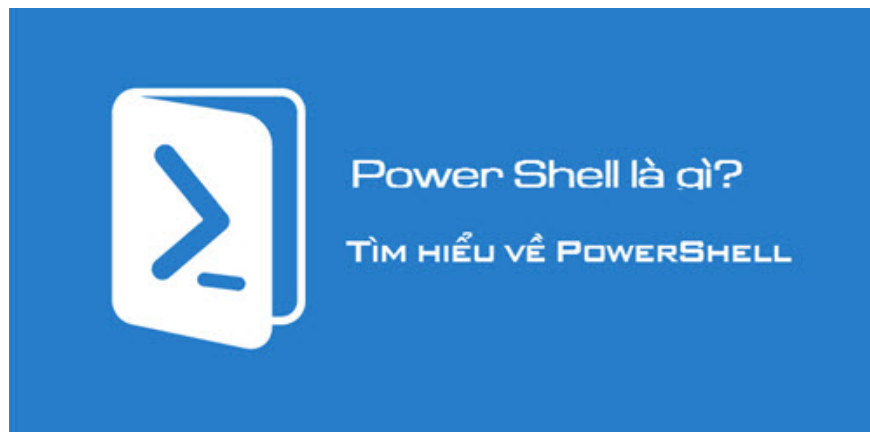


What is PowerShell? How to use PowerShell effectively on a computer.

PowerShell is a command-line program that is gradually becoming the default on Windows 10, replacing the outdated CMD. However, PowerShell is still a relatively new program for computer users. Taimienphi will introduce you to PowerShell and how to use it effectively.

PowerShell was developed to replace the familiar command-line program CMD on Windows, which uses Windows Command Prompt (.cmd and .bat) files and very basic commands to handle simple tasks. PowerShell runs in the .NET environment and the .NET Framework, which includes commands and coding languages.

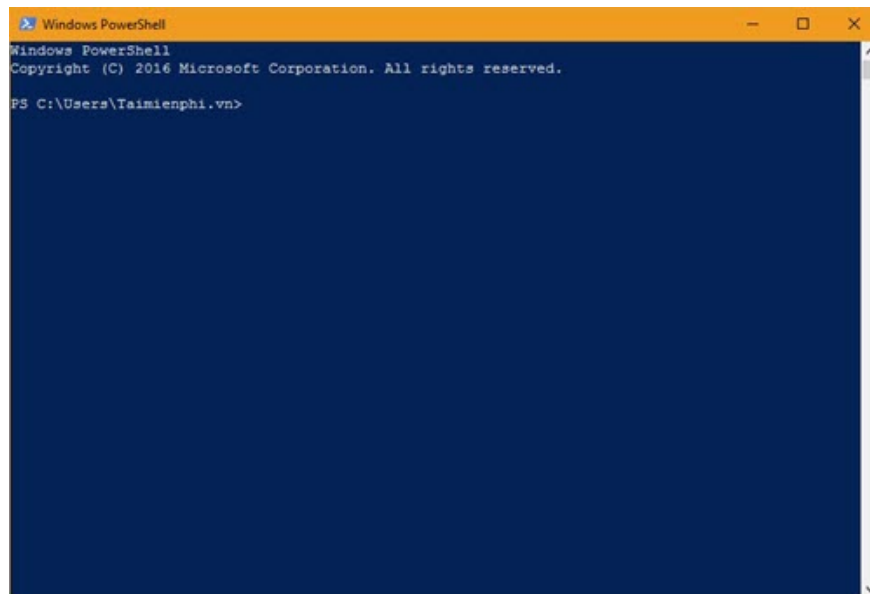
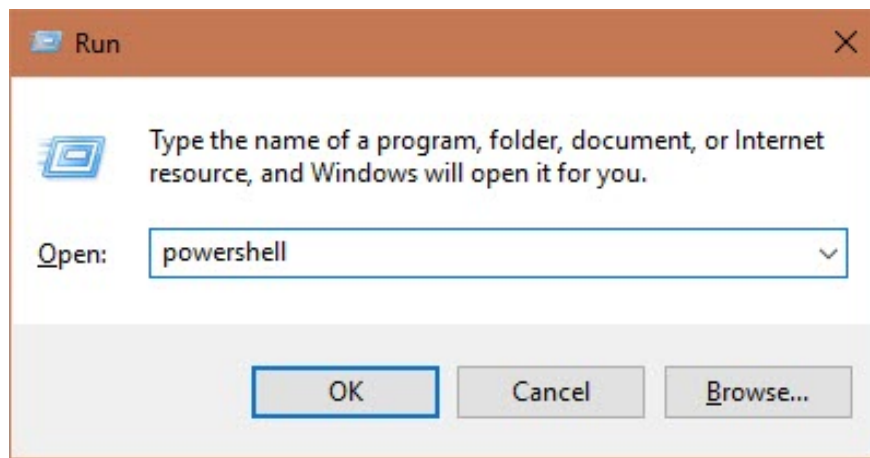
Alongside PowerShell, Windows also developed Windows PowerShell ISE. ISE stands for Integrated Programming Environment, which includes a graphical interface for advanced programming and integrates various tools to help you avoid typing all commands on a single command line.



