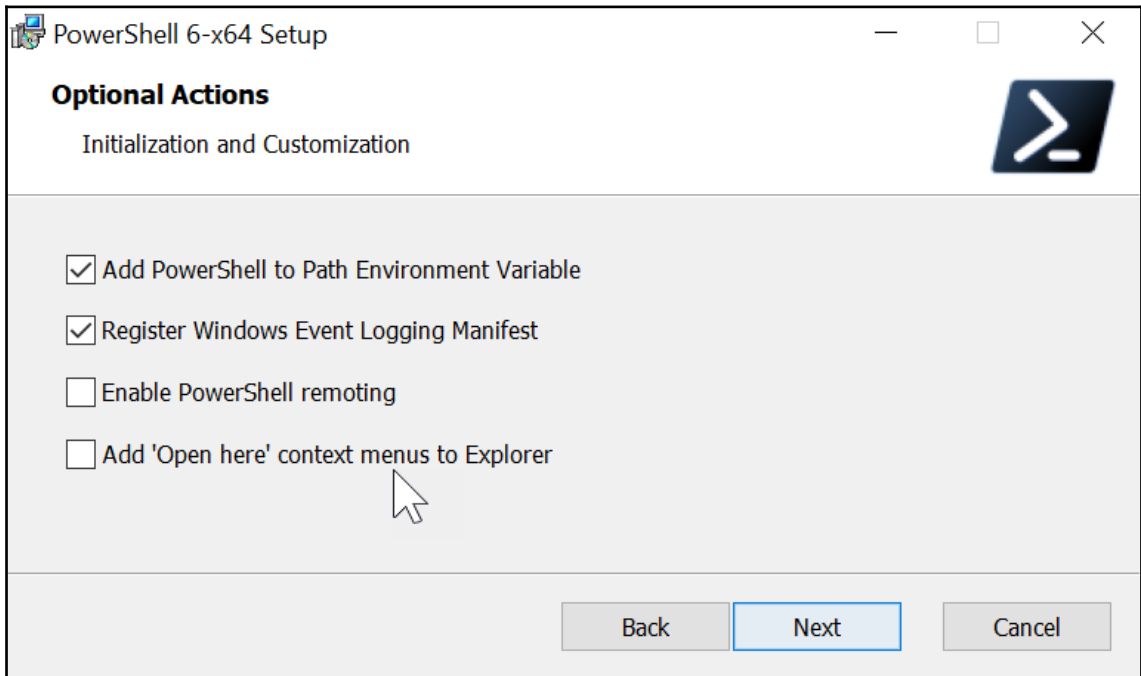


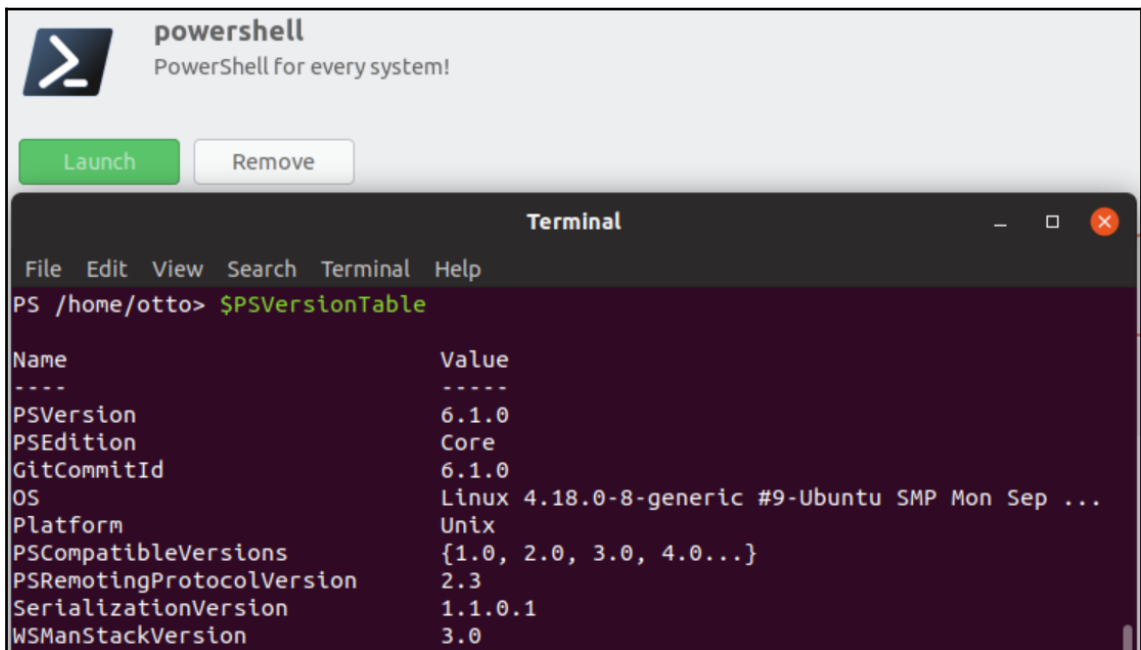
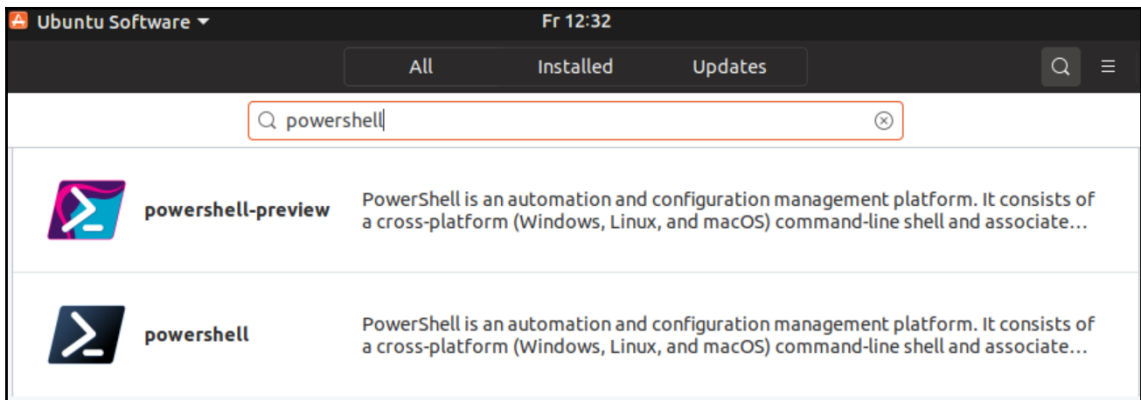
Chapter 1: Introduction to PowerShell Core

Get PowerShell

You can download and install a PowerShell package for any of the following platforms.

