered dictionary. You can either pipe a hashtable object to this command or you can specify a variable name for a pre-defined hashtable. If you use this option, specify the variable name without the \$.

This command will create a temporary copy of the hashtable, create the new key and copy the value from the old key, before removing the old key. The temporary hashtable is then set as the new value for your original variable.

This command does not write anything to the pipeline when you use a variable name unless you use -Passthru. If you pipe a hashtable to this command, the new hashtable will automatically be written to the pipeline.

You might find this command useful when building a hashtable that you intend to use with splatting where you need to align key names with parameter names.

## Examples

### Example 1

```
PS C:\> Rename-Hashtable -name MyHash -key Name -newKey Computername
```

### Example 2

```
PS C:\> $newhash = Get-Service spooler |
ConvertTo-HashTable |
Rename-Hashtable -Key Machinename -NewKey Computername
```

This command uses the ConvertTo-Hashtable command from the PSScriptTools module to turn an object into a hashtable. The Machinename key is then renamed to Computername.

## Parameters

### -Name

The variable name of your hash table. DO NOT include the \$.

```
Type: String
Parameter Sets: Name
Aliases:

Required: True
Position: 1
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -InputObject

A piped in hashtable object

```
Type: Object
Parameter Sets: Pipeline
Aliases:

Required: True
Position: 1
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

### -Key

The name of the existing hashtable key you want to rename.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: True
Position: 2
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -NewKey

The new name of the hashtable key.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** True  
**Position:** 3  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Passthru

Write the revised hashtable back to the pipeline. If you pipe a variable to this command, passthru will happen automatically.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Scope

The scope where your variable is defined. The default is the global scope.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** Global  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:** wi

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Confirm

Prompts you for confirmation before running the cmdlet.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cf

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### hashtable

## Outputs

### None

### Hashtable

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

This code was first described at <http://jdhitsolutions.com/blog/2013/01/Rename-Hashtable-key-revised>

## Related Links

[About\\_hash\\_tables](#)

[ConvertTo-Hashtable](#)

[Join-Hashtable](#)

# Save-GitSetup

## Synopsis

Download the latest 64bit version of Git for Windows.

## Syntax

```
Save-GitSetup [[-Path] <String>] [-Passthru] [<CommonParameters>]
```

## Description

Non-Windows platforms have package management that make it easy to install newer versions of git. This command is for Windows platforms. You can run this command to download the latest 64bit version of Git for Windows. You will need to manually install it.

## Examples

### Example 1

```
C:\> Save-GitSetup -Verbose -Path c:\work -Passthru
VERBOSE: Getting latest version of git from https://git-scm.com/download/win
VERBOSE: GET https://git-scm.com/download/win with 0-byte payload
VERBOSE: received -byte response of content type text/html
VERBOSE: Found download link https://github.com/git-for-windows/git/releases/download/v2.25.0.windows.1/Git-2.25.0-64-bit.exe
VERBOSE: Downloading c:\work\Git-2.25.0-64-bit.exe from https://github.com/git-for-windows/git/releases/download/v2.25.0.windows.1/Git-2.25.0-64-bit.exe
VERBOSE: GET https://github.com/git-for-windows/git/releases/download/v2.25.0.windows.1/Git-2.25.0-64-bit.exe with 0-byte payload
VERBOSE: received 46476880-byte response of content type application/octet-stream
VERBOSE: Download complete
```

```
Directory: C:\work

Mode          LastWriteTime     Length Name
----          -----          ---- 
-a---  1/23/2020  4:31 PM      46476880 Git-2.25.0-64-bit.exe
```

## Parameters

### -Passthru

Show the downloaded file.

Type: **SwitchParameter**  
 Parameter Sets: (**All**)  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Path

Specify the location to store the downloaded file.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 0
Default value: $env:TEMP
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

None

## Outputs

None

## System.IO.FileInfo

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

git.exe

# Select-First

## Synopsis

Select first X number of objects.

## Syntax

```
Select-First -InputObject <PSObject> [-First] <Int32> [[-Property] <String>]
[-Skip <Int32>] [-Descending] [<CommonParameters>]
```

## Description

This command takes pipelined input and selects the first specified number of objects which are then written to the pipeline. You also have the option to sort on the specified property.

When using this command there is a trade off of convenience for performance. For a very large number processed objects, use Select-Object directly.

## Examples

### Example 1

```
PS C:\> Get-Process | Select-First 3 -property WS -descending
```

Handles	NPM(K)	PM(K)	WS(K)	VM(M)	CPU(s)	Id	SI	ProcessName
1118	66	419952	392396	...12	107.33	7312	1	powershell
343	43	237928	235508	1237	3,905.22	6424	1	slack
1051	88	231216	234728	1175	61.88	8324	1	powershell_ise

### Example 2

```
1..10 | Select-First 3 -Skip 2
```

```
3
4
5
```

Select the first 3 objects after skipping 2.

