

PowerShell Fundamentals and Usage

1. How do you change the current location to a specific drive in PowerShell?
Set-location is used to change the current location to a specific drive in PowerShell.

```
PS C:\Users\user> set-location C:\  
PS C:\>
```

2. Write a PowerShell command to list all files in the current directory
The PowerShell command to list all files in the current directory is get-childitem.

```
PS C:\Users\user> get-childitem
```

```
Directory: C:\Users\user
```

Mode	LastWriteTime	Length	Name
d-----	4/16/2023 2:46 PM		.icesoft
d-----	11/5/2022 6:42 PM		.idlerc
d-----	11/5/2022 6:36 PM		.pytest_cache
d-----	4/3/2023 10:29 AM		.ssh
d-----	11/21/2023 10:24 AM		.VirtualBox
d-----	6/12/2023 9:15 AM		.vscode
d-r---	4/24/2021 10:44 PM		3D Objects
d-----	8/15/2023 11:40 AM		Cisco Packet Tracer 8.2.1
d-r---	4/24/2021 10:44 PM		Contacts
d-r---	4/24/2021 7:02 PM		Creative Cloud Files
d-----	3/5/2022 1:09 PM		Desktop
d-----	4/26/2021 7:43 AM		Documents
d-r---	10/30/2023 8:18 AM		Downloads
d-----	11/5/2022 6:34 PM		env

3. What is the purpose of the Clear-Host cmdlet in PowerShell?
The purpose of the clear-host cmdlet in PowerShell is to clear the screen.

4. Using Get-Content, how would you display the contents of a file named “example.txt”?

To display the contents of a file named “example.txt”, get-content “file name” is used. Example;

```
PS C:\> write-output "hemloo" > example.txt
PS C:\> get-childitem
```

Directory: C:\

Mode	LastWriteTime	Length	Name
d-----	11/20/2023 10:27 PM		Intel
d-----	6/27/2023 2:12 PM		My Web Sites
d-----	4/25/2021 12:13 PM		PerfLogs
d-r---	9/27/2023 8:26 AM		Program Files
d-r---	6/18/2023 9:30 AM		Program Files (x86)
d-----	6/27/2023 2:12 PM		project1
d-r---	9/27/2023 8:13 AM		Users
d-----	11/20/2023 10:27 PM		Windows
d-----	7/27/2023 10:11 PM		xampp
-a----	11/21/2023 11:06 AM	18	example.txt

```
PS C:\> get-content example.txt
hemloo
PS C:\>
```

5. Provide three examples of aliases and their corresponding full cmdlet names.

Why might aliases be useful in PowerShell?

The examples of aliases are clear → clear-host, cd → set-location, cp → copy-item.

Aliases might be useful in PowerShell as it gets the aliases in the current session.

```
PS C:\> get-alias
```