Supported Platform	Downloads (stable)	Downloads (preview)	How to Install
Windows (x64)	.msi	.msi	Instructions
Windows (x86)	.msi	.msi	Instructions






```
PS /home/jhp> ps
  PID TTY          TIME CMD
    4 tty1          00:00:00 bash
   45 tty1          00:00:03 pwsh
  116 tty1          00:00:00 ps
PS /home/jhp>
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> tasklist

Image Name            PID Session Name        Session#    Mem Usage
-----
System Idle Process    0 Services              0             8 K
System                  4 Services              0          14,036 K
Secure System          72 Services              0          74,168 K
Registry               128 Services              0          18,056 K
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> Get-Process

NPM(K)  PM(M)    WS(M)    CPU(s)    Id  SI ProcessName
-----
    16    5.70    24.34     2.41    4676  1 ApplicationFrameHost
     8    1.74     6.25     0.00    2424  0 AppVshNotify
     9    2.22     7.71     0.09   11016  1 AppVshNotify
    15    3.05    10.51     0.00    4592  0 armsvc
    18    4.62    18.75     0.16   25488  1 backgroundTaskHost
    53    2.87     4.50     0.08    9884  1 bash
   301   37.18    67.00     0.00   20256  0 CcmExec
    23    26.84    39.41     0.89   1112  1 chrome
    19    32.21    46.60     0.89   6244  1 chrome
    51   592.43   640.85   208.02   9692  1 chrome
    27    38.05    79.35     4.19   9956  1 chrome
    11     2.08     7.93     0.56  11828  1 chrome
    11     1.95     8.30     0.39  14976  1 chrome
    27    42.95    69.08     1.06   17000  1 chrome
    49   115.15   136.75   135.33  18588  1 chrome
    19    13.73    21.25     0.08   19668  1 chrome
    97   197.54   244.35   516.39  20784  1 chrome
    62   195.21   216.85    64.28  21772  1 chrome
    73   204.60   228.00    66.98  22880  1 chrome
    90   313.45   353.16   274.42  22928  1 chrome
```

```
PS /home/jhp> date
Fri Oct  5 14:15:01 DST 2018
PS /home/jhp>
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> cmd /c "date /t"
Fri 10/05/2018
PS C:\Users\japete.EUROPE>
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> Get-Date

Friday, October 5, 2018 2:14:50 PM

PS C:\Users\japete.EUROPE> _
```


PS C:\Users\japete.EUROPE> Get-Process | Where-Object -Property WorkingSet -gt 100MB

NPM(K)	PM(M)	WS(M)	CPU(s)	Id	SI	ProcessName
45	535.38	559.53	253.52	9692	1	chrome
48	38.95	125.74	171.66	18588	1	chrome
92	200.73	251.38	607.84	20784	1	chrome
60	185.27	202.61	75.25	21772	1	chrome
91	311.51	343.68	351.23	22928	1	chrome
42	108.70	122.69	13.27	8224	1	Code
43	545.95	561.34	89.47	12630	1	Code

PowerShell 6 (x64)

C:\Users\japete.EUROPE> tasklist /FI "MEMUSAGE gt 102400"

Image Name	PID	Session Name	Session#	Mem Usage
wm.exe	1412	Console	1	146,792 K
om.docker.service	4224	Services	0	114,028 K
sMpEng.exe	5604	Services	0	223,684 K
xplorer.exe	10140	Console	1	164,356 K

Media Clipboard View Help

Terminal

File Edit View Search Terminal Help

root@shoebuntu:~# ps -aux | awk -F" " '{S\$ > 102400}'

USER	PID	%CPU	%MEM	VSZ	RSS	TTY	STAT
root	1	0.0	0.1	137684	9388	?	Ss
root	234	0.0	0.2	110120	23144	?	S<s
systemd+	399	0.0	0.0	120024	5624	?	Ssl
root	523	0.0	0.1	271776	8968	?	Ssl
syslog	553	0.0	0.0	242616	4148	?	Ssl
root	567	0.2	0.2	640812	23112	?	Ssl
root	569	0.0	0.1	407344	9420	?	Ssl
root	603	0.0	0.1	468528	12420	?	Ssl

PowerShell 6 (x64)

PS C:\Users\japete.EUROPE> Stop-Computer -WhatIf

What if: Performing the operation "Stop-Computer" on target "localhost (Borbarad)".

PowerShell 6 (x64)

PS C:\Users\japete.EUROPE> start-process -?

NAME

Start-Process

SYNTAX

Start-Process [-FilePath] <string> [[-ArgumentList] <string[]>] [-Credential <pscredential>] [-WorkingDirectory <string>] [-LoadUserProfile] [-NoNewWindow] [-PassThru] [-RedirectStandardError <string>] [-RedirectStandardInput <string>] [-RedirectStandardOutput <string>] [-WindowStyle {Normal | Hidden | Minimized | Maximized}] [-Wait] [-UseNewEnvironment] [-WhatIf] [-Confirm] [<CommonParameters>]

Start-Process [-FilePath] <string> [[-ArgumentList] <string[]>] [-WorkingDirectory <string>] [-PassThru] [-Verb <string>] [-WindowStyle {Normal | Hidden | Minimized | Maximized}] [-Wait] [-WhatIf] [-Confirm] [<CommonParameters>]

ALIASES

saps

start

REMARKS

Get-Help cannot find the Help files for this cmdlet on this computer. It is displaying only partial help.