Windows PowerShell has been under development by Microsoft for quite some time; however, the newer version with many improved features was only introduced in Windows 8.1 and Windows Server 2012.

How to start PowerShell

Press the **Windows + R** key combination, then type ' **powershell** ' to open the Windows PowerShell interface.



PowerShell Script

To use PowerShell effectively, we need a clear understanding and specific examples of PowerShell, along with a distinction between PowerShell and CMD. Because PowerShell is developed on the .NET framework, it can be called an object-oriented language.

As you know, the **DIR** command is a common command in the command prompt that lists all files and directories within a parent directory. The listed information includes the last updated date and time, and details of each file.

```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Taimienphi.vn>dir
Volume in drive C has no label.
Volume Serial Number is 80F1-A87F

Directory of C:\Users\Taimienphi.vn

03/24/2017  08:15 AM  <DIR>          .
03/24/2017  08:15 AM  <DIR>          ..
03/09/2017  11:58 AM  <DIR>          .android
03/16/2017  11:11 PM  <DIR>          Contacts
03/24/2017  09:15 AM  <DIR>          Desktop
03/22/2017  10:11 AM  <DIR>          Documents
03/24/2017  09:48 AM  <DIR>          Downloads
03/16/2017  11:11 PM  <DIR>          Favorites
03/24/2017  08:14 AM  <DIR>          Google Drive
03/08/2017  11:25 AM          41 inst.ini
03/16/2017  11:11 PM  <DIR>          Links
03/16/2017  11:11 PM  <DIR>          Music
03/08/2017  11:25 AM          45 nuuid.ini
03/15/2017  09:09 AM  <DIR>          OneDrive
03/16/2017  11:11 PM  <DIR>          Pictures
03/16/2017  11:11 PM  <DIR>          Saved Games
03/16/2017  11:11 PM  <DIR>          Searches
01/10/2017  12:35 AM  <DIR>          Tracing
03/16/2017  11:11 PM  <DIR>          Videos
03/09/2017  11:58 AM  <DIR>          vmlogs
                2 File(s)            86 bytes
               18 Dir(s) 39,335,313,408 bytes free

C:\Users\Taimienphi.vn>
```

In **PowerShell** , entering the **DIR** command also has a similar function; however, here, **DIR** only serves as a shorthand for the standard command, **Get-ChildItem**.

```
> Windows PowerShell
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\Taimienphi.vn> dir

Directory: C:\Users\Taimienphi.vn

Mode                LastWriteTime         Length Name
----                -
d-----          3/9/2017  11:58 AM                .android
d-r-----        3/16/2017  11:11 PM                Contacts
d-r-----        3/24/2017   9:15 AM                Desktop
d-r-----        3/22/2017  10:11 AM                Documents
d-r-----        3/24/2017   9:48 AM                Downloads
d-r-----        3/16/2017  11:11 PM                Favorites
d-r-----        3/24/2017   8:14 AM                Google Drive
d-r-----        3/16/2017  11:11 PM                Links
d-r-----        3/16/2017  11:11 PM                Music
d-r-----        3/15/2017   9:09 AM                OneDrive
d-r-----        3/16/2017  11:11 PM                Pictures
d-r-----        3/16/2017  11:11 PM                Saved Games
d-r-----        3/16/2017  11:11 PM                Searches
d-----         1/10/2017  12:35 AM                Tracing
d-r-----        3/16/2017  11:11 PM                Videos
d-----          3/9/2017  11:58 AM                vmlogs
-a-----         3/8/2017  11:25 AM                41 inst.ini
-a-----         3/8/2017  11:25 AM                45 nuuid.ini

PS C:\Users\Taimienphi.vn>
```

```
Windows PowerShell
PS C:\Users\Taimienphi.vn> Get-ChildItem

Directory: C:\Users\Taimienphi.vn

Mode                LastWriteTime         Length Name
----                -
d-----            3/9/2017 11:58 AM             .android
d-r----            3/16/2017 11:11 PM             Contacts
d-r----            3/24/2017  9:15 AM             Desktop
d-r----            3/22/2017 10:11 AM             Documents
d-r----            3/24/2017  9:48 AM             Downloads
d-r----            3/16/2017 11:11 PM             Favorites
d-r----            3/24/2017  8:14 AM             Google Drive
d-r----            3/16/2017 11:11 PM             Links
d-r----            3/16/2017 11:11 PM             Music
d-r----            3/15/2017  9:09 AM             OneDrive
d-r----            3/16/2017 11:11 PM             Pictures
d-r----            3/16/2017 11:11 PM             Saved Games
d-r----            3/16/2017 11:11 PM             Searches
d-----            1/10/2017 12:35 AM             Tracing
d-r----            3/16/2017 11:11 PM             Videos
d-----            3/9/2017 11:58 AM             vmlogs
-a----            3/8/2017 11:25 AM             41 inst.ini
-a----            3/8/2017 11:25 AM             45 nuuid.ini

PS C:\Users\Taimienphi.vn>
```