## Parameters

### -InputObject

Pipelined input to be selected.

```
Type: PSObject
Parameter Sets: (All)
Aliases:

Required: True
Position: Named
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## -First

How many items do you want to select?

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: True
Position: 1
Default value: 0
Accept pipeline input: False
Accept wildcard characters: False
```

## -Property

Sort first on this property then select the specified number of items.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 2
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Skip

Skip or omit the first X number of items.

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: 0
Accept pipeline input: False
Accept wildcard characters: False
```

## -Descending

Sort the property in descending order.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**Object[]**

## Outputs

**Object[]**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

Select-Object

Select-Last

# Select-Last

## Synopsis

Select the last X number of objects.

## Syntax

```
Select-Last -InputObject <PSObject> [-Last] <Int32> [[-Property] <String>]
[-Skip <Int32>] [-Descending] [<CommonParameters>]
```

## Description

This is a script version of Select-Object designed to select the last X number of objects. The command takes pipelined input and selects the last specified number of objects which are then written to the pipeline. You have an option to first sort on the specified property.

When using this command there is a trade off of convenience for performance. For a very large number processed objects, use Select-Object directly.

## Examples

### Example 1

```
PS C:\> dir c:\scripts\*.ps1 | last 5 -property lastwritetime

Directory: C:\scripts

Mode                LastWriteTime         Length Name
----                -----        1818 demo-v5Classes.ps1
-a---- 1/11/2018 7:18 PM          1255 demo-v5DSCClassResource.ps1
-a---- 1/11/2018 7:20 PM          1967 Demo-ParamTest.ps1
-a---- 1/14/2018 12:58 PM          971 Get-WorkflowVariable.ps1
-a---- 1/15/2018 9:23 AM          1555 Cost.ps1
```

Get the last 5 ps1 files sorted on the LastWritetime property. This example is using the alias 'last' for Select-Last.

### Example 2

```
PS C:\> 1..10 | Select-Last 3 -skip 1

7
8
9
```

Select the last 3 items, skipping the last 1.

## Parameters

### -InputObject

Pipelined input to be selected.

```
Type: PSObject
Parameter Sets: (All)
Aliases:

Required: True
Position: Named
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

### -Last

How many items do you want to select?

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: True
Position: 1
Default value: 0
Accept pipeline input: False
Accept wildcard characters: False
```

### -Property

Sort first on this property then select the specified number of items.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 2
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -Skip

Skip or omit the last X number of items.

Type: **Int32**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** 0  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Descending

Sort on the specified property in descending order.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

**Object[]**

## Outputs

**Object[]**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

Select-Object

Select-First

# Set-ConsoleColor

## Synopsis

Set the PowerShell console color.

## Syntax

```
Set-ConsoleColor [[-Foreground] <ConsoleColor>] [[-Background] <ConsoleColor>]
[-ClearScreen] [-Passthru] [-WhatIf] [-Confirm] [<CommonParameters>]
```

## Description

You can use this command to modify the PowerShell console's foreground and/or background color. Note that if you are running the PSReadline module, that module has commands, like Set-PSReadLineOption, that you can use to modify your console. This command is intended for use in a traditional PowerShell console. It will not work in consoles that are part of the PowerShell ISE or Visual Studio Code.

## Examples

### Example 1

```
PS C:\> Set-ConsoleColor -foreground Yellow -background DarkGray -clear
```

Set the console color to yellow text and on a dark gray background.

## Parameters

### -Background

Specify a background console color

```
Type: ConsoleColor
Parameter Sets: (All)
Aliases: bg
Accepted values: Black, DarkBlue, DarkGreen, DarkCyan, DarkRed, DarkMagenta, DarkYellow, Gray, DarkGray, Blue, Green, Cyan, Red, Magenta, Yellow, White

Required: False
Position: 1
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -ClearScreen

Clear the console host screen.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cls

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Confirm

Prompts you for confirmation before running the cmdlet.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: cf

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Foreground

Specify a foreground console color

```
Type: ConsoleColor
Parameter Sets: (All)
Aliases: fg
Accepted values: Black, DarkBlue, DarkGreen, DarkCyan, DarkRed, DarkMagenta, DarkYellow, Gray, DarkGray, Blue, Green, Cyan, Red, Magenta, Yellow, White

Required: False
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Passthru

Display foreground and background color values

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: wi

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

None

## Outputs

None

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Set-ConsoleTitle](#)

# Set-ConsoleTitle

## Synopsis

Set the console title text.

## Syntax