-- To download and install Help files for the module that includes this cmdlet, use Update-Help.

-- To view the Help topic for this cmdlet online, type: "Get-Help Start-Process -Online" or go to <https://go.microsoft.com/fwlink/?LinkID=135261>.

PS C:\Users\japete.EUROPE>


```
PS C:\Users\japete.EUROPE> get-help start-process -parameter filepath
```

```
-FilePath <string>
```

Required?	true
Position?	0
Accept pipeline input?	false
Parameter set name	(All)
Aliases	PSPath, Path
Dynamic?	false

```
PS C:\Users\japete.EUROPE> Get-Command New-Item -Syntax

New-Item [-Path] <string[]> [-ItemType <string>] [-Value <Object>] [-Force] [-Credential <pscredential>] [-WhatIf]
[-Confirm] [<CommonParameters>]

New-Item [[-Path] <string[]>] -Name <string> [-ItemType <string>] [-Value <Object>] [-Force] [-Credential <pscrede
ntial>] [-WhatIf] [-Confirm] [<CommonParameters>]
```

```
PS C:\Users\japete.EUROPE> Get-Command -Verb Get -Module Microsoft.PowerShell.Utility
```

CommandType	Name	Version	Source
-----	----	-----	-----
Cmdlet	Get-Alias	6.1.0.0	Microso
Cmdlet	Get-Culture	6.1.0.0	Microso
Cmdlet	Get-Date	6.1.0.0	Microso
Cmdlet	Get-Event	6.1.0.0	Microso
Cmdlet	Get-EventSubscriber	6.1.0.0	Microso

```
PS C:\Users\japete.EUROPE> Get-Command -CommandType Application
```

CommandType	Name	Version	Source
-----	----	-----	-----
Application	{A6D608F0-0BDE-491A-97AE-5C4B05D86E01}.bat	0.0.0.0	C:\WINDOWS\system32\{A6D608F0-0B...
Application	{EC94D02F-D200-4428-9531-05AF7F9799CB}.bat	0.0.0.0	C:\WINDOWS\system32\{EC94D02F-D2...
Application	{F33C3B9B-72AF-418A-B3FD-560646F7CDA2}.bat	0.0.0.0	C:\WINDOWS\system32\{F33C3B9B-72...
Application	adsiedit.msc	0.0.0.0	C:\WINDOWS\system32\adsiedit.msc
Application	AgentService.exe	10.0.17...	C:\WINDOWS\system32\AgentService...


```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> Get-Command -ParameterName ComputerName,CimSession,PSSession

CommandType      Name                                     Version      Source
-----
Alias            Disable-PhysicalDiskIndication         2.0.0.0      storage
Alias            Disable-StorageDiagnosticLog           2.0.0.0      storage
Alias            Enable-PhysicalDiskIndication          2.0.0.0      storage
Alias            Enable-StorageDiagnosticLog            2.0.0.0      storage
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> $cmd = Get-Command New-Item
PS C:\Users\japete.EUROPE> $cmd.Parameters.Name

Name                : Name
ParameterType       : System.String
ParameterSets       : {[nameSet, System.Management.Automation.ParameterSetMetadata]}
IsDynamic           : False
Aliases             : {}
Attributes          : {nameSet, System.Management.Automation.AllowNullAttribute,
                        System.Management.Automation.AllowEmptyStringAttribute}
SwitchParameter     : False
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> Get-Disk

Number Friendly Name Serial Number      HealthStatus      OperationalStatus      Total Size Partition
-----
0      SAMSUNG MZ... S1ZKNXAGB23001    Healthy           Online               476.94 GB GPT
1      TOSHIBA-TR150 X6VB3077K8XU    Healthy           Online               447.13 GB GPT
```

```
PowerShell 6 (x64)
PS C:\Users\japete.EUROPE> Get-Disk -Number 0 | Get-Partition

DiskPath: \\?\scsi#disk&ven_samsung&prod_mz71n512hchp-000#4&1da3eea3&0&000000#{53f56307-b6bf-11d0-94f2-00a0c91efb8b}

PartitionNumber DriveLetter Offset          Size Type
-----
1                1048576      450 MB Recovery
2                472907776    100 MB System
3                577765376    16 MB Reserved
4                594542592    475.61 GB Basic
5                511281463296 789 MB Recovery
```


Chapter 2: Reading and Writing Output

```
PS C:\Users\japete.EUROPE> Get-UICulture
```

LCID	Name	DisplayName
----	----	-----
1033	en-US	English (United States)

```
PS C:\Users\japete.EUROPE> Get-Process -ID $pid
```

NPM(K)	PM(M)	WS(M)	CPU(s)	Id	SI	ProcessName
-----	-----	-----	-----	--	--	-----
82	97.50	146.98	3.58	22332	1	pwsh

```
PS C:\Users\japete.EUROPE> Get-TimeZone
```

```
Id                : W. Europe Standard Time
DisplayName        : (UTC+01:00) Amsterdam, Berlin, Bern, Rome
StandardName       : W. Europe Standard Time
DaylightName       : W. Europe Daylight Time
BaseUtcOffset      : 01:00:00
SupportsDaylightSavingTime : True
```

```
PS C:\Users\japete.EUROPE> Get-UpTime
```

```
Days           : 0
Hours           : 5
Minutes         : 56
Seconds         : 26
Milliseconds    : 0
```



```
Variable outside function
Variable inside function
Variable outside function
PS /home/jhp> 
```



```
PS /home/jhp> Get-PSProvider
```

Name	Capabilities	Drives
Alias	ShouldProcess	{Alias}
Environment	ShouldProcess	{Env}
FileSystem	Filter, ShouldProcess, Cre...	{/}
Function	ShouldProcess	{Function}
Variable	ShouldProcess	{Variable}

```
PS /home/jhp> 
```



```
PS C:\> Get-ChildItem -Path MyOwnDrive: -Recurse
```

