

Windows PowerShell vs Command Prompt (cmd): Which to Choose

[\(Windows PowerShell vs Command Prompt \(cmd\) \(netwrix.com\)\)](#)



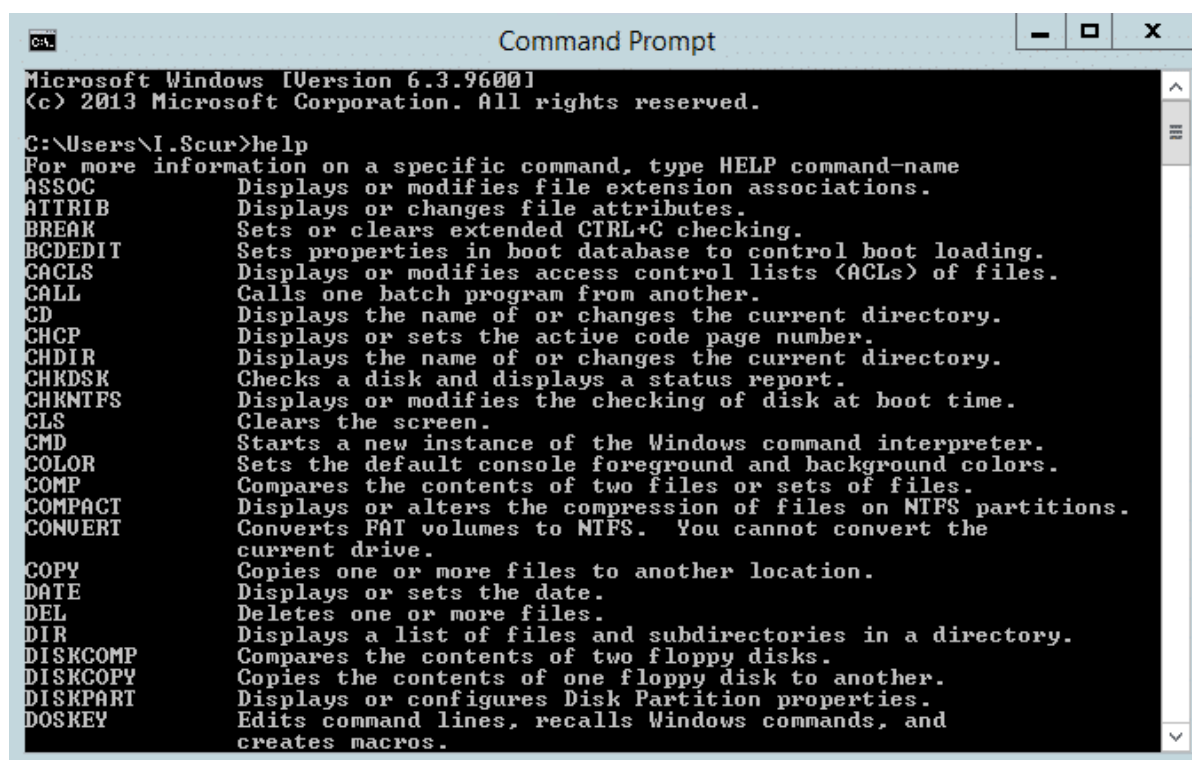
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What is the Windows Command Prompt?

Windows Command Prompt (also known as the command line, cmd.exe or simply cmd) is a command shell based on the MS-DOS operating system from the 1980s that enables a user to interact directly with the operating system. Specifically, this venerable command shell provides an environment to run applications and various utilities; output is displayed in the same window. It is possible to use the cmd shell to create and edit scripts and save them to batch files to solve automation tasks in one-system frames; however, it was never intended for remote system administration.



```
Microsoft Windows [Version 6.3.9600]
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C:\Users\I.Skur>help
For more information on a specific command, type HELP command-name
ASSOC          Displays or modifies file extension associations.
ATTRIB         Displays or changes file attributes.
BREAK          Sets or clears extended CTRL+C checking.
BCDEDIT        Sets properties in boot database to control boot loading.
CACLS          Displays or modifies access control lists (ACLs) of files.
CALL           Calls one batch program from another.
CD             Displays the name of or changes the current directory.
CHCP           Displays or sets the active code page number.
CHDIR          Displays the name of or changes the current directory.
CHKDSK         Checks a disk and displays a status report.
CHKNTFS        Displays or modifies the checking of disk at boot time.
CLS            Clears the screen.
CMD            Starts a new instance of the Windows command interpreter.
COLOR          Sets the default console foreground and background colors.
COMP           Compares the contents of two files or sets of files.
COMPACT        Displays or alters the compression of files on NTFS partitions.
CONVERT        Converts FAT volumes to NTFS. You cannot convert the
               current drive.
COPY           Copies one or more files to another location.
DATE           Displays or sets the date.
DEL            Deletes one or more files.
DIR            Displays a list of files and subdirectories in a directory.
DISKCOMP       Compares the contents of two floppy disks.
DISKCOPY       Copies the contents of one floppy disk to another.
DISKPART       Displays or configures Disk Partition properties.
DOSKEY         Edits command lines, recalls Windows commands, and
               creates macros.
```