```
Set-ConsoleTitle [-Title] <String> [-WhatIf] [-Confirm] [<CommonParameters>]
```

## Description

Use this command to modify the text displayed in the title bar of your PowerShell console window. This command is intended for use in a traditional PowerShell console. It will not work in consoles that are part of the PowerShell ISE or Visual Studio Code. It should work in a PowerShell session running in Windows Terminal.

## Examples

### Example 1

```
PS C:\> Set-ConsoleTitle $env:computername
```

Set the console title to the computername.

### Example 2

```
PS C:\> if ($Test-IsAdministrator) {
    Set-ConsoleTitle "Admin: PS $($PSVersionTable.PSVersion)"
}
```

Modify the console title if running as Administrator

## Parameters

### -Confirm

Prompts you for confirmation before running the cmdlet.

Type: **SwitchParameter**  
Parameter Sets: (All)  
**Aliases:** cf  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Title

Enter the title for the console window.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: True
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -WhatIf

Shows what would happen if the cmdlet runs. The cmdlet is not run.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: wi

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable.

For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

## Outputs

### None

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Set-ConsoleColor](#)

# Show-Tree

## Synopsis

Shows the specified path as a tree.

## Syntax

### Path (Default)

```
Show-Tree [[-Path] <String[]> [[-Depth] <Int32>] [-IndentSize <Int32>]
[-ShowItem] [-ShowProperty <String[]>] [-InColor] [<CommonParameters>]
```

### LiteralPath

```
Show-Tree [[-LiteralPath] <String[]> [[-Depth] <Int32>] [-IndentSize <Int32>]
[-ShowItem] [-ShowProperty <String[]>] [-InColor] [<CommonParameters>]
```

## Description

Shows the specified path as a graphical tree in the console. This is intended as PowerShell alternative to the tree DOS command. This function should work for any type of PowerShell provider and can be used to explore providers used for configuration like the WSMAN provider or the registry. Currently, this will *not work* with any PSDrives created with the Certificate provider. It should work cross-platform.

By default, the output will only show directory or equivalent structures. But you can opt to include items well as item details by using the ShowProperty parameter. Specify a comma separated list of properties or use \* to view them all.

If the Path is a FileSystem path there is a dynamic parameter, -InColor, that will write ANSI-colored output to the pipeline. This parameter has an alias of -ansi.

 This is an update to an older function in my library. I seem to recall I found the original code somewhere online, perhaps from someone like Lee Holmes. Sadly, I neglected to record the source.

## Examples

*Example 1*

```
PS C:\> Show-Tree C:\Work -Depth 2

C:\work
+--A
|   \--B
+--dnssuffix
|   +--docs
|   +--en-us
|   \--images
+--gpo
|   +--{65D9E940-AAD4-4508-A199-86EAE4E9E535}
|   \--{7E7F01CE-6889-44B0-9D03-818F8284EDE0}
+--installers
+--remoteop
|   \--archive
+--test files
\--tryme
    +--.vscode
    +--docs
    +--en-us
    \--test
```

Shows the directory tree structure, recursing down two levels.

*Example 2*

```
PS C:\>Show-Tree HKLM:\SOFTWARE\Microsoft\.NETFramework -Depth 2 -ShowProp *

HKLM:\SOFTWARE\Microsoft\.NETFramework
+-- Enable64Bit = 1
+-- InstallRoot = C:\Windows\Microsoft.NET\Framework64\
+-- UseRyuJIT = 1
+--Advertised
|   +--Policy
|   \--v2.0.50727
+--AssemblyFolders
|   +--ADOMD.Client 14.0
|       |   \-- (default) = C:\Program Files\Microsoft.NET\ADOMD.NET\140\
|   +--Microsoft .NET Framework 3.5 Reference Assemblies
|       |   \-- (default) = C:\Program Files\Reference Assemblies\Microsoft\Framework...
|   +--SQL Server Assemblies 140
|       |   \-- (default) = C:\Program Files\Microsoft SQL Server\140\SDK\Assemblies\
|   +--v3.0
|       |   +-- <IncludeDotNet2Assemblies> = 1
|       |   \-- All Assemblies In = C:\Program Files\Reference Assemblies\Microsoft...
|   \--v3.5
|       +-- <IncludeDotNet2Assemblies> = 1
|           \-- All Assemblies In = C:\Program Files\Reference Assemblies\Microsoft...
...
...
```

Shows the hierarchy of registry keys and values (-ShowProperty), recursing down two levels.

### Example 3