Directory: MyOwnDrive:

Mode	Name
------	------

----	----
------	------

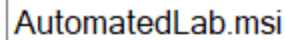
.	MyFirstLeafType	← Leaf object
+	MyFirstContainerType	← Container object


Directory: MyOwnDrive:\MyFirstContainerType

Mode	Name
------	------

----	----
------	------

.	MyFirstLeafType
---	-----------------



Opens with:  Windows® installer

Size on disk: 3.56 MB (3,739,648 bytes)

Accessed: Today, November 30, 2018, 2 minutes ago

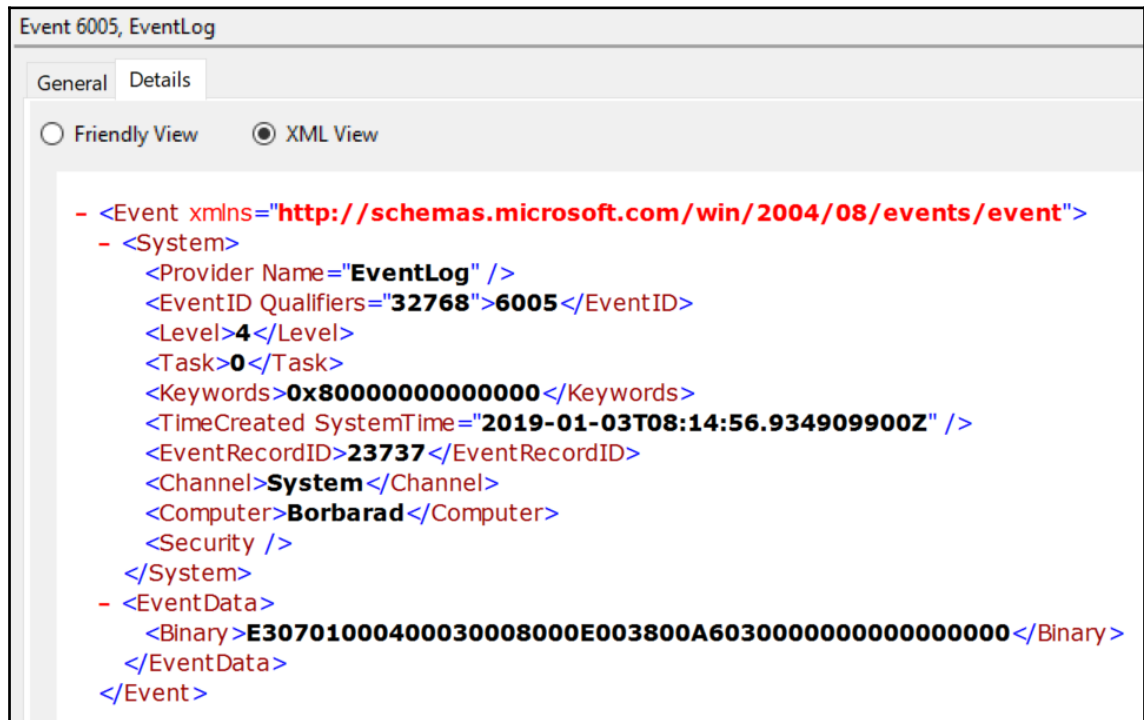
Attributes: ☐ Read-only ☐ Hidden

Advanced...

Security: This file came from another computer and might be blocked to help protect this computer. ☐ Unblock

```
PS C:\> get-content 'C:\Users\japete.EUROPE\dropbox\Daleks Exterminate.mp3' -stream com.dropbox.attributes
```


Chapter 4: Mastering the Pipeline



The screenshot shows the Windows Event Viewer interface. The title bar reads "Event 6005, EventLog". Below the title bar are two tabs: "General" and "Details", with "Details" being the active tab. Under the "Details" tab, there are two radio buttons: "Friendly View" (unselected) and "XML View" (selected). The main content area displays the XML representation of the event. The XML is color-coded: red for opening and closing tags, blue for attribute values, and black for text values. The XML structure is as follows:

```
- <Event xmlns="http://schemas.microsoft.com/win/2004/08/events/event">
- <System>
  <Provider Name="EventLog" />
  <EventID Qualifiers="32768">6005</EventID>
  <Level>4</Level>
  <Task>0</Task>
  <Keywords>0x8000000000000000</Keywords>
  <TimeCreated SystemTime="2019-01-03T08:14:56.934909900Z" />
  <EventRecordID>23737</EventRecordID>
  <Channel>System</Channel>
  <Computer>Borbarad</Computer>
  <Security />
</System>
- <EventData>
  <Binary>E30701000400030008000E003800A6030000000000000000</Binary>
</EventData>
</Event>
```


