




PowerShell Core

BRING POWERSHELL TO EVERY PLATFORM

The image features Tux, the Linux mascot, a black and white penguin with a yellow beak, standing centrally. He is surrounded by several large, colorful, 3D-style geometric shapes: a white shape with a blue jagged edge on the left, a white shape with an orange diamond on the right, an orange shape on the bottom left, a green shape on the bottom right, and a blue shape on the bottom left. The background is a dark blue and purple gradient with a fine, diagonal line pattern.

WHY LINUX IS THE BEST
OPERATING SYSTEM

Microsoft

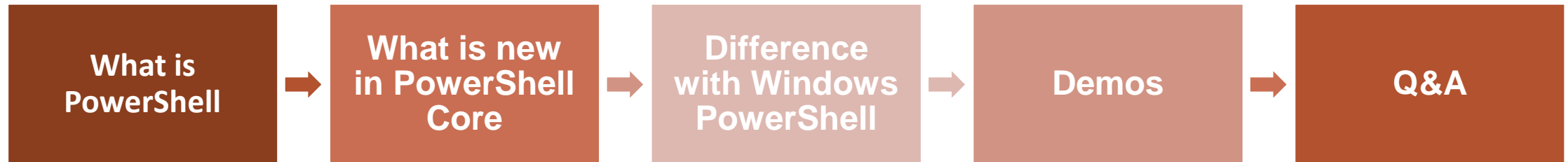


Jaap Brasser

Tweets	@ jaap_brasser
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Works	Tech Marketeer @ Rubrik.com
Does	Blogger, Speaker & Tech Enthusiast
Likes	Cloud, Automation & Security



Agenda



HOW LONG CAN YOU WORK ON MAKING A ROUTINE TASK MORE EFFICIENT BEFORE YOU'RE SPENDING MORE TIME THAN YOU SAVE?
(ACROSS FIVE YEARS)

When do we automate?

		HOW OFTEN YOU DO THE TASK					
		50/DAY	5/DAY	DAILY	WEEKLY	MONTHLY	YEARLY
HOW MUCH TIME YOU SHAVE OFF	1 SECOND	1 DAY	2 HOURS	30 MINUTES	4 MINUTES	1 MINUTE	5 SECONDS
	5 SECONDS	5 DAYS	12 HOURS	2 HOURS	21 MINUTES	5 MINUTES	25 SECONDS
	30 SECONDS	4 WEEKS	3 DAYS	12 HOURS	2 HOURS	30 MINUTES	2 MINUTES
	1 MINUTE	8 WEEKS	6 DAYS	1 DAY	4 HOURS	1 HOUR	5 MINUTES
	5 MINUTES	9 MONTHS	4 WEEKS	6 DAYS	21 HOURS	5 HOURS	25 MINUTES
	30 MINUTES		6 MONTHS	5 WEEKS	5 DAYS	1 DAY	2 HOURS
	1 HOUR		10 MONTHS	2 MONTHS	10 DAYS	2 DAYS	5 HOURS
	6 HOURS				2 MONTHS	2 WEEKS	1 DAY
	1 DAY					8 WEEKS	5 DAYS

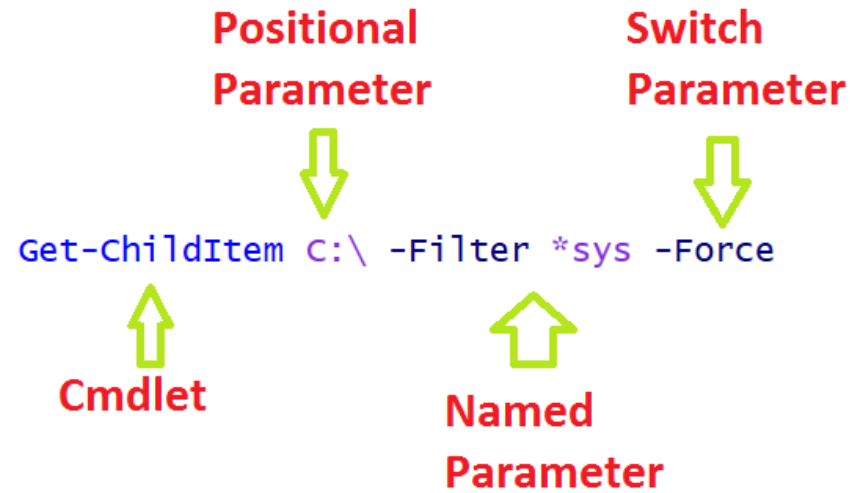
What is PowerShell



- Development started in 2001
- First released in 2006
- Was initially codenamed Monad
- **PowerShell**
- Currently at version 6.1

PowerShell Syntax

- Parameters
- Positional parameters
- Arguments



demo



Getting started PowerShell

Windows PowerShell

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PS C:\Users\Jaap Brasser> Get-Host