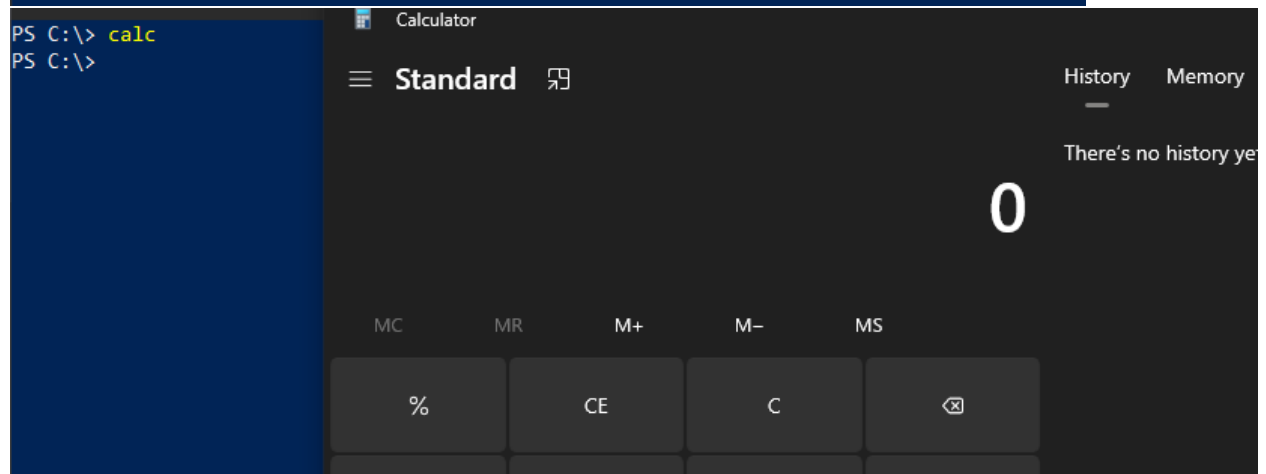
CommandType	Name	Version	Source
Alias	% -> ForEach-Object		
Alias	? -> Where-Object		
Alias	ac -> Add-Content		
Alias	asnp -> Add-PSSnapin		
Alias	cat -> Get-Content		
Alias	cd -> Set-Location		
Alias	clear -> Clear-Host		
Alias	cp -> Copy-Item		
Alias	del -> Remove-Item		
Alias	dir -> Get-Childitem		
Alias	gci -> Get-Childitem		
Alias	gc -> Get-Content		
Alias	gv -> Get-Variable		
Alias	h -> Help		
Alias	irm -> Invoke-WebRequest		
Alias	ls -> Get-Childitem		
Alias	mv -> Move-Item		
Alias	rm -> Remove-Item		
Alias	set -> Set-Variable		
Alias	sl -> Set-Location		
Alias	type -> Get-Content		
Alias	where -> Where-Object		
Alias	write -> Write-Output		

6. Explain how you can run an external command, like “ping” or “Calc,” from within the PowerShell console.

```
PS C:\> ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=41ms TTL=54
Reply from 8.8.8.8: bytes=32 time=40ms TTL=54

Ping statistics for 8.8.8.8:
    Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 40ms, Maximum = 41ms, Average = 40ms
Control-C
PS C:\>
```



7. What information does the `ipconfig /all` command provide, and in what scenarios might it be useful?

The `ipconfig /all` command provides detailed information about all adapters, including the IP address, subnet mask, default gateway, DHCP server, and DNS servers.

```
PS C:\> ipconfig /all

Windows IP Configuration

    Host Name . . . . . : DESKTOP-HB040Q0
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Mixed
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . :
    Description . . . . . : Realtek PCIe GbE Family Controller
    Physical Address. . . . . : 8C-47-BE-5A-B6-73
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes

Ethernet adapter Ethernet 2:

    Connection-specific DNS Suffix . :
    Description . . . . . : VirtualBox Host-Only Ethernet Adapter
    Physical Address. . . . . : 0A-00-27-00-00-11
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . . : fe80::2807:c3d0:39ee:51b9%17(Preferred)
    IPv4 Address. . . . . : 192.168.56.1(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :
    DHCPv6 IAID . . . . . : 688521255
    DHCPv6 Client DUID. . . . . : 00-01-00-01-28-16-05-EE-8C-47-BE-5A-B6-73
    DNS Servers . . . . . : fec0:0:0:ffff::1%1
                           fec0:0:0:ffff::2%1
                           fec0:0:0:ffff::3%1
    NetBIOS over Tcpip. . . . . : Enabled

Wireless LAN adapter Local Area Connection* 9:
```

8. Write a PowerShell command to retrieve information about all services on your computer, including the service name, display name, and status.

