35+ PowerShell Commands you Must Know

lazyadmin.nl/powershell/powershell-commands

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PowerShell is a scripting language designed for system administration by Microsoft. These days, PowerShell can be used on multiple platforms and is used to perform or automate a wide range of tasks while using the different PowerShell commands

With all the modules that you can load, there are a lot of PowerShell cmdlets. But what are the most common ones that you must know?

In this article, I have listed more than 35 commands that are good to know. I have also created the best PowerShell Cheat Sheet that you can download for free in the article.

What are PowerShell Commands?

PowerShell commands, better known as cmdlets, are the building blocks of PowerShell scripts and modules. Cmdlets are designed to perform specific tasks, such as retrieving information, modifying settings, or creating new instances.

PowerShell cmdlets are designed to be easy to use and follow a consistent naming convention. Cmdlet names are made up of a verb and a noun, separated by a hyphen. For example, the `Get-Process` cmdlet is used to retrieve information about running processes, while the `Set-ExecutionPolicy` cmdlet is used to modify the PowerShell execution policy.

PowerShell also supports running traditional command-line tools and scripts. This allows users to leverage existing tools and scripts within PowerShell scripts and modules.

10 Basic Commands to start with

We are going to start with the 10 basic PowerShell commands that are most useful during your daily work. Knowing these commands allows you to get more out of PowerShell and make your work a lot easier.

1. **Get-Help –** Displays help information about PowerShell cmdlets and concepts.
2. **Get-Command –** Lists all of the available cmdlets in PowerShell.
3. **Write-Host** – Writes output directly to the console or other host.
4. **Get-History –** Displays a list of previously executed commands.
5. **Get-Content** – Retrieves the contents of a file or other item.
6. **Where-Object –** Filters input objects based on specified criteria.
7. **Format-List** – Formats output as a list.
8. **Format-Table –** Formats output as a table.
9. **Get-ChildItem –** Lists the items in a specified location.
10. **Get-Credential –** Prompts the user for credentials.

1. Get-Help

The `Get-Help` cmdlet displays detailed help information about PowerShell commands. It will show the syntax of the cmdlet and the parameters that you can use. It's a great way to learn more about new cmdlets.

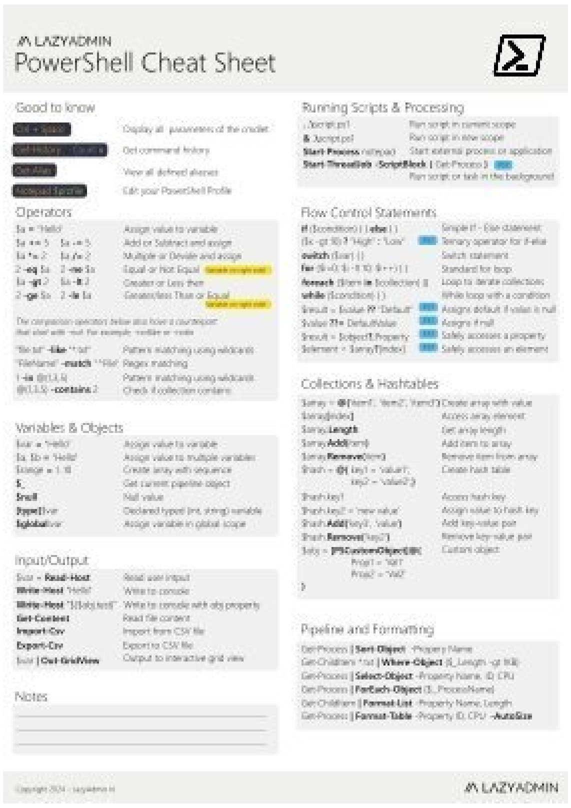
For example, to display help information about the `Get-Credential` cmdlet, run the following command:

```
Get-Help Get-Credential
# Result
NAME
Get-Credential
SYNTAX
Get-Credential [-Credential] <pscredential> [<CommonParameters>]
Get-Credential [[-UserName] <string>] -Message <string> [<CommonParameters>]
ALIASES
None
```