Name	: ConsoleHost
Version	: 5.1.17134.137
InstanceId	: 5f155a42-2c53-4200-b1ac-5b67c3cbb388
UI	: System.Management.Automation.Internal.Host.InternalHostUserInterface
CurrentCulture	: en-US
CurrentUICulture	: en-US
PrivateData	: Microsoft.PowerShell.ConsoleHost+ConsoleColorProxy
DebuggerEnabled	: True
IsRunspacePushed	: False
Runspace	: System.Management.Automation.Runspace.LocalRunspace

PS C:\Users\Jaap Brasser> █

Version Information

CommandType	Name	Version	Source
Alias	Add-AdlAnalyticsDataSource	4.2.3	AzureRM.DataLakeAnalytics
Alias	Add-AdlAnalyticsFirewallRule	4.2.3	AzureRM.DataLakeAnalytics
Alias	Add-AdlStoreFirewallRule	5.2.0	AzureRM.DataLakeStore
Alias	Add-AdlStoreItemContent	5.2.0	AzureRM.DataLakeStore
Alias	Add-AdlStoreTrustedIdProvider	5.2.0	AzureRM.DataLakeStore
Alias	Add-AzureHDInsightConfigValues	5.1.2	Azure
Alias	Add-AzureHDInsightMetastore	5.1.2	Azure
Alias	Add-AzureHDInsightStorage	5.1.2	Azure
Alias	Add-AzureRmAccount	4.6.0	AzureRM.Profile
Alias	Add-AzureRmIoTHubEHCG	3.1.2	AzureRM.IoTHub
Alias	Add-ProvisionedAppxPackage	3.0	Dism
Alias	Add-ProvisioningPackage	3.0	Provisioning
Alias	Add-TrustedProvisioningCertificate	3.0	Provisioning
Alias	Add-WAPackEnvironment	5.1.2	Azure
Alias	Apply-WindowsUnattend	3.0	Dism
Alias	Begin-WebCommitDelay	1.0.0.0	WebAdministration
Alias	Confirm-SSLegacyVolumeContainerStatus	5.1.2	Azure
Alias	Disable-AzureRmHDInsightOMS	4.1.2	AzureRM.HDInsight
Alias	Disable-AzureStorageSoftDelete	4.2.1	Azure.Storage
Alias	Disable-PhysicalDiskIndication	2.0.0.0	Storage
Alias	Disable-StorageDiagnosticLog	2.0.0.0	Storage
Alias	Disable-WAPackWebsiteApplicationDiagnostic	5.1.2	Azure
Alias	Edit-ASRRRecoveryPlan	0.2.4	AzureRM.RecoveryServices.SiteRecovery
Alias	Edit-ASRRP	0.2.4	AzureRM.RecoveryServices.SiteRecovery
Alias	Enable-AdlStoreKeyVault	5.2.0	AzureRM.DataLakeStore
-- More --			

Available
commands

```
Windows PowerShell
PS C:\Users\Jaap Brasser> Get-Command * | Group-Object -Property CommandType

Count Name                                     Group
-----
580 Alias                                     {%, ?, ac, Add-AdlAnalyticsDataSource...}
1260 Function                                {A:, Add-BCDataCacheExtension, Add-BitLockerKeyProtector, Add-DaDatabaseIndex...}
3613 Cmdlet                                  {Add-AppvClientConnectionGroup, Add-AppvClientPackage, Add-AppvPublishingServer,...}
1 ExternalScript                             {Get-RemoteProgram.ps1}
725 Application                              {AgentService.exe, aitstatic.exe, alg.exe, AppHostRegistrationVerifier.exe...}

PS C:\Users\Jaap Brasser>
```

Commands -
Grouped

```
Windows PowerShell
PS C:\Users\Jaap Brasser> Get-Command * | Group-Object -Property CommandType | Sort Count

Count Name                                     Group
-----
1 ExternalScript                             {Get-RemoteProgram.ps1}
580 Alias                                    {%, ?, ac, Add-AdlAnalyticsDataSource...}
725 Application                              {AgentService.exe, aitstatic.exe, alg.exe, AppHostRegistrationVerifier.exe...}
1260 Function                                {A:, Add-BCDataCacheExtension, Add-BitLockerKeyProtector, Add-DaDatabaseIndex...}
3613 Cmdlet                                  {Add-AppvClientConnectionGroup, Add-AppvClientPackage, Add-AppvPublishingServer,...}

PS C:\Users\Jaap Brasser>
```

Commands –
Grouped & Sorted


```
PS C:\Users\Jaap Brasser> Get-Help Get-WinEvent|more
```

NAME

Get-WinEvent

Help

SYNOPSIS

Gets events from event logs and event tracing log files on local and remote computers.