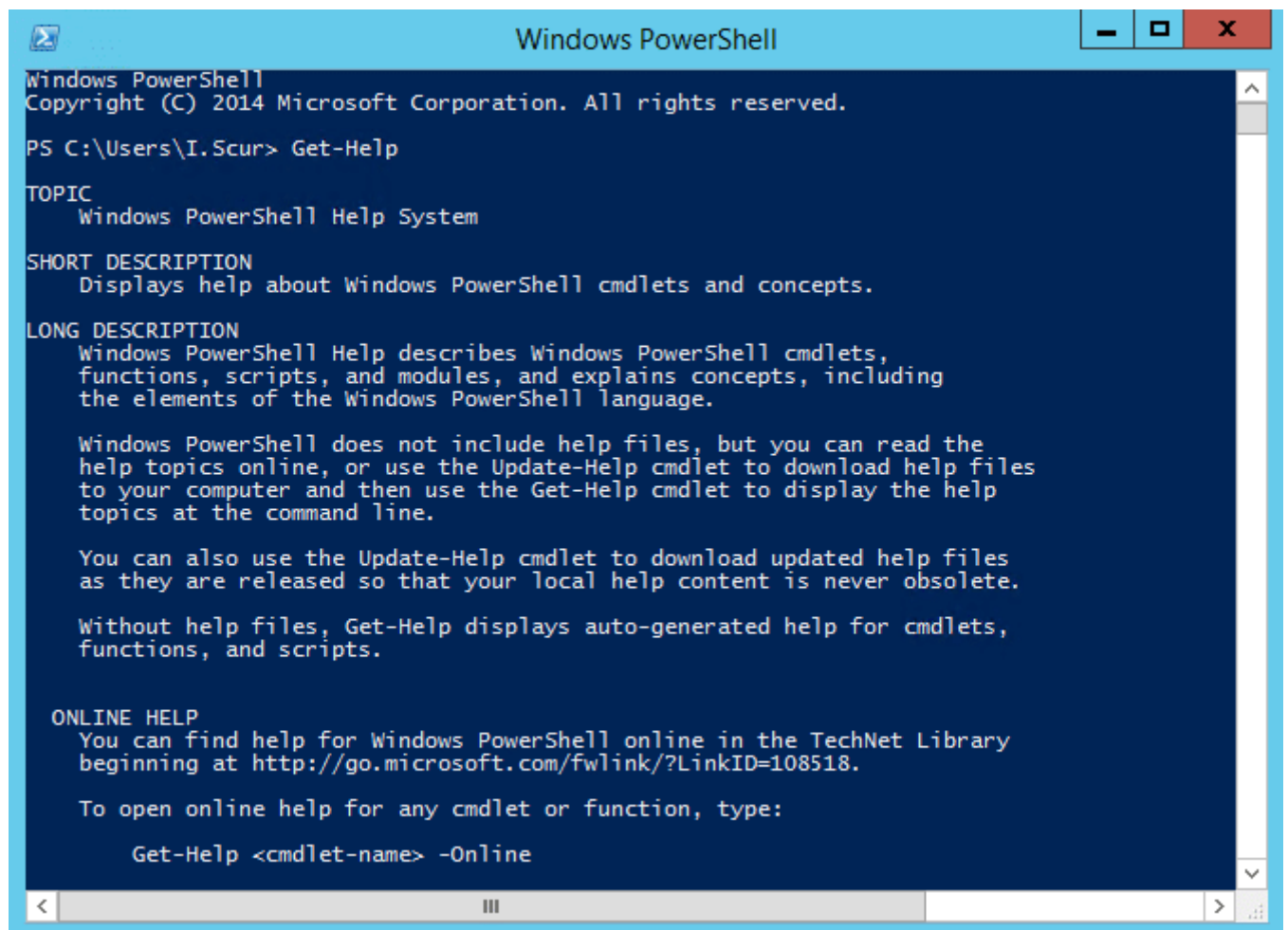
What is Windows PowerShell?