Most cmdlets also have examples that you can view using the Get-Help command. To view the examples you will need to add the parameter `-examples`:

```
Get-Help Connect-ExchangeOnline -Examples
# Result
NAME
Connect-ExchangeOnline
SYNOPSIS
This cmdlet is available only in the Exchange Online PowerShell module. For more
information, see About the Exchange Online PowerShell module (https://aka.ms/exov3-
module).
-------------------------- Example 1 --------------------------
Connect-ExchangeOnline -UserPrincipalName chris@contoso.com
This example connects to Exchange Online PowerShell using modern authentication,
with or without multi-factor authentication (MFA). We aren't using the UseRPSSession
parameter, so the connection uses REST and doesn't require Basic authentication to be
enabled in WinRM on the local computer.
-------------------------- Example 2 --------------------------
Connect-ExchangeOnline -UserPrincipalName chris@contoso.com -UseRPSSession
```

Where can I send the Free PowerShell cheat sheet to?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PowerShell Cheat Sheet

Good to know

Ctrl + Space	Display all parameters of the cmdlet
Get-History | Out-Host	Get command history
Get-Alias	View all defined aliases
Notepad $profile	Edit your PowerShell Profile

Operators

$a = "Hello"	Assign value to variable
$a += 5 $a -= 5	Add or Subtract and assign
$a *= 2 $a /= 2	Multiple or Devide and assign
2 -eq $a 2 -ne $a	Equal or Not Equal
$a -gt 2 $a -lt 2	Greater or Less then
2 -ge $a 2 -le $a	Greater/less Than or Equal

The comparison operators below also have a counterpart that start with -not. For example -notlike or -notin

"file.txt" -like "*.txt"	Pattern matching using wildcards
"FileName" -match "^File"	Regex matching
1 -in @(1,2,3)	Pattern matching using wildcards
@(1,2,3) -contains 2	Check if collection contains

Variables & Objects

$var = "Hello"	Assign value to variable
$a, $b = "Hello"	Assign value to multiple variables
$range = 1..10	Create array with sequence
$_	Get current pipeline object
$null	Null value
[type]$var	Declared typed (int, string) variable
$global:var	Assign variable in global scope

Input/Output

$var = Read-Host	Read user input
Write-Host "Hello"	Write to console
Write-Host "$($obj.text)"	Write to console with obj property
Get-Content	Read file content
Import-Csv	Import from CSV file
Export-Csv	Export to CSV file
$var | Out-GridView	Output to interactive grid view

Notes

Running Scripts & Processing

.\script.ps1	Run script in current scope
& .\script.ps1	Run script in new scope
Start-Process notepad	Start external process or application
Start-ThreadJob -ScriptBlock { Get-Process }	Run script or task in the background

Flow Control Statements

if ($condition) { } else { }	Simple If - Else statement
($x -gt 10) ? "High" : "Low"	Ternary operator for if-else
switch ($var) { }	Switch statement
for ($i=0; $i -lt 10; $i++) { }	Standard for loop
foreach ($item in $collection) { }	Loop to iterate collections
while ($condition) { }	While loop with a condition
$result = $value ?? "Default"	Assigns default if value is null
$value ??= DefaultValue	Assigns if null
$result = $object?.Property	Safely accesses a property
$element = $array?[index]	Safely accesses an element

Collections & Hashtables

$array = @("item1", "item2", "item3")	Create array with value
$array[index]	Access array element
$array.Length	Get array length
$array.Add(item)	Add item to array
$array.Remove(item)	Remove item from array
$hash = @{ key1 = "value1"; key2 = "value2"}	Create hash table
$hash.key1	Access hash key
$hash.key2 = "new value"	Assign value to hash key
$hash.Add("key3", "value")	Add key-value pair
$hash.Remove("key2")	Remove key-value pair
$obj = [PSCustomObject]@{ Prop1 = "Val1" Prop2 = "Val2" }	Custom object

Pipeline and Formatting

```
Get-Process | Sort-Object -Property Name
Get-ChildItem *.txt | Where-Object {$_.Length -gt 1KB}
Get-Process | Select-Object -Property Name, ID, CPU
Get-Process | ForEach-Object {$_.ProcessName}
Get-ChildItem | Format-List -Property Name, Length
Get-Process | Format-Table -Property ID, CPU -AutoSize
```

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2. Get-Command

The `Get-Command` cmdlet lists all of the available cmdlets in PowerShell. This command can be used to explore available cmdlets and to learn more about their parameters and usage.