A PowerShell command to retrieve information about all services is `get-service`.

```
PS C:\> get-service
```

Status	Name	DisplayName
-----	----	-----
Stopped	AarSvc_7569d2	Agent Activation Runtime_7569d2
Stopped	AJRouter	AllJoyn Router Service
Stopped	ALG	Application Layer Gateway Service
Running	AnyDesk	AnyDesk Service
Stopped	AppIDSvc	Application Identity
Running	Appinfo	Application Information
Running	Apple Mobile De...	Apple Mobile Device Service
Stopped	AppMgmt	Application Management
Stopped	AppReadiness	App Readiness
Stopped	AppVClient	Microsoft App-V Client
Running	AppXSvc	AppX Deployment Service (AppXSVC)
Stopped	AssignedAccessM...	AssignedAccessManager Service
Running	AudioEndpointBu...	Windows Audio Endpoint Builder
Running	Audiosrv	Windows Audio
Stopped	autotimesvc	Cellular Time

9. What is the purpose of the `Update-Help -Force` command in PowerShell?
- The purpose of the `Update-Help -Force` command is to update into the newest versions of help topics without downloading new modules or running Windows Update.

10. How would you use the Get-Help cmdlet to find general information about all available cmdlets?

Get-help * would be use to find general information about all available cmdlets.

```
PS C:\Users\user> get-help *
```

Name	Category	Module	Synopsis
foreach	Alias		ForEach-0...
%	Alias		ForEach-0...
where	Alias		Where-Object
?	Alias		Where-Object
ac	Alias		Add-Content
clc	Alias		Clear-Con...
cli	Alias		Clear-Item
clp	Alias		Clear-Ite...
clv	Alias		Clear-Var...

11. List two examples of approved verbs used in PowerShell cmdlet naming.

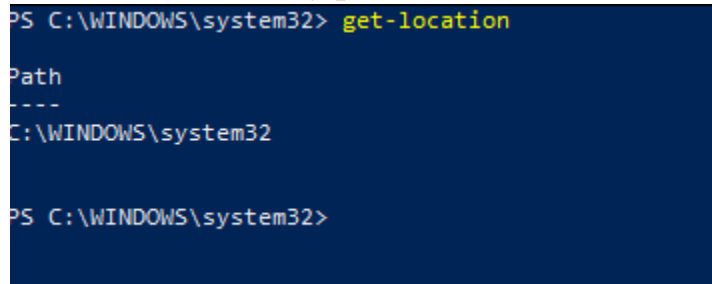
The examples of approved verbs that is used in PowerShell cmdlet naming;

```
PS C:\Users\user> get-verb
```

Verb	Group
Add	Common
Clear	Common
Close	Common
Copy	Common
Enter	Common
Exit	Common
Find	Common

12. How can you view the current directory path in PowerShell?

The current directory path in PowerShell can be viewed by get-location.

A screenshot of a PowerShell terminal window with a dark blue background. The prompt is 'PS C:\WINDOWS\system32>'. The command 'get-location' is entered in yellow text. The output shows 'Path' followed by a dashed line and the path 'C:\WINDOWS\system32'. The prompt 'PS C:\WINDOWS\system32>' is shown again at the bottom.

```
PS C:\WINDOWS\system32> get-location  
  
Path  
----  
C:\WINDOWS\system32  
  
PS C:\WINDOWS\system32>
```

13. Write a command to copy a file named “report.doc” from the current directory to the “Backup” directory.

The command to copy a file named “report.doc” from the current directory to the “Backup” directory is copy-item .\<file name> .\<directory name>

```
PS C:\> write-output "hiiii" > report.doc
PS C:\> Get-ChildItem
```

Directory: C:\

Mode		LastWriteTime	Length	Name
----		-----	-----	----
d-----		11/20/2023 10:27 PM		Intel
d-----		6/27/2023 2:12 PM		My Web Sites
d-----		4/25/2021 12:13 PM		PerfLogs
d-r---		9/27/2023 8:26 AM		Program Files
d-r---		6/18/2023 9:30 AM		Program Files (x86)
d-----		6/27/2023 2:12 PM		project1
d-r---		9/27/2023 8:13 AM		Users
d-----		11/20/2023 10:27 PM		Windows
d-----		7/27/2023 10:11 PM		xampp
-a----		11/21/2023 11:06 AM	18	example.txt
-a----		11/21/2023 6:33 PM	16	report.doc

```
PS C:\> mkdir backup
```