SYNTAX

```
Get-WinEvent [[-LogName] <String[]>] [-ComputerName <String>] [-Credential <PSCredential>] [-FilterXPath  
<String>] [-Force] [-MaxEvents <Int64>] [-Oldest] [<CommonParameters>]
```

```
Get-WinEvent [-ListProvider] <String[]> [-ComputerName <String>] [-Credential <PSCredential>]  
[<CommonParameters>]
```

```
Get-WinEvent [-ProviderName] <String[]> [-ComputerName <String>] [-Credential <PSCredential>] [-FilterXPath  
<String>] [-Force] [-MaxEvents <Int64>] [-Oldest] [<CommonParameters>]
```

```
Get-WinEvent [-ListLog] <String[]> [-ComputerName <String>] [-Credential <PSCredential>] [-Force]  
[<CommonParameters>]
```

```
Get-WinEvent [-FilterHashtable] <Hashtable[]> [-ComputerName <String>] [-Credential <PSCredential>] [-Force]  
[-MaxEvents <Int64>] [-Oldest] [<CommonParameters>]
```

```
Get-WinEvent [-FilterXml] <XmlDocument> [-ComputerName <String>] [-Credential <PSCredential>] [-MaxEvents  
<Int64>] [-Oldest] [<CommonParameters>]
```

```
Get-WinEvent [-Path] <String[]> [-Credential <PSCredential>] [-FilterXPath <String>] [-MaxEvents <Int64>]
```

```
PS C:\Users\Jaap Brasser> Get-Help Get-WinEvent -ShowWindow
```

```
PS C:\Users\Jaap Brasser>
```

Synopsis
Gets events from event logs and event tracing log files on local and remote computers.

Description
The Get-WinEvent cmdlet gets events from event logs, including classic logs, such as the System and Application logs, and the event logs that are generated by the Windows Event Log technology introduced in Windows Vista. It also gets events in log files generated by Event Tracing for Windows (ETW).

Without parameters, a Get-WinEvent command gets all the events from all the event logs on the computer. To interrupt the command, press CTRL + C.

Get-WinEvent also lists event logs and event log providers. You can get events from selected logs or from logs generated by selected event providers. And, you can combine events from multiple sources in a single command. Get-WinEvent allows you to filter events by using XPath queries, structured XML queries, and simplified hash-table queries.

Parameters

-ComputerName <String>
Gets events from the event logs on the specified computer. Type the NetBIOS name, an Internet Protocol (IP) address, or the fully qualified domain name of the computer. The default value is the local computer.

Required?	false
Position?	named
Default value	Local computer
Accept pipeline input?	false
Accept wildcard characters?	false

-Credential <PSCredential>
Specifies a user account that has permission to perform this action. The default value is the current user.

Required?	false
Position?	named
Default value	Current user
Accept pipeline input?	false

100%

Help – in GUI

```
PS C:\Users\Jaap Brasser> Show-Command Get-WinEvent
```

Get-WinEvent

Parameters for "Get-WinEvent":

ListLogSet	ListProviderSet	XmlQuerySet
GetLogSet	FileSet	GetProviderSet
		HashQuerySet

ComputerName:

Credential:

FilterXPath:

☐ Force

LogName:

MaxEvents:

☐ Oldest

Common Parameters

Run Copy Cancel

Show-Command

```
PS C:\Users\Jaap Brasser> Get-Process | more
```

Handles	NPM(K)	PM(K)	WS(K)	CPU(s)	Id	SI	ProcessName
-----	-----	-----	-----	-----	--	--	-----
241	15	6092	22980	0.52	2340	1	ApplicationFrameHost
157	8	1988	7420		13496	0	AppVShNotify
166	9	2292	9040	0.06	13508	1	AppVShNotify
206	12	9136	16136	5.63	16096	0	audiodg
391	11	2120	8316	0.02	888	1	chrome
286	23	25576	35812	0.34	1548	1	chrome
291	21	20424	31524	0.34	1968	1	chrome
142	11	1948	8880	0.03	2704	1	chrome
789	49	289324	280740	62.78	2976	1	chrome
281	21	19696	29748	0.22	3684	1	chrome
381	27	35596	52616	1.13	4900	1	chrome
320	28	51100	72652	5.48	5048	1	chrome
320	54	135256	157904	13.70	5748	1	chrome
368	28	35140	51216	1.47	5852	1	chrome
276	18	12876	21128	0.08	7080	1	chrome
338	50	121848	148244	63.14	7128	1	chrome
286	21	22032	33912	0.28	7188	1	chrome
314	22	22600	36392	0.23	8136	1	chrome
289	21	19532	29716	0.23	8308	1	chrome
289	21	19848	29972	0.22	8316	1	chrome
338	29	48752	69464	3.30	8532	1	chrome
302	26	40156	52620	0.73	8740	1	chrome
289	21	19672	29652	0.28	8948	1	chrome
309	27	46344	58244	1.11	9052	1	chrome
355	27	41440	57432	0.92	9124	1	chrome