```
PS C:\> Show-Tree WSMAN: -ShowItem

WSMAN:\
\--localhost
 +--MaxEnvelopeSizekb
 +--MaxTimeoutms
 +--MaxBatchItems
 +--MaxProviderRequests
 +--Client
 | +--NetworkDelayms
 | +--URLPrefix
 | +--AllowUnencrypted
 | +--Auth
 | | +--Basic
 | | +--Digest
 | | +--Kerberos
 | | +--Negotiate
 ...
...
```

Shows all the containers and items in the WSMAN: drive.

### Example 4

```
PS C:\> pstree c:\work\alpha -files -properties LastWriteTime,Length -ansi

C:\work\Alpha\
+-- LastWriteTime = 02/28/2020 11:19:32
+--bravo
| +-- LastWriteTime = 02/28/2020 11:20:30
| +--delta
| | +-- LastWriteTime = 02/28/2020 11:17:35
| | +--FunctionDemo.ps1
| | | +-- Length = 888
| | | \-- LastWriteTime = 06/01/2009 15:50:47
| | +--function-form.ps1
| | | +-- Length = 1117
| | | \-- LastWriteTime = 04/17/2019 17:18:28
| | +--function-logstamp.ps1
| | | +-- Length = 598
| | | \-- LastWriteTime = 05/23/2007 11:39:55
| | +--FunctionNotes.ps1
| | | +-- Length = 617
| | | \-- LastWriteTime = 02/24/2016 08:59:03
| | \--Function-SwitchTest.ps1
| | | +-- Length = 242
| | | \-- LastWriteTime = 06/09/2008 15:55:44
| +--gamma
...
...
```

Show a tree listing with files including a few user specified properties in color. This example is using parameter and command aliases.

## Parameters

## -Path

The path to the root of the tree that will be shown.

```
Type: String[]
Parameter Sets: Path
Aliases:

Required: False
Position: 1
Default value: current location
Accept pipeline input: True (ByPropertyName, ByValue)
Accept wildcard characters: False
```

## -LiteralPath

Use a literal path value.

```
Type: String[]
Parameter Sets: LiteralPath
Aliases: PSPath

Required: False
Position: 1
Default value: None
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: False
```

## -Depth

Specifies how many levels of the specified path are recursed and shown.

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: False
Position: 2
Default value: 2147483647
Accept pipeline input: False
Accept wildcard characters: False
```

## -IndentSize

The size of the indent per level. The default is 3. Minimum value is 1. You shouldn't have to modify this parameter.

Type: **Int32**  
Parameter Sets: ([All](#))  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** 3  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -ShowItem

Shows the items in each container or folder.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:** files

**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -ShowProperty

Shows the properties on containers and items. Use \* to display all properties otherwise specify a comma separated list.

Type: **String[]**  
Parameter Sets: ([All](#))  
**Aliases:** properties

**Required:** False  
**Position:** Named  
**Default value:** False  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -InColor

Show tree and item colorized. Values are from the \$PSAnsMap variable.

Type: **SwitchParameter**  
Parameter Sets: ([All](#))  
**Aliases:** ansi

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.String**

## Outputs

**System.String**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[tree.com](#)

[Get-ChildItem](#)

# Test-EmptyFolder

## Synopsis

Test if a folder is empty of files.

## Syntax

```
Test-EmptyFolder [-Path] <String[]> [-Passthru] [<CommonParameters>]
```

## Description

This command will test if a given folder path is empty of all files anywhere in the path. This includes hidden files. The command will return True even if there are empty sub-folders. The default output is True or False but you can use -Passthru to get more information. See examples.

## Examples

### Example 1

```
PS C:\> Test-EmptyFolder c:\work
False
```

Test a single folder from a parameter.

### Example 2

```
PS C:\> Get-ChildItem c:\work -Directory | Test-EmptyFolder -passthru
```

Path	Name	IsEmpty	Computername
C:\work\A	A	False	DESK10
C:\work\alpha	alpha	False	DESK10
C:\work\B	B	True	DESK10
C:\work\data	data	False	DESK10
C:\work\demo3	demo3	True	DESK10
C:\work\demos	demos	False	DESK10
...			

Test child folders under C:\work.

## Example 3

```
PS C:\> Get-ChildItem c:\work -Directory | Test-EmptyFolder -passthru |  
Where-object {$_.IsEmpty} |  
ForEach-Object { Remove-Item -LiteralPath $_.Path -Recurse -Force -WhatIf}  
  
What if: Performing the operation "Remove Directory" on target "C:\work\demo3".  
What if: Performing the operation "Remove Directory" on target "C:\work\installers".  
What if: Performing the operation "Remove Directory" on target "C:\work\new".  
What if: Performing the operation "Remove Directory" on target "C:\work\sqlback".  
What if: Performing the operation "Remove Directory" on target "C:\work\todd".  
What if: Performing the operation "Remove Directory" on target "C:\work\[data]".
```

Find all empty sub-folders under C:\Work and pipe them to Remove-Item. This is one way to remove empty folders. The example is piping objects to ForEach-Object so that Remove-Item can use the -LiteralPath parameter, because C:\work\data] is a non-standard path.