Some basic PowerShell commands

Get Help

This tutorial allows users to learn about the basic syntax of commands used in Windows PowerShell.

For example: If the user wants to check the syntax of **Get Process** , they would type the command.

Get-Help -Name Get-Process

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\Taimienphi.vn> Get-Help -Name Get-Process

NAME
    Get-Process

SYNTAX
    Get-Process [-Name] <string[]> [-ComputerName <string[]>] [-Module] [-FileVersionInfo] [<CommonParameters>]
    Get-Process [-Name] <string[]> -IncludeUserName [<CommonParameters>]
    Get-Process -Id <int[]> [-ComputerName <string[]>] [-Module] [-FileVersionInfo] [<CommonParameters>]
    Get-Process -Id <int[]> -IncludeUserName [<CommonParameters>]
    Get-Process -InputObject <Process[]> [-ComputerName <string[]>] [-Module] [-FileVersionInfo] [<CommonParameters>]
    Get-Process -InputObject <Process[]> -IncludeUserName [<CommonParameters>]

ALIASES
    gps
    ps

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 Get-Process -Online" or
    go to http://go.microsoft.com/fwlink/?LinkID=113324.
```

Similarly, when users want to list all commands related to Get, they would type the command.

Get-Help -Name Get-*

```

Windows PowerShell
PS C:\Users\Taimienphi.vn> Get-Help -Name Get-*

Name                Category  Module                Synopsis
----                -
Get-Verb             Function
Get-FileHash         Function  Microsoft.PowerShell.U...
Get-Command          Cmdlet   Microsoft.PowerShell.Core ...
Get-Help             Cmdlet   Microsoft.PowerShell.Core ...
Get-History          Cmdlet   Microsoft.PowerShell.Core ...
Get-Job              Cmdlet   Microsoft.PowerShell.Core ...
Get-Module           Cmdlet   Microsoft.PowerShell.Core ...
Get-PSHostProcessInfo Cmdlet   Microsoft.PowerShell.Core ...
Get-PSSession        Cmdlet   Microsoft.PowerShell.Core ...
Get-PSSessionCapability Cmdlet   Microsoft.PowerShell.Core ...
Get-PSSessionConfiguration Cmdlet   Microsoft.PowerShell.Core ...
Get-PSSnapin         Cmdlet   Microsoft.PowerShell.Core ...
Get-PSReadlineKeyHandler Cmdlet   PSReadline ...
Get-PSReadlineOption Cmdlet   PSReadline ...
Get-Alias            Cmdlet   Microsoft.PowerShell.U...
Get-Culture          Cmdlet   Microsoft.PowerShell.U...
Get-Date             Cmdlet   Microsoft.PowerShell.U...
Get-Event            Cmdlet   Microsoft.PowerShell.U...
Get-EventSubscriber Cmdlet   Microsoft.PowerShell.U...
Get-FormatData       Cmdlet   Microsoft.PowerShell.U...
Get-Host             Cmdlet   Microsoft.PowerShell.U...
Get-Member           Cmdlet   Microsoft.PowerShell.U...
Get-PSBreakpoint     Cmdlet   Microsoft.PowerShell.U...
Get-PSCallStack      Cmdlet   Microsoft.PowerShell.U...
Get-Random           Cmdlet   Microsoft.PowerShell.U...
Get-Runspace         Cmdlet   Microsoft.PowerShell.U...
Get-RunspaceDebug    Cmdlet   Microsoft.PowerShell.U...
Get-TraceSource      Cmdlet   Microsoft.PowerShell.U...
Get-TypeData         Cmdlet   Microsoft.PowerShell.U...
Get-UICulture        Cmdlet   Microsoft.PowerShell.U...
Get-Unique           Cmdlet   Microsoft.PowerShell.U...

```

Get-Service

This command lists all services currently running and installed on the system.

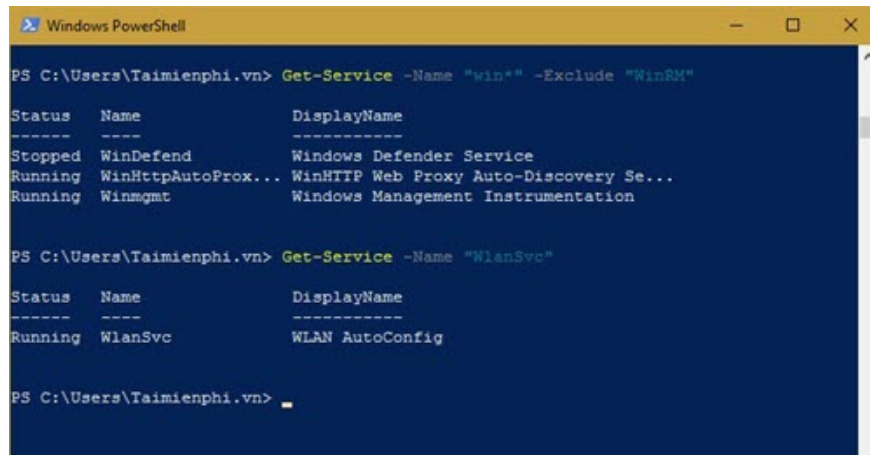
```