Get-Process

```
PS C:\Users\Jaap Brasser> Get-Process | Out-GridView
```

```
PS C:\Users\Jaap Brasser> 
```

Get-Process Out-GridView							
Filter							
+ Add criteria ▼							
Handles	NPM(K)	PM(K)	WS(K)	CPU(s)	Id	SI	ProcessName
241	15	6092	22980	0.52	2,340	1	ApplicationFrameHost
157	8	1988	7420		13,...	0	AppVShNotify
166	9	2292	9040	0.06	13,...	1	AppVShNotify
216	12	9868	16272	7.13	16,...	0	audiodg
391	11	2120	8316	0.02	888	1	chrome
286	23	25576	35812	0.34	1,548	1	chrome
291	21	20424	31512	0.34	1,968	1	chrome
142	11	1948	8880	0.03	2,704	1	chrome
789	49	289...	269...	62.78	2,976	1	chrome
281	21	19696	29748	0.22	3,684	1	chrome
381	27	35596	52632	1.13	4,900	1	chrome
320	28	51100	71992	5.48	5,048	1	chrome
317	53	135...	157...	13.72	5,748	1	chrome
368	28	35140	51216	1.47	5,852	1	chrome
276	18	12876	21136	0.08	7,080	1	chrome
338	50	121...	148...	63.17	7,128	1	chrome
286	21	22032	33912	0.28	7,188	1	chrome
314	22	22600	36380	0.23	8,136	1	chrome
289	21	19532	29624	0.23	8,308	1	chrome
289	21	19848	29852	0.22	8,316	1	chrome
338	29	48752	69484	3.30	8,532	1	chrome
302	26	40156	52680	0.73	8,740	1	chrome
289	21	19672	29640	0.28	8,948	1	chrome
309	27	46344	58244	1.11	9,052	1	chrome
355	27	41440	57580	0.92	9,124	1	chrome
291	21	19672	29932	0.41	10,...	1	chrome
373	37	68364	87584	7.09	10,...	1	chrome
3,220	86	183...	237...	163.09	12,...	1	chrome
370	28	33856	52068	1.63	12,...	1	chrome
339	50	127...	141...	6.30	12,...	1	chrome
288	22	21936	34696	0.41	13,...	1	chrome

Get-Process | Out-GridView


```
PS C:\Users\Jaap Brasser> Get-Process | Out-GridView -PassThru | kill -WhatIf
```

Get-Process | Out-GridView -PassThru | kill -WhatIf

powerpnt

+ Add criteria ▼

Handles	NPM(K)	PM(K)	WS(K)	CPU(s)	Id	SI	ProcessName
1,922	95	257...	324...	536.20	2,240	1	POWERPNT