## Parameters

### -Passthru

Write a test object to the pipeline.

Type: **SwitchParameter**  
Parameter Sets: (**All**)  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -Path

Enter a file system path like C:\Scripts.

Type: **String[]**  
Parameter Sets: (**All**)  
Aliases: PSPath  
  
Required: True  
Position: 0  
Default value: None  
Accept pipeline input: True (**ByPropertyName**, **ByValue**)  
Accept wildcard characters: False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.String[]**

## Outputs

**Boolean**

**EmptyFolder**

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-FolderSizeInfo](#)

# Test-Expression

## Synopsis

Test a PowerShell expression over a period of time.

## Syntax

### Interval (Default)

```
Test-Expression [-Expression] <ScriptBlock> [-ArgumentList <Object[]>]
[-Count <Int32>] [-Interval <Double>] [-IncludeExpression] [-AsJob]
[<CommonParameters>]
```

### Random

```
Test-Expression [-Expression] <ScriptBlock> [-ArgumentList <Object[]>]
[-Count <Int32>] -RandomMinimum <Double> -RandomMaximum <Double>
[-IncludeExpression] [-AsJob] [<CommonParameters>]
```

## Description

This command will test a PowerShell expression or scriptblock for a specified number of times and calculate the average runtime, in milliseconds, over all the tests. The output will also show the median and trimmed values.

The median is calculated by sorting the values in ascending order and selecting the value in the center of the array. If the array has an even number of elements then the median is the average of the two values in the center. The trimmed value will toss out the lowest and highest values and average the remaining values. This may be the most accurate indication as it will eliminate any small values which might come from caching and any large values which may come a temporary shortage of resources. You will only get a value if you run more than 1 test.

## Examples

*Example 1*

```
PS C:\> $cred = Get-credential globomantics\administrator
PS C:\> $c = "chi-dc01","chi-dc04"
PS C:\> Test-Expression {
    param ([string[]]$computer,$cred)
    get-wmiobject win32_logicaldisk -computernamespace $computer -credential $cred
} -argumentList $c,$cred

Tests          : 1
TestInterval   : 0.5
AverageMS      : 1990.6779
MinimumMS       : 1990.6779
MaximumMS       : 1990.6779
MedianMS        : 1990.6779
TrimmedMS       :
PSVersion      : 5.1.19041.1
OS             : Microsoft Windows 10 Pro
```

Test a command once passing an argument to the scriptblock. There is no TrimmedMS value because there was only one test.

*Example 2*

```
PS C:\> $sb = {1..1000 | Foreach-Object {$_*2}}
PS C:\> Test-Expression $sb -count 10 -interval 2

Tests          : 10
TestInterval   : 2
AverageMS      : 72.78199
MinimumMS       : 29.4449
MaximumMS       : 110.6553
MedianMS        : 90.3509
TrimmedMS       : 73.4649625
PSVersion      : 5.1.19041.1
OS             : Microsoft Windows 10 Pro

PS C:\> $sb2 = { foreach ($i in (1..1000)) {$_*2}}
PS C:\> Test-Expression $sb2 -Count 10 -interval 2

Tests          : 10
TestInterval   : 2
AverageMS      : 6.40283
MinimumMS       : 0.7466
MaximumMS       : 22.968
MedianMS        : 2.781
TrimmedMS       : 5.0392125
PSVersion      : 5.1.19041.1
OS             : Microsoft Windows 10 Pro
```

These examples are testing two different approaches that yield the same results over a span of 10 test runs, pausing for 2 seconds between each test. The values for Average, Minimum and Maximum are in milliseconds.

*Example 3*

```
PS C:\> Test-Expression {
    Param([string]$computer)
    Get-Service bits,wuauserv,winrm -computername $computer
} -count 5 -IncludeExpression -argumentList chi-hvr2

Tests      : 5
TestInterval : 500
AverageMS   : 15.53376
MinimumMS   : 11.6745
MaximumMS   : 24.9331
MedianMS    : 13.8928
TrimmedMS   : 13.687066666666667
PSVersion   : 5.1.19041.1
OS          : Microsoft Windows 10 Pro
Expression   : Param([string]$computer) get-service bits,wuauserv,winrm -com...
Arguments   : {chi-hvr2}
```

Include the tested expression in the output.