Windows PowerShell is a command shell and scripting language designed for system administration tasks. It was built on top of the .NET framework, which is a platform for software programming developed by Microsoft in 2002.

PowerShell commands, or cmdlets, help you manage your Windows infrastructure. In addition, they enable a user to access the registry, the file system and Windows Management Instrumentation (WMI) space on systems remotely. Moreover, the PowerShell command shell enables you to create complex scripts with multiple conditions.

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```
Windows PowerShell
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PS C:\Users\I.Scur> Get-Help

TOPIC
    Windows PowerShell Help System

SHORT DESCRIPTION
    Displays help about Windows PowerShell cmdlets and concepts.

LONG DESCRIPTION
    Windows PowerShell Help describes Windows PowerShell cmdlets,
    functions, scripts, and modules, and explains concepts, including
    the elements of the Windows PowerShell language.

    Windows PowerShell does not include help files, but you can read the
    help topics online, or use the Update-Help cmdlet to download help files
    to your computer and then use the Get-Help cmdlet to display the help
    topics at the command line.

    You can also use the Update-Help cmdlet to download updated help files
    as they are released so that your local help content is never obsolete.

    Without help files, Get-Help displays auto-generated help for cmdlets,
    functions, and scripts.

ONLINE HELP
    You can find help for Windows PowerShell online in the TechNet Library
    beginning at http://go.microsoft.com/fwlink/?LinkID=108518.

    To open online help for any cmdlet or function, type:

        Get-Help <cmdlet-name> -Online
```

How PowerShell differs from Command Prompt

As mentioned earlier, cmd is a very old tool that was never intended for remote system administration. Extending its functionality requires additional utilities, such as Microsoft Sysinternals PsExec.

PowerShell, on the other hand, provides many cmdlets to simplify system administration tasks. It supports the automation of a wide range of tasks, such as Active Directory administration, user and permissions management, and extracting data about security configurations. Moreover, PowerShell now supports Linux.

The following table summarizes the key differences between Command Prompt and PowerShell from a programming and operations perspective:

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	Command Prompt (cmd.exe)	Associated RL or ML Value
Functions	Yes, with help from "call:label"	Yes
Exclusion handling	Not supported	Yes
Search and replacement of variables	Yes (set %varname:expression)	Yes
Parallel assignment	Not supported	Yes
Variadic functions	Not supported	Yes
Default arguments	Not supported	Yes
Named arguments	Not supported	Yes
Lambda functions	Not supported	Yes
Eval functions	Not supported	Yes
Pseudorandom number generator	Yes (%random%)	Yes
Bytecode (portable code)	Not supported	Yes
Remote execution (ability to connect to remote systems and execute code)	Yes, with help from additional utilities like PsExec	Yes
Support for cloud technologies (Office 365, Azure)	No	Yes
Support for Linux systems	No	Yes
Default shell in pre-Windows 10 systems	Yes	No
Default shell in Windows 10	No	Yes

PowerShell or cmd: Which should I choose

Clearly, there are many reasons why Windows PowerShell replaced the Command Prompt as the default in the Windows 10 operating system, and was preinstalled starting with Windows XP. But if you're used to using cmd, you don't need to feel any urgency in switching to PowerShell. In fact, most commands from cmd work fine in the PowerShell environment — Microsoft wanted to simplify the lives of system administrators, so it created command prompt aliases in PowerShell that enable it to interpret old DOS commands as new PowerShell commands.

To find out how old cmd commands map to the newer PowerShell cmdlets, use the Get-Alias command:

```
PS C:\Users\I.Scur> Get-Alias cd, dir, ls, man

CommandType      Name
-----
Alias             cd -> Set-Location
Alias             dir -> Get-ChildItem
Alias             ls -> Get-ChildItem
Alias             man -> help
```

However, there is a good case to be made for making the leap to PowerShell. Everything you can do with cmd you can also do with PowerShell — and often it is more convenient, since there is a special environment to develop and test scripts. Additionally, PowerShell is a live language with a strong community ready and willing to help those new to scripting.