Windows PowerShell
PS C:\Users\Taimienphi.vn> Get-Service

Status  Name                DisplayName
-----
Stopped AdobeFlashPlaye... Adobe Flash Player Update Service
Stopped AdobeUpdateService AdobeUpdateService
Stopped AGSService    Adobe Genuine Software Integrity Se...
Stopped AJRouter      AllJoyn Router Service
Stopped ALG           Application Layer Gateway Service
Stopped AppIDSvc      Application Identity
Running Appinfo        Application Information
Stopped AppMgmt       Application Management
Stopped AppReadiness  App Readiness
Stopped AppVClient    Microsoft App-V Client
Stopped AppXSvc       AppX Deployment Service (AppXSVC)
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
Stopped bilibili      bilibili
Running BITS         Background Intelligent Transfer Ser...
Running BrokerInfrastru... Background Tasks Infrastructure Ser...
Stopped Browser      Computer Browser
Stopped BthHFSrv     Bluetooth Handsfree Service
Stopped bthserv       Bluetooth Support Service
Running CDPSvc       Connected Devices Platform Service
Running CDPUserSvc_34b7cb8 CDPUserSvc_34b7cb8
Stopped CertPropSvc  Certificate Propagation
Stopped ClipSVC      Client License Service (ClipSVC)
Stopped COMSysApp     COM+ System Application
Running CoreMessagingRe... CoreMessaging
Stopped cphs         Intel(R) Content Protection HECCI Se...
Running CryptSvc     Cryptographic Services

```

If you need to learn more about any service, add `-Service Name` after the **Get-Service** command.



```
Windows PowerShell
PS C:\Users\Taimienphi.vn> Get-Service -Name "win*" -Exclude "WinRM"

Status Name                DisplayName
-----
Stopped WinDefend             Windows Defender Service
Running WinHttpAutoProx... WinHTTP Web Proxy Auto-Discovery Se...
Running Winmgmt          Windows Management Instrumentation

PS C:\Users\Taimienphi.vn> Get-Service -Name "WlanSvc"