*Example 4*

```
PS C:\> $j=Test-Expression { get-eventlog -list } -count 10 -Interval 5 -AsJob
PS C:\> $j | Receive-Job -keep

Tests      : 10
TestInterval : 5
AverageMS   : 2.80256
MinimumMS   : 0.7967
MaximumMS   : 14.911
MedianMS    : 1.4469
TrimmedMS   : 1.5397375
PSVersion   : 5.1.19041.1
OS          : Microsoft Windows 10 Pro
RunspaceId   : f30eb879-fe8f-4ad0-8d70-d4c8b6b4eccc
```

Run the test as a background job. When the job is complete, get the results.

*Example 5*

```
PS C:\>{1..1000} | Test-Expression -count 10 -RandomMinimum 1 -RandomMaximum 10

Tests      : 10
TestInterval : Random
AverageMS   : 0.63899
MinimumMS   : 0.2253
MaximumMS   : 3.9062
MedianMS    : 0.24475
TrimmedMS   : 0.2823
PSVersion   : 5.1.19041.1
OS          : Microsoft Windows 10 Pro
```

Pipe a scriptblock to be tested.

## Parameters

### -ArgumentList

An array of parameters to pass to the test scriptblock. Arguments are positional. If passing an array for a value enter with @().

```
Type: Object[]
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

### -AsJob

Run the tests as a background job.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: False
Accept pipeline input: False
Accept wildcard characters: False
```

### -Count

The number of times to test the scriptblock.

```
Type: Int32
Parameter Sets: (All)
Aliases:

Required: False
Position: Named
Default value: 1
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: False
```

### -Expression

The scriptblock you want to test.

```
Type: ScriptBlock
Parameter Sets: (All)
Aliases: sb

Required: True
Position: 0
Default value: None
Accept pipeline input: True (ByValue)
Accept wildcard characters: False
```

## -IncludeExpression

Include the test scriptblock in the output.

```
Type: SwitchParameter
Parameter Sets: (All)
Aliases: ie

Required: False
Position: Named
Default value: False
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: False
```

## -Interval

How much time to sleep in seconds between each test. Maximum is 60. You may want to use a sleep interval to mitigate possible caching effects.

```
Type: Double
Parameter Sets: Interval
Aliases: sleep

Required: False
Position: Named
Default value: 0.5
Accept pipeline input: True (ByPropertyName)
Accept wildcard characters: False
```

## -RandomMaximum

You can also specify a random interval by providing a random minimum and maximum values in seconds.

```
Type: Double
Parameter Sets: Random
Aliases: max

Required: True
Position: Named
Default value: 0
Accept pipeline input: False
Accept wildcard characters: False
```

## -RandomMinimum

You can also specify a random interval by providing a random minimum and maximum values in seconds.

```
Type: Double  
Parameter Sets: Random  
Aliases: min  
  
Required: True  
Position: Named  
Default value: 0  
Accept pipeline input: False  
Accept wildcard characters: False
```

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### scriptblock

## Outputs

### Custom measurement object

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/> This command was first described at <https://github.com/jdhitsolutions/Test-Expression/blob/master/docs/Test-Expression.md>

## Related Links

[Measure-Command](#)

[Test-ExpressionForm](#)

# Test-ExpressionForm

## Synopsis

Display a graphical test form for Test-Expression.

## Syntax

```
Test-ExpressionForm [CommonParameters]
```

## Description

This command will display a WPF-based form that you can use to enter in testing information. Testing intervals are in seconds. All of the values are then passed to the Test-Expression command. Results will be displayed in the form. The results only show you how long the tests took, regardless of whether or not there were errors.

When you close the form, the last result object will be passed to the pipeline, including all metadata, the scriptblock and arguments.

This command requires a Windows platform that supports WPF.

## Examples

### Example 1

```
PS C:\> test-expressionform
```

Launch the form.

## Parameters

### CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#) (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

---

## Outputs

### System.Object

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/> This command was first explained at <https://github.com/jdhitsolutions/Test-Expression/blob/master/docs/Test-ExpressionForm.md>

## Related Links

[Test-Expression](#)

[Measure-Command](#)

# Test-IsPSWindows

## Synopsis

Test if running PowerShell on a Windows platform.

## Syntax

```
Test-IsPSWindows [CommonParameters]
```

## Description

PowerShell Core introduced the \$IsWindows variable. However it is not available on Windows PowerShell. Use this command to perform a simple test if the computer is either running Windows or using the Desktop PSEdition.

## Examples

### Example 1

```
PS C:\> Test-IsPSWindows
True
```

## Parameters

### CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

### System.Boolean

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

# Test-WithCulture

## Synopsis

Test your PowerShell code under a different culture.