Event 6005, EventLog

General Details

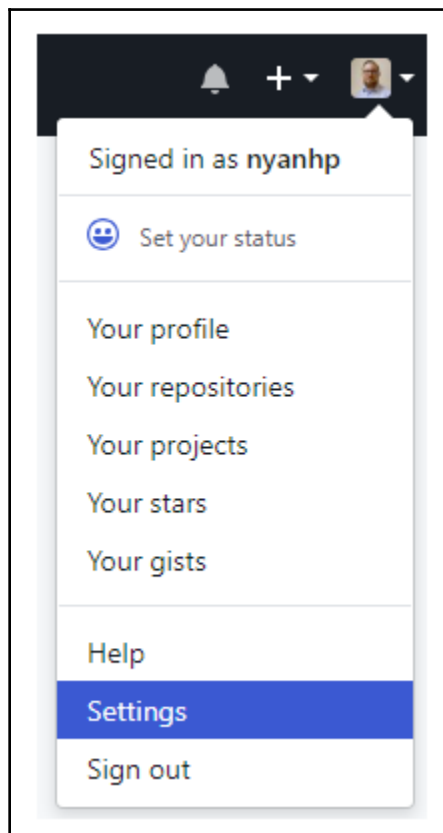
☐ Friendly View ☒ XML View

'*[System[EventID=6005 or EventID=6006]]'

```
- <Event xmlns="http://schemas.microsoft.com/win/2004/08/events/event">
- <System>
  <Provider Name="EventLog" />
  <EventID Qualifiers="32768">6005</EventID>
  <Level>4</Level>
  <Task>0</Task>
  <Keywords>0x8000000000000000</Keywords>
  <TimeCreated SystemTime="2019-01-03T08:14:56.934909900Z" />
  <EventRecordID>23737</EventRecordID>
  <Channel>System</Channel>
  <Computer>Borbarad</Computer>
  <Security />
</System>
- <EventData>
  <Binary>E30701000400030008000E003800A6030000000000000000</Binary>
</EventData>
</Event>
```


Chapter 5: Importing, Using, and Exporting Data

```
"Name","Id","Threads"  
"pwsh","18128","System.Diagnostics.ProcessThreadCollection"  
PS C:\Users\japete.EUROPE\source\repos\PacktPowerShellCookbook>
```



New personal access token

Personal access tokens function like ordinary OAuth access tokens. They can be HTTPS, or can be used to [authenticate to the API over Basic Authentication](#).

Token description

What's this token for?

Select scopes

Scopes define the access for personal tokens. [Read more about OAuth scopes](#).

- | | |
|---|--------------------------------------|
| <input checked="" type="checkbox"/> repo | Full control of private repositories |
| <input checked="" type="checkbox"/> repo:status | Access commit status |
| <input checked="" type="checkbox"/> repo_deployment | Access deployment status |
| <input checked="" type="checkbox"/> public_repo | Access public repositories |
| <input checked="" type="checkbox"/> repo:invite | Access repository invitations |

[Home](#)[Npgsql](#)[Entity Framework Core](#)[Entity Framework 6](#)[Home](#)[GITTER](#) [JOIN CHAT](#)

Npgsql - .NET Access to PostgreSQL



Npgsql 4.0.4

Npgsql is the open source .NET data provider for PostgreSQL.