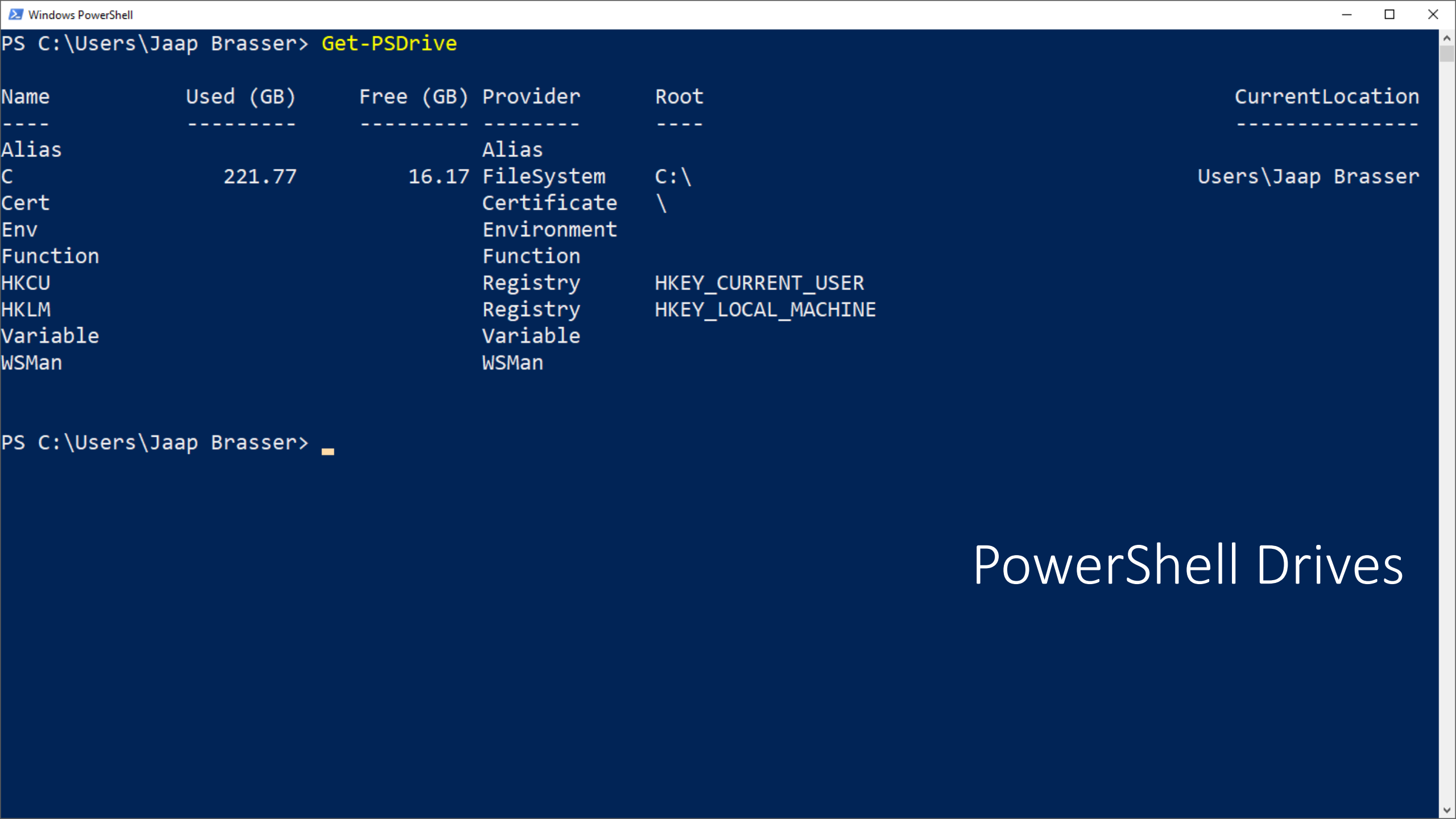
Get-Process |
Out-GridView |
kill

OK

Cancel

```
Windows PowerShell
PS C:\Users\Jaap Brasser> Get-Process | Out-GridView
PS C:\Users\Jaap Brasser> Get-Process | Out-GridView -PassThru | kill -WhatIf
What if: Performing the operation "Stop-Process" on target "POWERPNT (2240)".
PS C:\Users\Jaap Brasser> █
```