Directory: C:\

Mode		LastWriteTime	Length	Name
----		-----	-----	----
d-----		11/21/2023 6:34 PM		backup

```
PS C:\> Copy-Item .\report.doc .\backup
PS C:\> set-location backup
PS C:\backup> Get-ChildItem
```

Directory: C:\backup

Mode		LastWriteTime	Length	Name
----		-----	-----	----
-a----		11/21/2023 6:33 PM	16	report.doc

14.Explain the significance of the –Force parameter in the Remove-Item cmdlet.

The significance of the –Force parameter in the Remove-Item cmdlet is to remove items that can't.

```
PS C:\> Remove-Item .\backup -Force

Confirm
The item at C:\backup has children and the Recurse parameter was not
specified. If you continue, all children will be removed with the item.
Are you sure you want to continue?
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help
(default is "Y"):Y
PS C:\> Get-ChildItem

Directory: C:\


Mode                LastWriteTime         Length Name
----                -
d-----          11/20/2023   10:27 PM             Intel
d-----           6/27/2023    2:12 PM          My Web Sites
d-----           4/25/2021   12:13 PM          PerfLogs
d-r---          9/27/2023    8:26 AM        Program Files
d-r---          6/18/2023    9:30 AM    Program Files (x86)
d-----           6/27/2023    2:12 PM          project1
d-r---          9/27/2023    8:13 AM            Users
d-----          11/20/2023   10:27 PM          Windows
d-----           7/27/2023   10:11 PM           xampp
-a----          11/21/2023   11:06 AM           18 example.txt
-a----          11/21/2023    6:33 PM           16 report.doc
```

15. Using Get-Help, find detailed information about the Copy-Item cmdlet, including syntax and examples.

Command: `get-help copy-item -examples`

```
PS C:\> get-help Copy-Item -examples

NAME
    Copy-Item

SYNOPSIS
    Copies an item from one location to another.

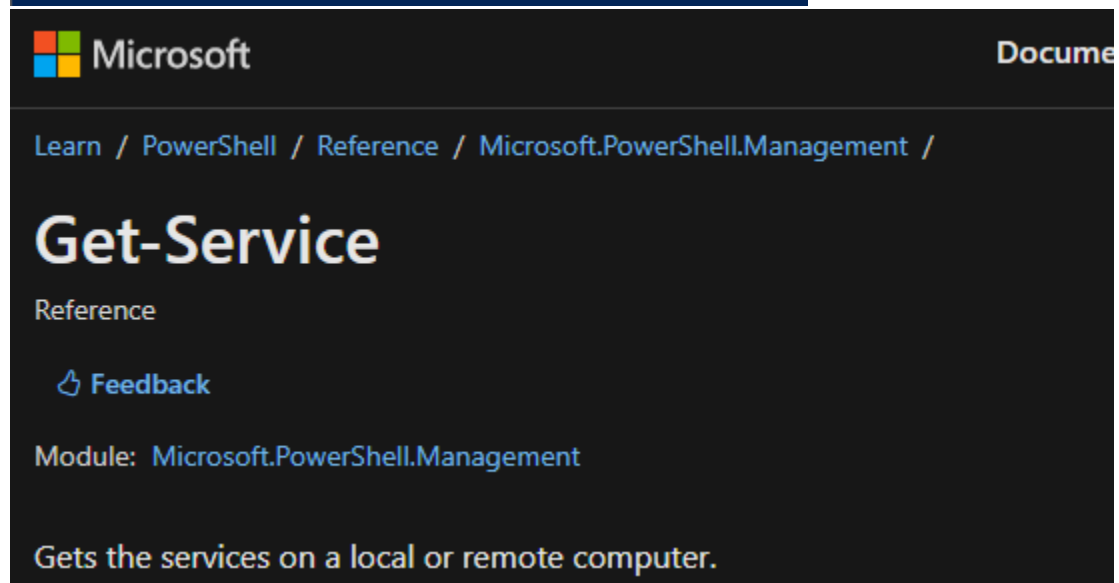
    ----- Example 1: Copy a file to the specified directory -----

    Copy-Item "C:\Wabash\Logfiles\mar1604.log.txt" -Destination
    "C:\Presentation"
```