Package Manager

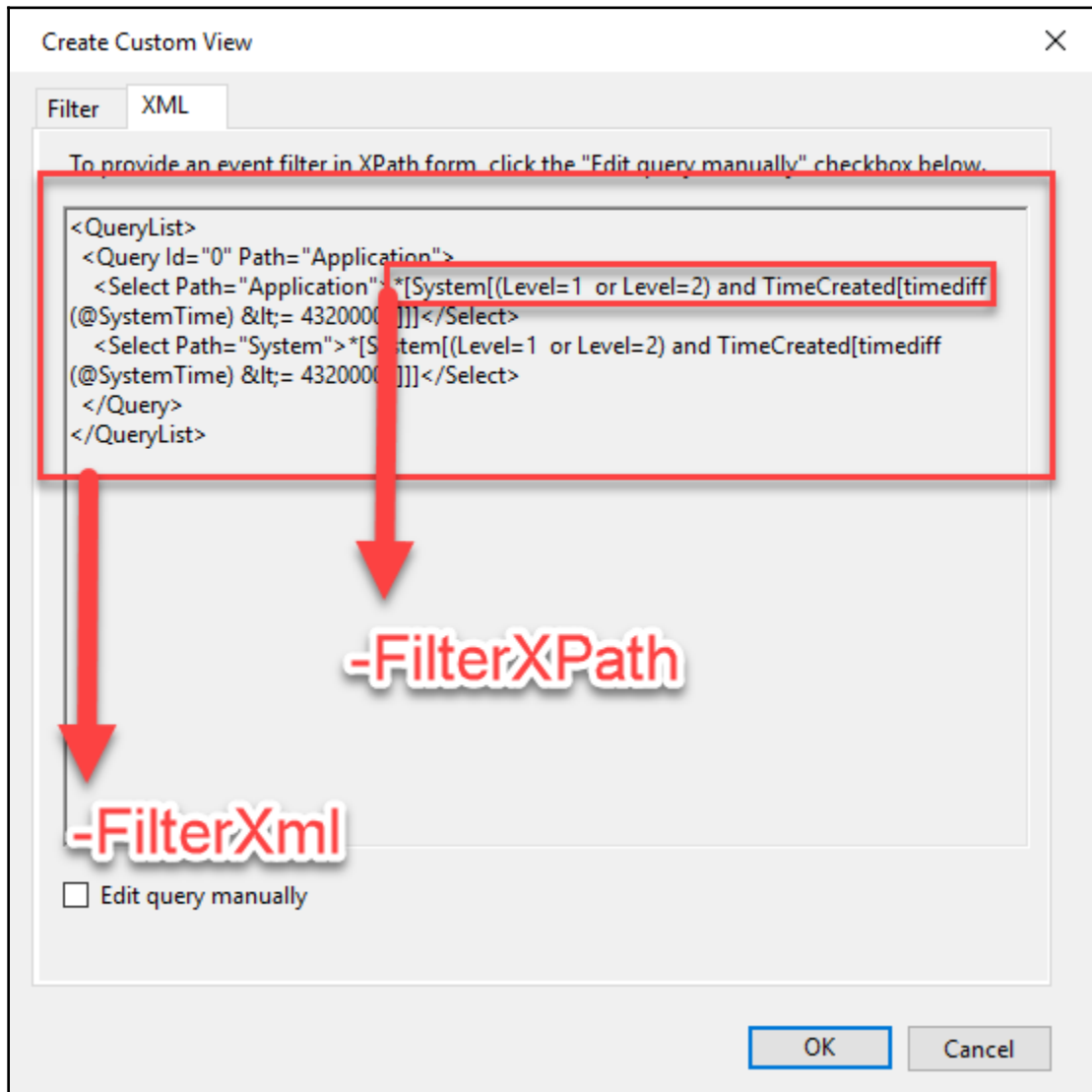
.NET CLI

Paket CLI

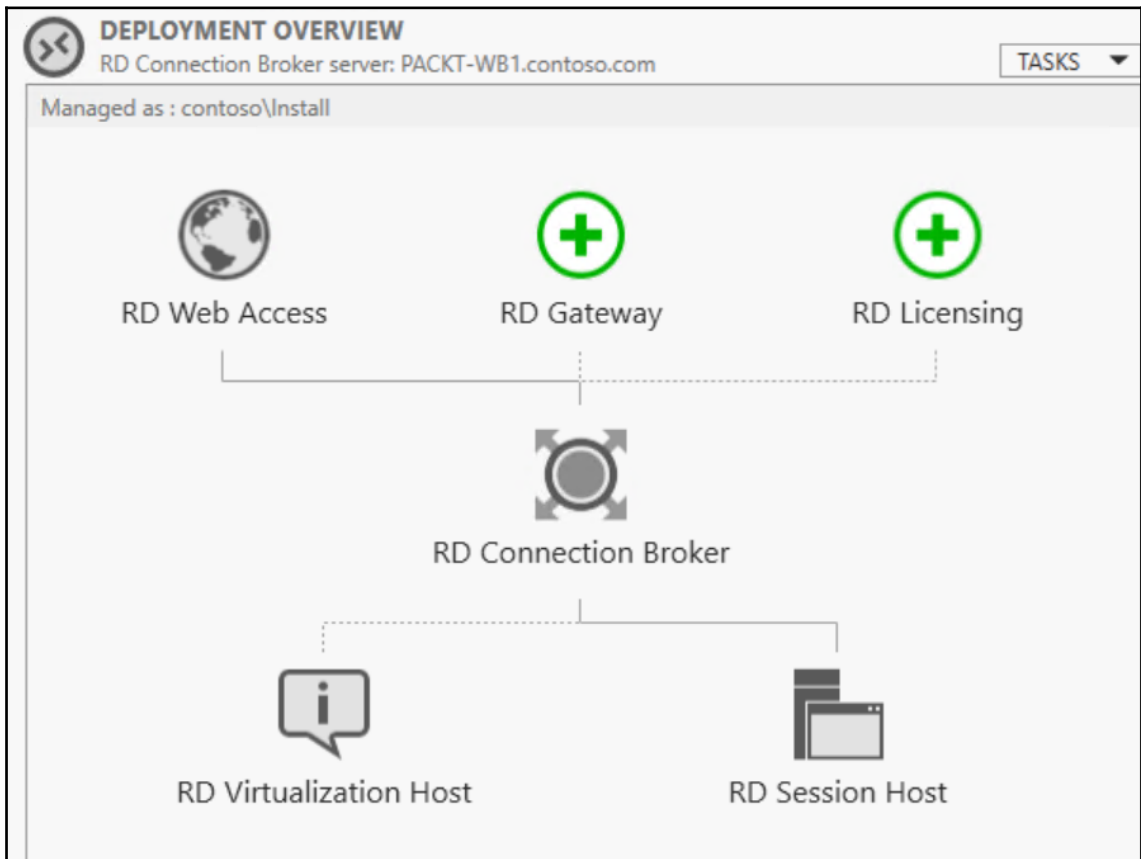
```
PM> Install-Package Npgsql -Version 4.0.4
```



Chapter 6: Windows and Linux Administration



Chapter 7: Windows Server Administration



Chapter 8: Remoting and Just Enough Administration

Permissions for http://schemas.microsoft.com/powers... X

http://schemas.microsoft.com/powershell/PowerShell.6.1.1

Group or user names:

- Administrators (BORBARAD\Administrators)
- Remote Management Users (BORBARAD\Remote Manage...)
- INTERACTIVE

Add...

Remove

Permissions for Remote
Management Users

	Allow	Deny
Full Control(All Operations)	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Read(Get,Enumerate,Subscribe)	<input type="checkbox"/>	<input type="checkbox"/>
Write(Put,Delete,Create)	<input type="checkbox"/>	<input type="checkbox"/>
Execute(Invoke)	<input type="checkbox"/>	<input type="checkbox"/>
Special permissions	<input type="checkbox"/>	<input type="checkbox"/>

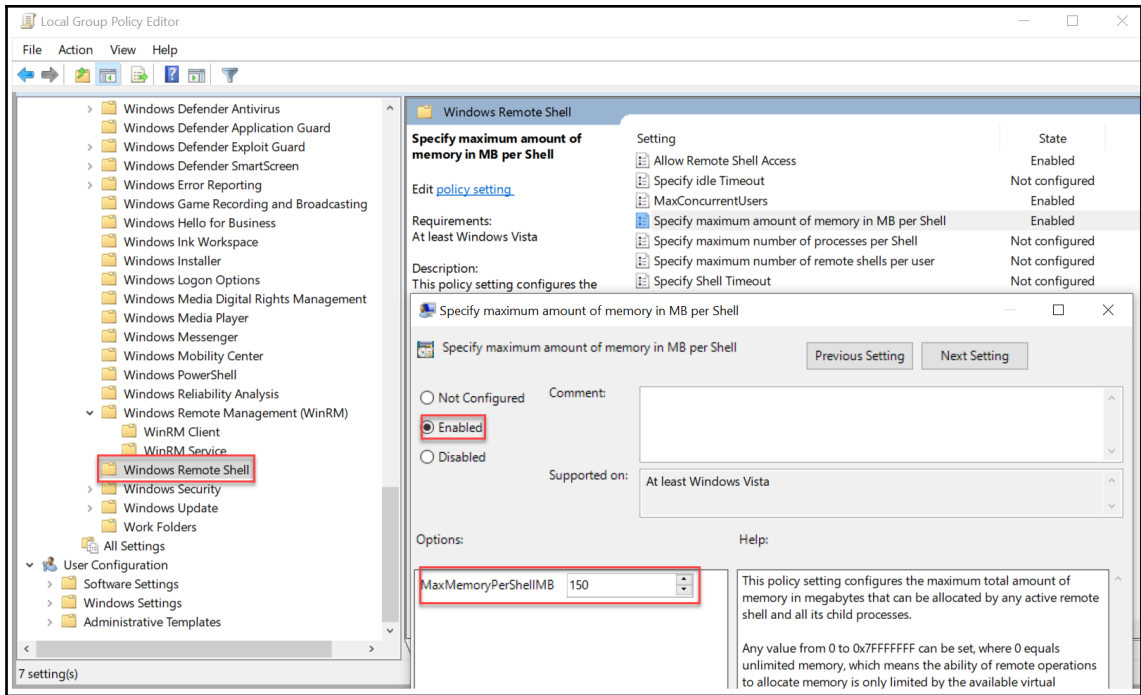
For special permissions or advanced settings,
click Advanced.