Get-Process |
Out-GridView |
kill

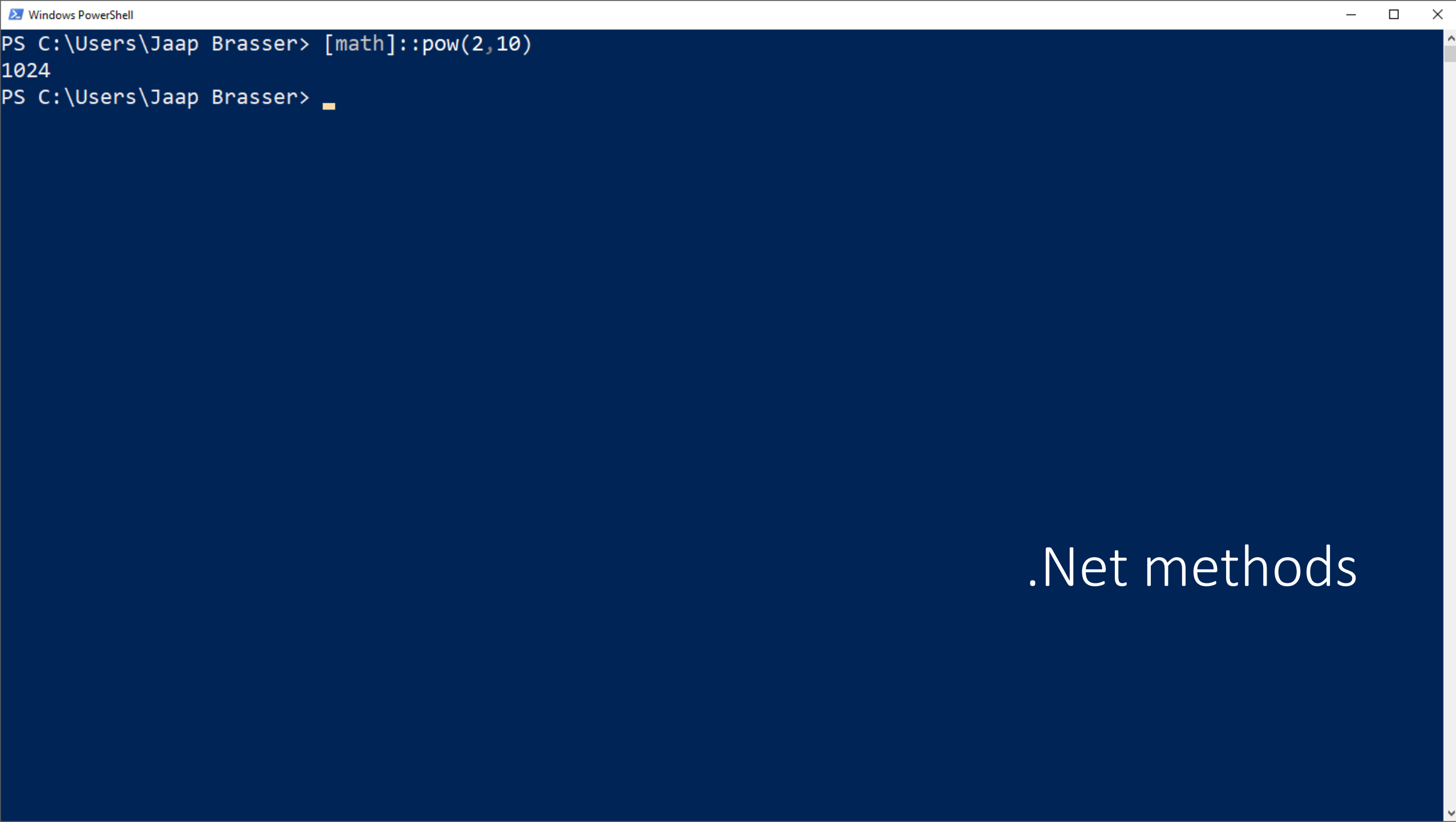


PS C:\Users\Jaap Brasser> Get-PSDrive

Name	Used (GB)	Free (GB)	Provider	Root	CurrentLocation
Alias			Alias		
C	221.77	16.17	FileSystem	C:\	Users\Jaap Brasser
Cert			Certificate	\	
Env			Environment		
Function			Function		
HKCU			Registry	HKEY_CURRENT_USER	
HKLM			Registry	HKEY_LOCAL_MACHINE	
Variable			Variable		
WSMan			WSMan		

PS C:\Users\Jaap Brasser>

PowerShell Drives



```
PS C:\Users\Jaap Brasser> [math]::pow(2,10)
1024
PS C:\Users\Jaap Brasser> 
```

.Net methods

```
PS C:\Users\Jaap Brasser> Get-WmiObject Win32_Bios
```

```
SMBIOSBIOSVersion : XMAKB5R0P0200
Manufacturer      : INSYDE Corp.
Name              : InsydeH2O Version 05.12.09XMAKB5R0P0200
SerialNumber      : 16771/00002140
Version           : XMCC - 0
```

```
PS C:\Users\Jaap Brasser>
```

Wmi Query


```
PS C:\Users\Jaap Brasser> Get-WmiObject Win32_Bios | clip
PS C:\Users\Jaap Brasser>
```

Clipboard

```
PS C:\Users\Jaap Brasser> Get-ChildItem *docx -Recurse -EA 0 | Measure-Object
```

```
Count      : 519  
Average    :  
Sum        :  
Maximum    :  
Minimum    :  
Property   :
```

```
PS C:\Users\Jaap Brasser> █
```

Get-ChildItem | Measure-Object

```
PS C:\Users\Jaap Brasser\downloads> Get-ChildItem *exe | Set-Clipboard  
PS C:\Users\Jaap Brasser\downloads>
```

Get-ChildItem |
Set-Clipboard

Demo Summary

Get available commands

Get-Help

Show-Commands (GUI)

Manipulate output

Measure/Count and Group output

Components of PowerShell



Windows PowerShell

Learn about the PowerShell scripting language.



Desired State Configuration

Use PowerShell to manage system and enforce configurations.



Just Enough Administration

Secure management in PowerShell by limiting permissions to only what is needed.



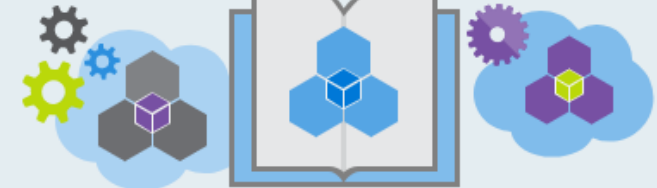
PowerShell Gallery

The central repository for PowerShell scripts and modules.



Azure PowerShell

Manage your Azure deployments using PowerShell.




Modules

See the reference documentation for numerous PowerShell modules.


Components of PowerShell Core



~~Windows PowerShell~~
Learn about the PowerShell scripting language.



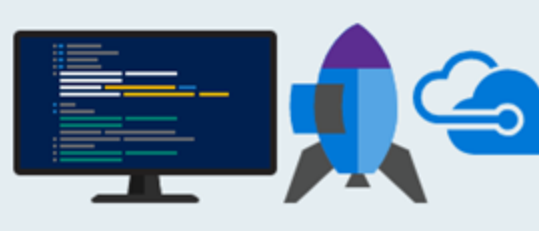
~~Desired State Configuration~~
Use PowerShell to manage system and enforce configurations.