Status Name      DisplayName
-----
Running WlanSvc   WLAN AutoConfig

PS C:\Users\Taimienphi.vn>
```

ConvertTo-HTML

When you need to view system information in the most visual way, you can use the ConvertTo-HTML command to export the information to an HTML file located on your hard drive partition.

The command template is as follows:

Get-Service | ConvertTo-HTML -Property Name, Status > X:filename.htm

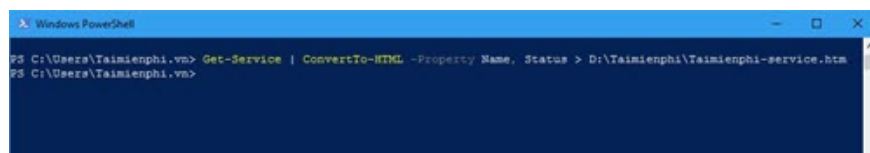
Get-Service : This means you will output the information of the running service in HTML format. You can also replace "Service" with the information you want, as shown in the command examples listed in the Get Help section above.

X : Hard drive partition name

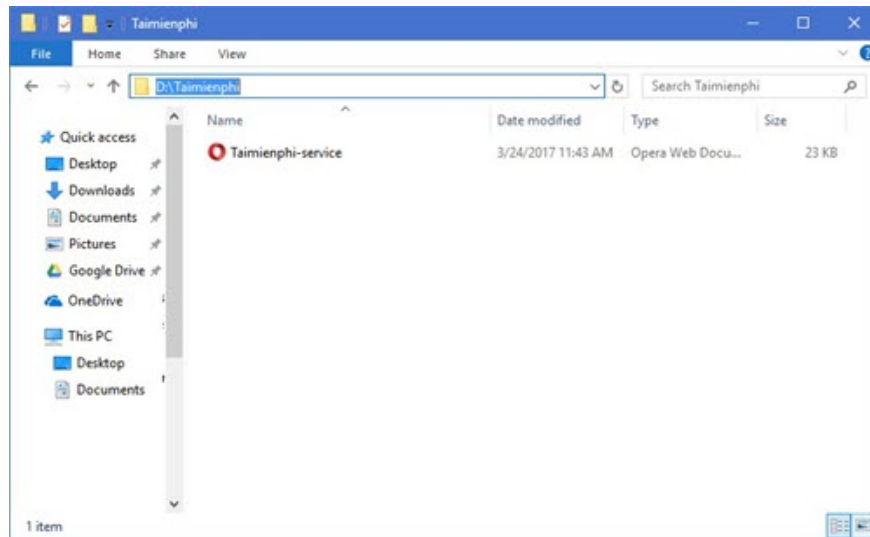
Filename : The file name you choose.

For example, to export information about a running service to the file Taimienphi-service.htm located on partition D:Taimienphi, you would type the command:

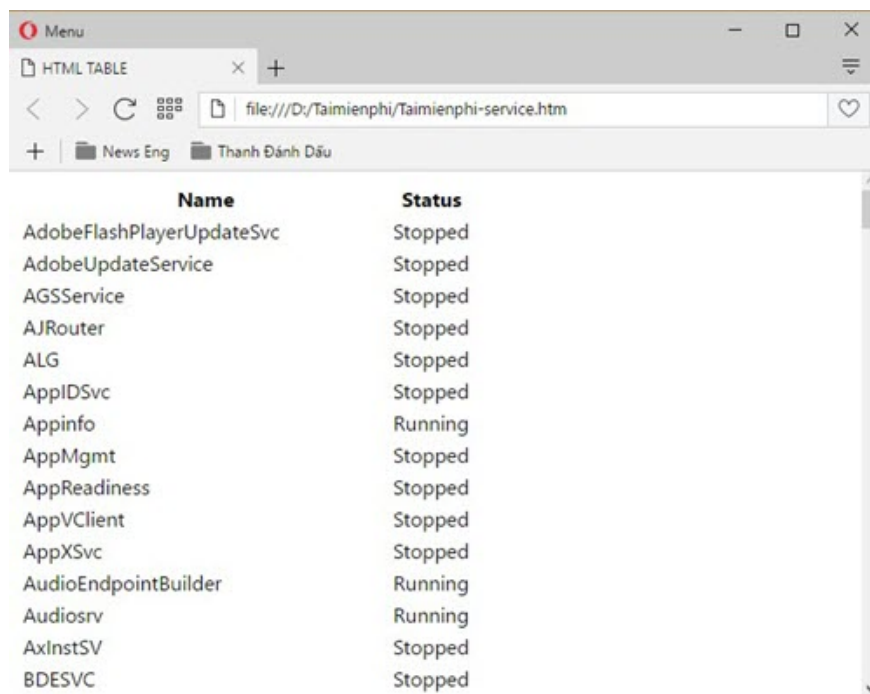
Get-Service | ConvertTo-HTML -Property Name, Status > D:TaimienphiTaimienphi-service.htm