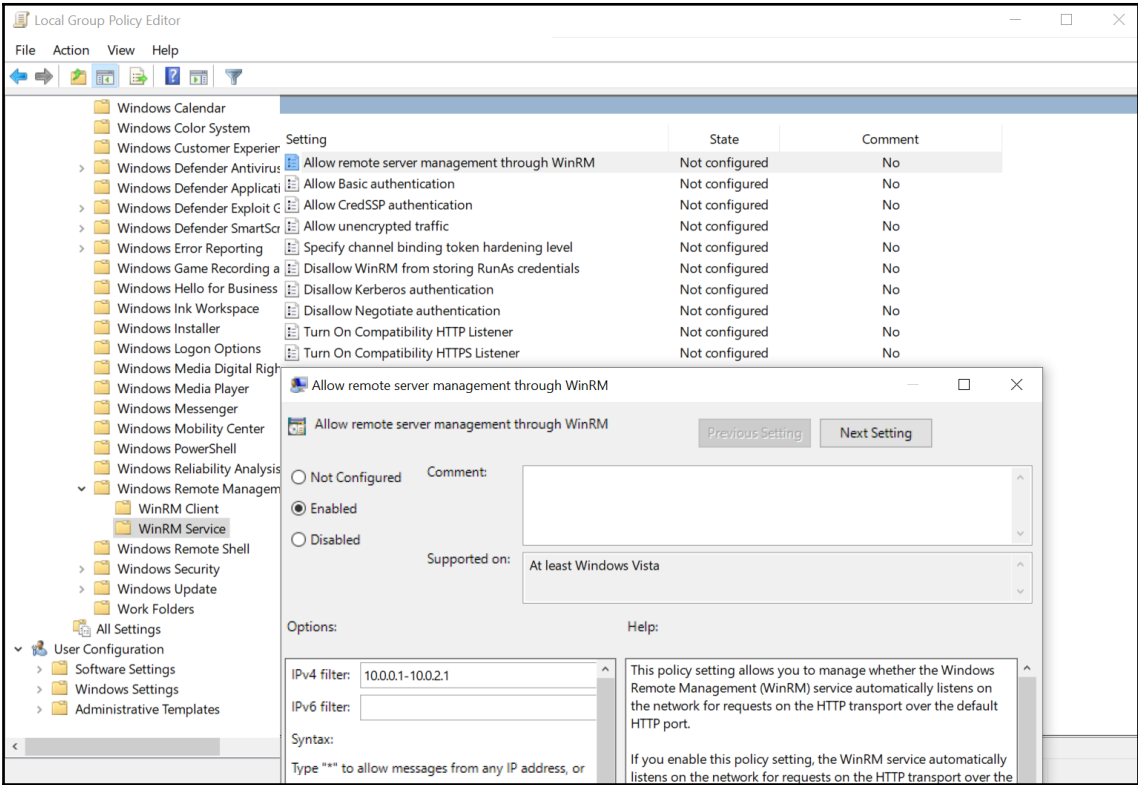
Advanced

OK

Cancel

Apply

















```
[PACKT-HV1]: [DBG]: [Process:888]: [RemoteHost]: PS C:\Users\Install\Documents>> ?
```


05 - Remote script debugging.ps1

[PACKT-HV1] Script Listing.ps1 x

```
1
2  # The typical Friday afternoon scripter kicks off a "quick script" on "some servers"
3  # at 4:55 pm and then Leaves Like the Road Runner
4  $unsuspectingHosts = Get-ADComputer -Filter * | Select -Expand DnsHostName
5
6  Write-Host -Fore Red "Doing some 'quick' tasks on $($unsuspectingHosts.Count) hosts - generating nooo tickets ♥
7
8  # Why, I need a loop
9  $someCondition = $true
10 while ($someCondition)
11 {
12     Start-Sleep -Seconds 1
13
14     if ((Get-Date).DayOfWeek -eq 'Sunday')
15     {
16         $someCondition = $false
17     }
18
19     # not Sunday yet? Time for scripting
20     $someData = Get-CimInstance Win32_OperatingSystem
21
22     # Whoops... We are now Looping for a very long time - unless you are reading this on Sundays
23 }
24
```


Chapter 9: Using PowerShell for Hyper-V and Azure Stack Management

 AzS-ACS01	Running	0 %	8192 MB
 AzS-ADFS01	Running	0 %	3072 MB
 AzS-CA01	Running	0 %	1024 MB
 AzS-DC01	Running	0 %	4096 MB
 AzS-ERCS01	Running	0 %	4096 MB
 AzS-Gwy01	Running	0 %	2048 MB
 AzS-NC01	Running	0 %	4096 MB
 AzS-SLB01	Running	0 %	2048 MB
 AzS-Sql01	Running	0 %	4096 MB
 AzS-WAS01	Running	0 %	4096 MB
 AzS-WASP01	Running	1 %	8192 MB
 AzS-Xrp01	Running	0 %	8192 MB

←

https://adminportal.local.azurestack.external/@5d92ce59-6fbc-4ca5-9dd7-42872a77de19/dashboard/private/f79230f1-8e61-48b9-908f-b59b463d

Dashboard - Microsoft Azure...