## Syntax

### scriptblock (Default)

```
Test-WithCulture [-Culture] <CultureInfo> [-Scriptblock] <ScriptBlock>
[-ArgumentList <Object[]>] [<CommonParameters>]
```

### file

```
Test-WithCulture [-Culture] <CultureInfo> -FilePath <ScriptBlock>
[-ArgumentList <Object[]>] [<CommonParameters>]
```

## Description

When writing PowerShell commands, sometimes the culture you are running under becomes critical. For example, European countries use a different datetime format than North Americans which might present a problem with your script or command. Unless you have a separate computer running under the foreign culture, it is difficult to test. This command will allow you to test a scriptblock or even a file under a different culture, such as DE-DE for German.

Note that this command is not an absolute test. There may be commands that fail to produce the alternate culture results you expect.

## Examples

### Example 1

```
PS C:\> Test-WithCulture de-de -Scriptblock {((Get-Date).addDays(90)}
Montag, 14. Oktober 2019 08:59:01
```

### Example2

```
PS C:\> Test-WithCulture fr-fr -Scriptblock {
    Get-winEvent -log system -max 500 |
    Select-Object -Property TimeCreated, ID, OpCodeDisplayName, Message |
    Sort-Object -property TimeCreated |
    Group-Object {$_.TimeCreated.ToString("yyyy-MM-dd") } -noElement
}
```

Count	Name
165	10/07/2019
249	11/07/2019
17	12/07/2019
16	13/07/2019
20	14/07/2019
26	15/07/2019
7	16/07/2019

## Parameters

### -ArgumentList

Specify an array of positional arguments to pass to the scriptblock for file.

Type: `Object[]`  
Parameter Sets: (All)  
Aliases:  
  
Required: False  
Position: Named  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -Culture

Enter a new culture like de-de

Type: `CultureInfo`  
Parameter Sets: (All)  
Aliases:  
  
Required: True  
Position: 0  
Default value: None  
Accept pipeline input: False  
Accept wildcard characters: False

### -FilePath

Enter the path to a PowerShell script file to execute using the specified culture.

Type: **ScriptBlock**  
Parameter Sets: file  
**Aliases:**

**Required:** True  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Scriptblock

Enter a scriptblock to execute using the specified culture. Be aware that long or complex pipelined expressions might not give you the culture specific results you expect.

Type: **ScriptBlock**  
Parameter Sets: scriptblock  
**Aliases:**

**Required:** True  
**Position:** 1  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

### None

## Outputs

## System.Object

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[Get-Culture](#)

[Get-UICulture](#)

# Write-ANSIProgress

## Synopsis

Write an ANSI progress bar.

## Syntax

```
Write-ANSIProgress [-PercentComplete] <Double> [-ProgressColor <String>]
[-BarSymbol <String>] [-Position <Coordinates>] [<CommonParameters>]
```

## Description

You can use this command to write an ANSI colored progress bar to the console. The output will be an array of strings. The item may be a blank line. See examples.



If you are using the Windows Terminal and are at the bottom of the screen, you may get improperly formatted results. Clear the host and try again.

## Examples

### Example 1

```
PS C:\> $pct = @(.10, .12, .19, .25, .43, .55, .66, .78, .90, .95,1)
PS C:\> $pct | Write-ANSIProgress -BarSymbol Block
```

This will build a progress bar using a block symbol and the default ANSI color escape.

### Example 2

```
PS C:\> $params = @{
    PercentComplete = .78
    BarSymbol = "Circle"
    "ProgressColor" = "$([char]0x1b)[92m"
}
PS C:\> Write-ANSIProgress @params
```

Create a single progress bar for 78% using the Circle symbol and a custom color.

**Example 3**

```
PS C:\> Get-CimInstance -ClassName win32_operatingsystem |
Select-Object -property @{N="Computername";E={$_.CSName}},
@{N="TotalMemGB";E=[Format-Value $_.TotalVisibleMemorySize -Unit MB]},
@{N="FreeMemGB";E=[Format-Value $_.FreePhysicalMemory -Unit MB]},
@{N="PctFree"; E={
$pct=Format-Percent $_.FreePhysicalMemory $_.TotalVisibleMemorySize
Write-ANSIProgress -PercentComplete ($pct/100) | Select-Last 1
}}
```

Computername	TotalMemGB	FreeMemGB	PctFree
BOVINE320	32	12	37.87%

Note that this example is using abbreviations in the Select-Object hashtables.