```
Windows PowerShell
PS C:\Users\Taimienphi.vn> Get-Service | ConvertTo-HTML -Property Name, Status > D:TaimienphiTaimienphi-service.htm
PS C:\Users\Taimienphi.vn>
```



This is the content of the extracted file.



Export-CSV

Similar to extracting information to an HTML file, PowerShell also allows you to export information to a CSV spreadsheet. The command is as follows:

Get-Service | Export-CSV X:filename.csv

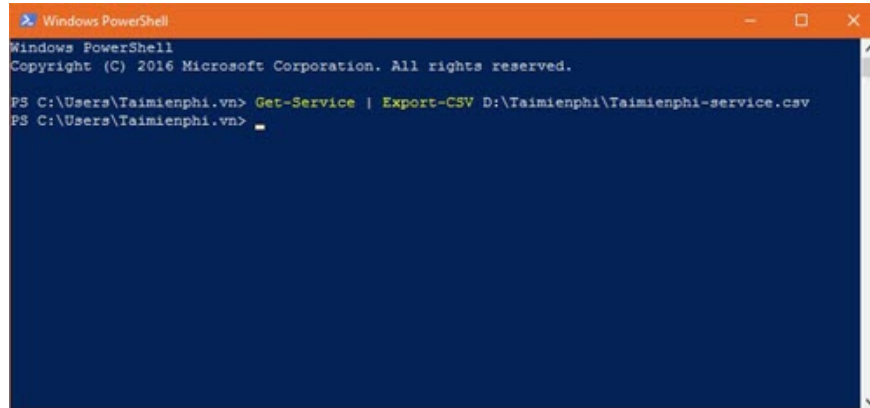
Get-Service : This means you will output the information of the running service in HTML format. You can also replace "Service" with the information you want, as shown in the command examples listed in the **Get Help** section above.

X : Hard drive partition name

Filename: A file name of your choice.

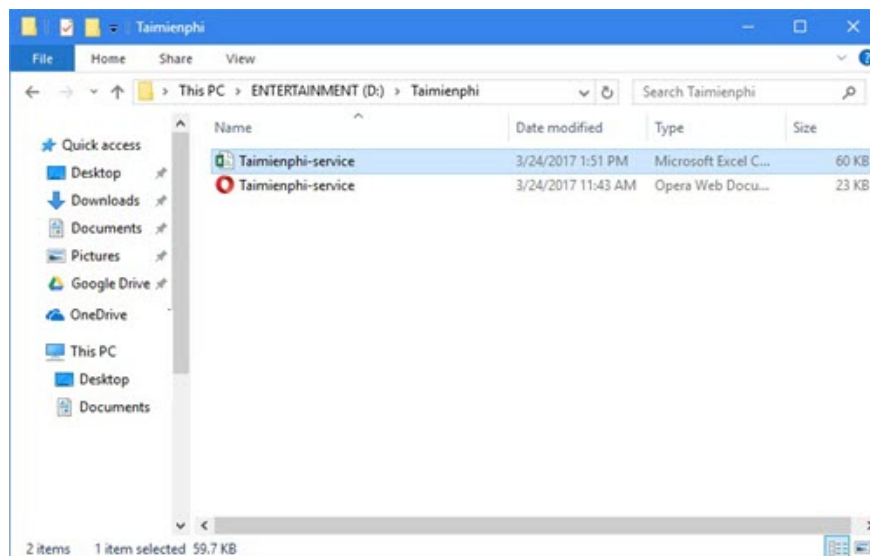
For example, to export information about a running service to the file **Taimienphi-service.csv** located on partition **D:Taimienphi** , you would type the command:

Get-Service | Export-CSV D:TaimienphiTaimienphi-service.csv