~~Just Enough Administration~~
Secure management in PowerShell by limiting permissions to only what is needed.



PowerShell Gallery
The central repository for PowerShell scripts and modules.



Azure PowerShell
Manage your Azure deployments using PowerShell.



Modules
See the reference documentation for numerous PowerShell modules.

demo



PowerShell Core



Demo Summary

Performance Improvements

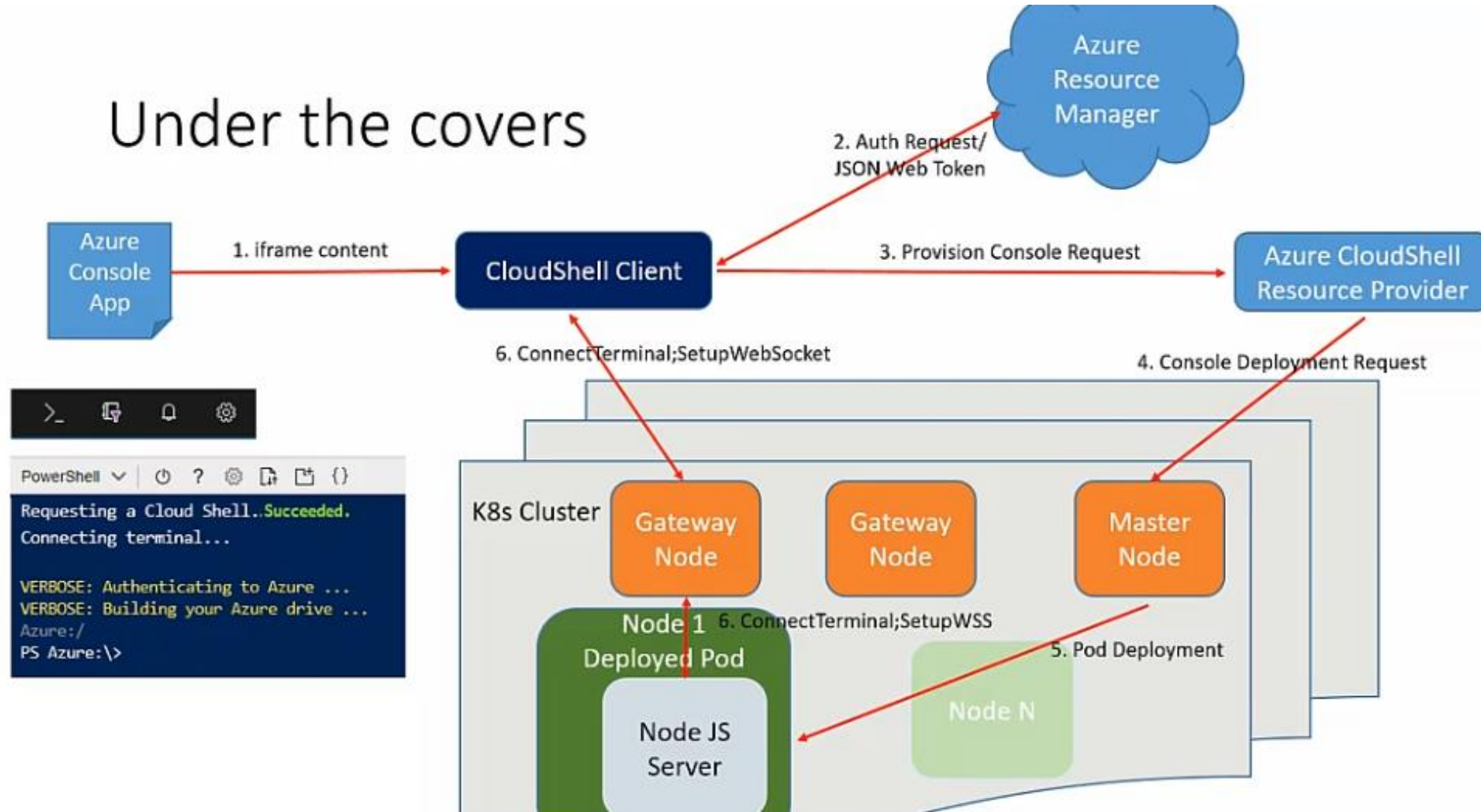
Working with Windows modules

PowerShell Remoting

PowerShell Formatting

Components of Cloud Shell

Under the covers



Cloud Shell pricing

Cloud Shell pricing

- ✓ **No** upfront cost
- ✓ **No** termination fees
- ✓ Pay only for what you need

Language Support

Language	Version
.NET Core	2.0.0
Go	1.9
Java	1.8
Node.js	8.9.4
PowerShell	6.1.0
Python	2.7 and 3.5 (default)