**Example 4**

```
PS C:\> $sb = {
Clear-Host
$top = Get-ChildItem c:\scripts -Directory
$i = 0
$out=@()
$pos = $host.ui.RawUICursorPosition
Foreach ($item in $top) {
    $i++
    $pct = [math]::round($i/$top.Count,2)
    Write-ANSIProgress -PercentComplete $pct -position $pos
    Write-Host " Processing $($item.FullName).PadRight(80)" -NoNewline
    $out+= Get-ChildItem -path $item -Recurse -file |
        Measure-Object -Property Length -Sum |
        Select-Object @{Name="Path";Expression={$item.FullName}},Count,
        @{Name="Size";Expression={$_.Sum}}
}
Write-Host ""
$out | Sort-Object -Property Size -Descending
}
PS C:\> Invoke-Command -ScriptBlock $sb
```

You are most likely to use this command in a function or script. This example demonstrates using a script block.

## Parameters

### **-BarSymbol**

Specify what shape to use for the progress bar.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**  
Accepted values: Box, Block, Circle  
  
**Required:** False  
**Position:** Named  
**Default value:** Box  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -PercentComplete

Enter a percentage in decimal value like .25 up to 1.

Type: **Double**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** True  
**Position:** 0  
**Default value:** None  
**Accept pipeline input:** True ([ByValue](#))  
**Accept wildcard characters:** False

## -Position

Specify the cursor position or where you want to place the progress bar.

Type: **Coordinates**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** Current position  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -ProgressColor

Specify an ANSI escape sequence for the progress bar color.

Type: **String**  
Parameter Sets: ([All](#))  
**Aliases:**  
  
**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see [about\\_CommonParameters](#).

## Inputs

**System.Double**

## Outputs

**System.String**

## Notes

This command will not work in the PowerShell ISE. The verbose output should only be used when troubleshooting a display problem.

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

[New-ANSIBar](#)

[New-RedGreenGradient](#)

# Write-Detail

## Synopsis

Write a detailed message string.

## Syntax

### Default (Default)

```
Write-Detail [[-Message] <String>] [-Prefix <String>] [<CommonParameters>]
```

### Time

```
Write-Detail [[-Message] <String>] [-Prefix <String>] [-Time]
[<CommonParameters>]
```

### Date

```
Write-Detail [[-Message] <String>] [-Prefix <String>] [-Date]
[<CommonParameters>]
```

## Description

This command is designed to be used within your functions and scripts to make it easier to write a detailed message that you can use as verbose output. The assumption is that you are using an advanced function with a Begin, Process and End scriptblocks. You can create a detailed message to indicate what part of the code is being executed. The output can include a full time stamp, or a time string which includes a millisecond value.

In a script you might use it like this in a Begin block:

```
$pfx = "BEGIN"

Write-Detail "Starting $($MyInvocation.MyCommand)" -Prefix $pfx | Write-Verbose

Write-Detail "PS $($PSVersionTable.PSVersion)" -Prefix $pfx | Write-Verbose
```

If you don't specify a prefix, it will default to PROCESS.

## Examples

## Example 1

```
PS C:\> Write-Detail "Getting file information" -Prefix Process
[PROCESS] Getting file information
```

Normally you would use this command in a function, but here is an example from the console so that you can see what to expect.

# Parameters

## -Message

The message to display after the time stamp and prefix.

```
Type: String
Parameter Sets: (All)
Aliases:

Required: False
Position: 0
Default value: None
Accept pipeline input: False
Accept wildcard characters: False
```

## -Prefix

Indicate whether you are in the BEGIN, PROCESS or END script block. Although you can specify any text. It will be displayed in upper case.

```
Type: String
Parameter Sets: (All)
Aliases:
Accepted values:
    BEGIN, PROCESS, END

Required: False
Position: Named
Default value: PROCESS
Accept pipeline input: False
Accept wildcard characters: False
```

## -Date

Display a date value like 9/15/2018 11:36:41.

Type: **SwitchParameter**  
Parameter Sets: Date  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## -Time

Display a time value with milliseconds like 11:37:01:4029.

Type: **SwitchParameter**  
Parameter Sets: Time  
**Aliases:**

**Required:** False  
**Position:** Named  
**Default value:** None  
**Accept pipeline input:** False  
**Accept wildcard characters:** False

## CommonParameters

This cmdlet supports the common parameters: -Debug, -ErrorAction, -ErrorVariable, -InformationAction, -InformationVariable, -OutVariable, -OutBuffer, -PipelineVariable, -Verbose, -WarningAction, and -WarningVariable. For more information, see about\_CommonParameters (<http://go.microsoft.com/fwlink/?LinkID=113216>).

## Inputs

### None

## Outputs

### System.String

## Notes

Learn more about PowerShell: <http://jdhitsolutions.com/blog/essential-powershell-resources/>

## Related Links

Write-Verbose