```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\Taimienphi.vn> Get-Service | Export-CSV D:\Taimienphi\Taimienphi-service.csv
PS C:\Users\Taimienphi.vn>
```



This is the content of the extracted file.

Name	Required Services	CanPause	CanShutdown	CanStop	Display Name	Dependencies	Machine Name	Services	Service Name	Status	Service Type
AdobeFlashPlayerU	System.ServiceProci	FALSE	FALSE	FALSE	Adobe Fla System.Se	AdobeFla	System.ServiceProci	Stopped	Win32Ow Ma		
AdobeUpdateServic	System.ServiceProci	FALSE	FALSE	FALSE	AdobeUpd System.Se	AdobeUpd	System.ServiceProci	Stopped	Win32Ow Ma		
AGSService	System.ServiceProci	FALSE	FALSE	FALSE	Adobe Ge System.Se	AGSServic	System.ServiceProci	Stopped	Win32Ow Ma		
AJRouter	System.ServiceProci	FALSE	FALSE	FALSE	Alljoyn Rc System.Se	AJRouter	System.ServiceProci	Stopped	Win32Sha Ma		
ALG	System.ServiceProci	FALSE	FALSE	FALSE	Applicatic System.Se	ALG	System.ServiceProci	Stopped	Win32Ow Ma		
AppIDSvc	System.ServiceProci	FALSE	FALSE	FALSE	Applicatic System.Se	AppIDSvc	System.ServiceProci	Stopped	Win32Sha Ma		
AppInfo	System.ServiceProci	FALSE	FALSE	TRUE	Applicatic System.Se	AppInfo	System.ServiceProci	Running	Win32Sha Ma		
AppMgmt	System.ServiceProci	FALSE	FALSE	FALSE	Applicatic System.Se	AppMgmt	System.ServiceProci	Stopped	Win32Sha Dis		
AppReadiness	System.ServiceProci	FALSE	FALSE	FALSE	App Readi System.Se	AppReadi	System.ServiceProci	Stopped	Win32Sha Ma		
AppVClient	System.ServiceProci	FALSE	FALSE	FALSE	Microsoft System.Se	AppVClie	System.ServiceProci	Stopped	Win32Ow Dis		
AppXSvc	System.ServiceProci	FALSE	FALSE	FALSE	AppX Dep System.Se	AppXSvc	System.ServiceProci	Stopped	Win32Sha Ma		
AudioEndpointBuil	System.ServiceProci	FALSE	FALSE	TRUE	Windows System.Se	AudioEnd	System.ServiceProci	Running	Win32Sha Au		
Audiosrv	System.ServiceProci	FALSE	FALSE	TRUE	Windows System.Se	Audiosrv	System.ServiceProci	Running	Win32Ow Au		
AxinstSV	System.ServiceProci	FALSE	FALSE	FALSE	ActiveX In System.Se	AxinstSV	System.ServiceProci	Stopped	Win32Sha Ma		
BDESVC	System.ServiceProci	FALSE	FALSE	FALSE	BitLocker System.Se	BDESVC	System.ServiceProci	Stopped	Win32Sha Ma		
BFE	System.ServiceProci	FALSE	FALSE	TRUE	Base Filte System.Se	BFE	System.ServiceProci	Running	Win32Sha Au		
bilibili	System.ServiceProci	FALSE	FALSE	FALSE	bilibili System.Se	bilibili	System.ServiceProci	Stopped	Win32Sha Au		

Get-EventLog

This command allows the user to look up system changes through log files. The user can use this command.

Get-EventLog -Log "Application"

To view the application change log.