Microsoft Azure Stack - Administration

+

Create a resource

☰ All services

★ FAVORITES

Dashboard

All resources

Resource groups

Plans

Offers

Marketplace management

Virtual machines

Dashboard

+ New dashboard

Edit

Full screen

Clone

Delete

Region management

1

REGION	CRITICAL	WARNING
local	0	1

Update

Update available

Version: 1.1902.0.69

Alerts

1

Critical 0

Warning 1

Resource providers

NAME	HEALTH	ALERTS
Capacity	Healthy	0
Compute	Healthy	0
Infrastructure backup	Healthy	0
Key Vault	Healthy	0
Network	Healthy	0
Storage	Healthy	0

Microsoft Azure Stack - Administration

- Create a resource
- All services
- FAVORITES
- Dashboard
- All resources
- Resource groups
- Virtual machines
- Recent
- Plans
- Offers
- Marketplace management

Home > Marketplace management > Add from Azure

Add from Azure

Refresh

2016 datacenter - pay

NAME

Windows Server 2016 Datacenter - Server Core - Pay as you use

Windows Server 2016 Datacenter - Pay-as-you-use


Windows Server 2016 Datacenter - with Containers - Pay as you use


Windows Server 2016 Datacenter - with Containers - Pay as you use

Windows Server 2016 Datacenter - Pay-as-you-use

[Home](#) > [Marketplace management](#) > Add from Azure

Add from Azure

 Refresh

 Desired

NAME

PowerShell **Desired** State Configuration

Chapter 10: Using PowerShell with Azure and Google Cloud

```
C:\> connect-azaccount  
ARNING: To sign in, use a web browser to open the page https://microsoft.com/devicelogin and enter the code DKYNYRN
```


Project name *

testproject

?

Project ID: tidy-shard-235718. It cannot be changed later. [EDIT](#)

Location *

 No organisation

[BROWSE](#)

Parent organisation or folder

CREATE

CANCEL

```
Describing Did it work?  
[+] Should not throw 1.16s  
[+] Should have 73595 orders 221ms
```


Create a database

Database name

Needs to follow the MySQL [identifier rules](#).

Character set

Collation (Optional)

[CANCEL](#)[CREATE](#)

Google Cloud Platform

testproject

SQL

mysql01

master

us-central1-a

←

Instance details

EDIT

IMPORT

17:2017:2517:3017:3517:4017:45

CPU utilisation (mysql01): 1%

↻

Connect to this instance

Public IP address

35.232.16.220

Instance connection name

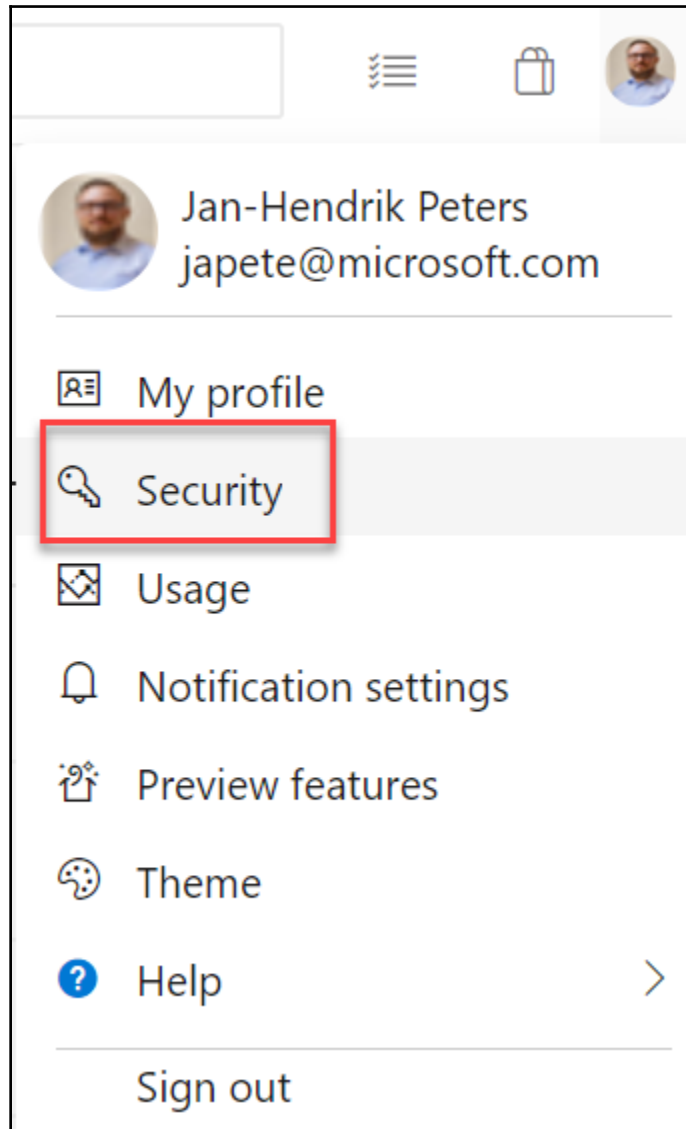
tidy-shard-235718:us-central1:mysql01

Connect using Cloud Shell

Connect from a Compute Engine VM instance

See all connection methods

Chapter 11: Accessing Web Services



Create a new personal access token

Name

PacktPowerShell

Organization

japete

Expiration (UTC)

30 days

Fri Apr 26 2019

Scopes

Authorize the scope of access associated with this token

Scopes

☒ Full access ☐ Custom defined

✓ #11: Tests are OK now!

Release

Artifacts

Manually run just now by Jan-Hendrik Peters PowerShellCookBook master 365a174

Logs Summary Tests

Summary

1 Run(s) Completed (1 Passed, 0 Failed)

3
Total tests

3 Passed

0 Failed

0 Others

100%
Pass percentage
↑ 33.3%

440ms
Run duration
↓ 86ms