Linux tools	bash
	zsh
	sh
	tmux
	dig
Azure tools	Azure CLI and Azure classic CLI
	AzCopy
	Service Fabric CLI
	Batch Shipyard
	blobxfer
Text editors	vim
	nano
	emacs
	code
Source control	git
Build tools	make
	maven
	npm
	pip

Containers	Docker Machine
	Kubectl
	Helm
	DC/OS CLI
Databases	MySQL client
	PostgreSql client
	sqlcmd Utility
	mssql-scripter
Other	iPython Client
	Cloud Foundry CLI
	Terraform
	Ansible
	Chef InSpec

Available tools

CloudDrive in Cloud Shell

Command

`clouddrive mount <fileshare> :Mount an Azure file share to Cloud Shell.`

Mount enables mounting and associating an Azure file share to Cloud Shell. Cloud Shell will automatically attach this file share on each session.

Cloud Shell persists files with both methods below:

1. Create a disk image of your \$HOME directory to persist files within Cloud Shell. This disk image is saved in your specified file share as 'acc_jcjbrasser'.
2. Mount specified file share as 'clouddrive' in \$HOME for file sharing. '/home/jcjbrasser/clouddrive' maps to '//<storageaccount>.file.storage.windows.net/<fileshare>/.cloudconsole'.

Arguments

<code>-s</code>	<code>--subscription id</code>	[Required]:Subscription ID or name.
<code>-g</code>	<code>--resource-group group</code>	[Required]:Resource group name.
<code>-n</code>	<code>--storage-account name</code>	[Required]:Storage account name.
<code>-f</code>	<code>--file-share name</code>	[Required]:File share name.
<code>-d</code>	<code>--disk-size size</code>	Disk size in GB. (default 5)
<code>-F</code>	<code>--force</code>	Skip warning prompts.
<code>-?</code>	<code>-h</code> <code>--help</code>	Shows this usage text.

Cloud Shell machines exist in the following regions:

Area	Region
Americas	East US, South Central US, West US
Europe	North Europe, West Europe
Asia Pacific	India Central, Southeast Asia

demo



Working with Cloud Shell

Demo Summary

Worked with CloudDrive from bash and
pwsh

Copy and moved files

Showed in Azure Portal

Explained the disk image

Azure Scoping

Key Takeaways

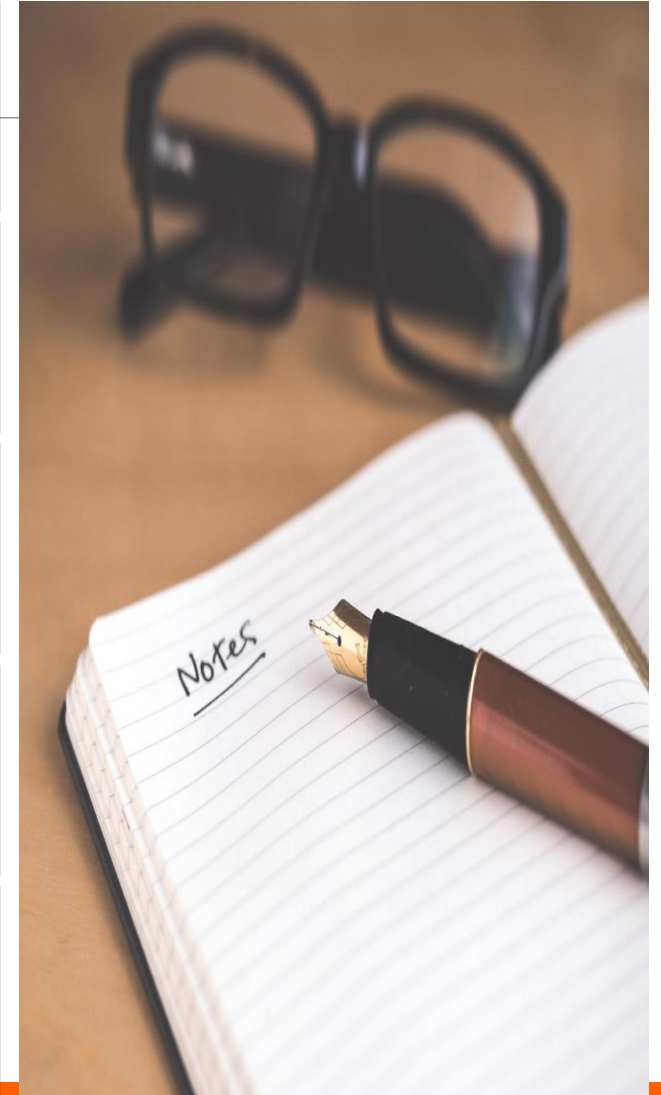
Available as optional download

Az Module

Rapid Release Cycle

Windows Compatibility

Platform Agnostic



Questions?



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