16. How can you open the online help documentation for a specific cmdlet, for example, Get-Service?

Command: `get-help get-service -online`

```
PS C:\> get-help get-service -online
PS C:\>
```



The screenshot shows the Microsoft online help page for the `Get-Service` cmdlet. The page has a dark theme with the Microsoft logo in the top left corner. The breadcrumb navigation path is "Learn / PowerShell / Reference / Microsoft.PowerShell.Management /". The main heading is "Get-Service" in a large, bold font. Below the heading, the word "Reference" is displayed. There is a "Feedback" link with a thumbs-up icon. The module is identified as "Microsoft.PowerShell.Management". The description states: "Gets the services on a local or remote computer."

17. Provide an example of a scenario where using an alias in PowerShell might be beneficial.

Using aliases can save time and improve the readability of the scripts, especially when dealing with frequently used cmdlets or long command names. However, it's essential to use aliases judiciously and consider the readability and maintainability of code when doing so.

18. Write a PowerShell command to display all aliases starting with the letter "G."

The command to display all aliases starting with the letter "G" is `get-alias *G*`.

```
PS C:\> get-alias *G*

CommandType      Name
-----
Alias            gal -> Get-Alias
Alias            gbp -> Get-PSBreakpoint
Alias            gc -> Get-Content
Alias            gcb -> Get-Clipboard
Alias            gci -> Get-ChildItem
Alias            gcm -> Get-Command
Alias            gcs -> Get-PSCallStack
Alias            gdr -> Get-PSDrive
Alias            ghy -> Get-History
Alias            gi -> Get-Item
Alias            gin -> Get-ComputerInfo
Alias            gjb -> Get-Job
Alias            gl -> Get-Location
Alias            gm -> Get-Member
Alias            gmo -> Get-Module
Alias            gp -> Get-ItemProperty
Alias            gps -> Get-Process
```

19. Explain the difference between Get-Service and Get-Process in terms of their functionality.

Get-service cmdlet is used to retrieve information about services running on a system. It provides details about Windows services, which are background processes running on the system, often started automatically or manually to perform specific functions.

Get-Process cmdlet is used to retrieve information about running processes in a system. It provides details about the active processes currently running on the system, representing applications, background tasks, or system processes that are executing.

20. How would you use the Get-Content cmdlet to display only the first 10 lines of a text file named "log.txt"?

By using get-content cmdlet to display only the first 10 lines of a text file named "log.txt" we would use the command `get-content -path "log.txt" | select-object -first 10`.

```
PS C:\> write-output "Get-Service
>> Get the services on the local computer.
>>
>> Syntax
>>     Get-Service { [-name] string[] | -displayName string[]
>>                   | -inputObject ServiceController[] }
>>           [-ComputerName string[]] [-DependentServices]
>>           [-include string[]] [-exclude string[]]
>>           [-RequiredServices] [CommonParameters]
>> Key
>>     -name
>>         Service names to retrieve. Wildcards are permitted.
>>
>>     -displayName
>>         Display names of services to retrieve. Wildcards permitted.
```

```
PS C:\> get-content -Path "log.txt" | Select-Object -First 10
Get-Service
Get the services on the local computer.

Syntax
    Get-Service { [-name] string[] | -displayName string[]
                  | -inputObject ServiceController[] }           [-ComputerName string[]] [-DependentServices]
                  [-include string[]] [-exclude string[]]
                  [-RequiredServices] [CommonParameters]

Key
PS C:\>
```