```

Windows PowerShell
Installer transaction: e1\8081...
1498 Jan 09 22:16 Information MailInstaller 1033 Windows Installer installed the product. Produc...
1497 Jan 09 22:16 Information MailInstaller 11707 Product: Microsoft Visual C++ 2008 Redistributa...
1494 Jan 09 22:16 Information Microsoft-Windows... 10000 Starting session 0 - 2017-01-09T15:16:31.743522...
1495 Jan 09 22:16 Information MailInstaller 1040 Beginning a Windows Installer transaction: e1\8...
1494 Jan 09 22:16 Information Microsoft-Windows... 10001 Ending session 0 started 2017-01-09T15:15:54.94...
1493 Jan 09 22:16 Information MailInstaller 1042 Ending a Windows Installer transaction: C:\User...
1492 Jan 09 22:16 Information MailInstaller 1033 Windows Installer installed the product. Produc...
1491 Jan 09 22:16 Information MailInstaller 11707 Product: Microsoft Visual C++ 2008 Redistributa...
1490 Jan 09 22:15 Information Microsoft-Windows... 10000 Starting session 0 - 2017-01-09T15:15:54.947048...
1489 Jan 09 22:15 Information MailInstaller 1040 Beginning a Windows Installer transaction: C:\U...
1488 Jan 09 22:15 Information Microsoft-Windows... 10001 Ending session 0 started 2017-01-09T15:14:52.90...
1487 Jan 09 22:15 Information MailInstaller 1042 Ending a Windows Installer transaction: C:\User...
1486 Jan 09 22:15 Information MailInstaller 1033 Windows Installer installed the product. Produc...
1485 Jan 09 22:15 Information MailInstaller 11707 Product: Microsoft Visual C++ 2008 Redistributa...
1484 Jan 09 22:14 Information Microsoft-Windows... 10000 Starting session 0 - 2017-01-09T15:14:52.901339...
1483 Jan 09 22:14 Information MailInstaller 1040 Beginning a Windows Installer transaction: C:\U...
1482 Jan 09 22:14 Information Adobe Setup 1073872897 The description for Event ID '1073872897' in So...
1481 Jan 09 22:12 Error Microsoft-Windows... 1533 Windows cannot delete the profile directory C:\...
1480 Jan 09 22:12 Information Windows Search Se... 1073741825 Windows Search Service indexed data for user 'S...
1479 Jan 09 22:12 Information Windows Search Se... 1073741825 Windows Search Service indexed data for user 'S...
1478 Jan 09 22:12 Information Windows Search Se... 1073741825 Windows Search Service indexed data for user 'S...
1477 Jan 09 22:12 Information Windows Search Se... 1073741825 Windows Search Service indexed data for user 'S...
1476 Jan 09 22:06 Information MailInstaller 1042 Ending a Windows Installer transaction: (2D2045...
1475 Jan 09 22:06 Information MailInstaller 1035 Windows Installer reconfigured the product. Pro...
1474 Jan 09 22:06 Information MailInstaller 11728 Product: Smart 13 -- Configuration completed S...
1473 Jan 09 22:05 Information MailInstaller 1040 Beginning a Windows Installer transaction: (2D2...
1472 Jan 09 22:05 Warning MailInstaller 1001 Detection of product '(2D2045B7-AF91-409C-87F4-...
1471 Jan 09 22:05 Warning MailInstaller 1004 Detection of product '(2D2045B7-AF91-409C-87F4-...
1470 Jan 09 22:04 O Software Protecti... 1073742727 The Software Protection service has stopped...
1469 Jan 09 22:04 Information Software Protecti... 1073758208 Successfully scheduled Software Protection serv...
1468 Jan 09 22:03 Information Windows Error Rep... 1001 Fault bucket , type 0...
1467 Jan 09 22:03 Information Windows Error Rep... 1001 Fault bucket , type 0...
1466 Jan 09 22:03 Information Windows Error Rep... 1001 Fault bucket , type 0...

```

Get-Process

With this command, users can list the processes currently running on the computer. Actions such as extracting HTML files, CSV files, and getting event logs can all be applied to this `get process` command.

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\Taimienphi.vn> Get-Process

Handles  NPM(K)  PM(K)  WS(K)  CPU(s)  Id  SI  ProcessName
-----  -
106      10      1712   6828   129.23  4984  4  ApMsgFwd
121      9       1684   6968   0.30    7272  4  ApntEx
229      15      2972   15160  15.42   6712  4  Apoint
673      33      24404  35672  9.22    4768  4  ApplicationFrameHost
515      42      31092  53576  86.78   4340  4  ArticleTool
138      10      5952   11220  0.11    784   0  audiodg
103      10      5228   6876   1.27    8924  4  conhost
107      10      2980   10016  0.06    9724  4  conhost
497      13      1680   4532   0.00    476   0  csrss
593      23      2292   10488  0.00    11308 4  csrss
418      20      7312   17552  0.00    2360  0  dasHost
139      9       2288   9748   0.42    3500  4  dllhost
838      57      56788  64456  0.00    12184 4  dwm
894      45      61392  92212  9.67    12040 4  EXCEL
2196     97      67656  120044 422.98  3328  4  explorer
37       5       812    3088   0.00    9932  4  fontdrvhost
58       7       936    3824   0.59    7476  4  googledrivesync
1881     48      88440  84328  205.45  7524  4  googledrivesync
67       7       1052   5072   0.27    5948  4  hidfind
124      10      1644   8100   2.38    8988  4  hkcmd
```

Above is some basic information about PowerShell. You can read and learn more about this new command-line program to use for your work. Besides the functions mentioned above, PowerShell can also be used to create Restore Points on Windows 10 using PowerShell commands to help restore your computer in case of errors. For detailed instructions on creating Restore Points, you can follow the guide on [TipsMake](#).

Using PowerShell to TRIM an SSD on Windows 10 is a common method used by many to maintain performance and extend the lifespan of their SSDs. Refer to this link for instructions on how **to TRIM an SSD using PowerShell**.

Additionally, with PowerShell, you have another way to view the weather on your computer. Details on how to **view the weather on Windows 10 using PowerShell** can be found here.

You finished reading the article "**What is PowerShell? How to use PowerShell effectively on a computer.**" edited by the [TipsMake](#) team. We hope this article has provided you with many useful tech tips and tricks. You can search for similar articles on tips and guides. Thank you for reading and for following us regularly.