To list all of the available cmdlets that contain the word “process” in their name, run the following command:

```
Get-Command *process*
```

3. Write-Host

The `Write-Host` cmdlet writes output directly to the console. This command can be used to display information to the user or to show information for troubleshooting purposes. Besides Write-Host, you can also use Write-Warning to write a warning message or Write-Error for error messages.

To write the text “Hello, World!” to the console, run the following command:

```
Write-Host "Hello, World!"
```

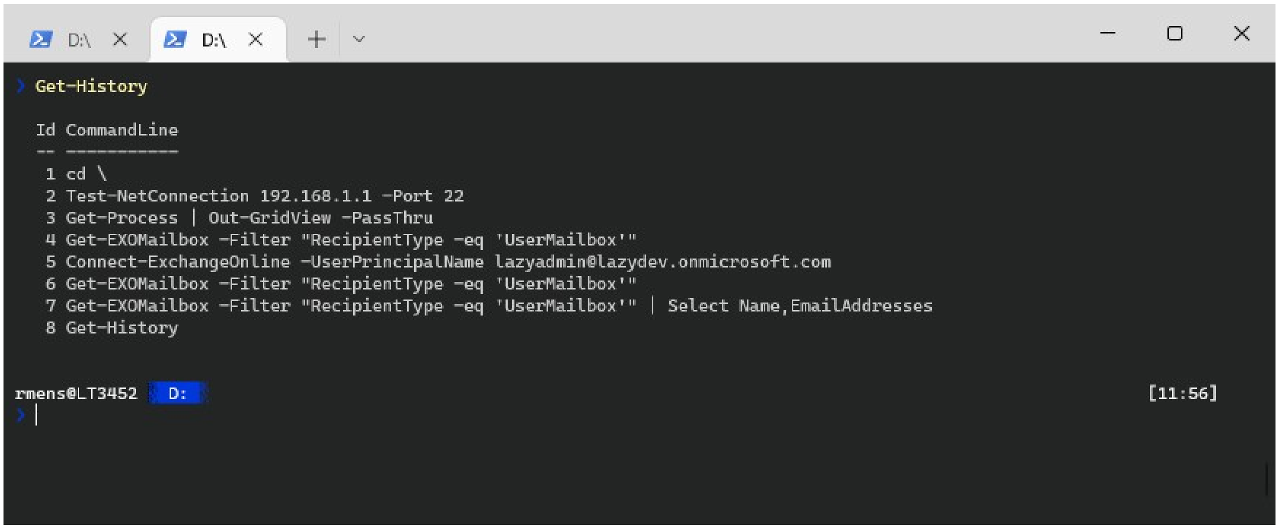
4. Get-History

When working in PowerShell, you probably often use the up arrow key to find that one command that you used earlier. The longer you have been working in your PowerShell session, the more commands you might have to go through.

But did you know that you can use the `Get-History` cmdlet to view all commands that you have used? PowerShell keeps track of commands that you enter during a session. By default, it will remember the last 4096 entries!

Just type Get-History to view all the last commands that you have used:

```
Get-History
```



```
❯ Get-History

  Id CommandLine
  -- -----------
   1 cd \
   2 Test-NetConnection 192.168.1.1 -Port 22
   3 Get-Process | Out-GridView -PassThru
   4 Get-EXOMailbox -Filter "RecipientType -eq 'UserMailbox'"
   5 Connect-ExchangeOnline -UserPrincipalName lazyadmin@lazydev.onmicrosoft.com
   6 Get-EXOMailbox -Filter "RecipientType -eq 'UserMailbox'"
   7 Get-EXOMailbox -Filter "RecipientType -eq 'UserMailbox'" | Select Name,EmailAddresses
   8 Get-History


rmens@LT3452  D:                                                                    [11:56]
❯ |
```

Get-History

In the example, I only have 8 entries, so it's easy to find the command you are looking for. But when you have more entries, then it's good to know that we can also search/filter the `Get-History` cmdlet, by piping a `Where-object` to it:

```
Get-History | Where-Object {$_.Commandline -like "*EXOMailbox*"}
# Result
Id CommandLine
-- -----------
4 Get-EXOMailbox -Filter "RecipientType -eq 'UserMailbox'"
6 Get-EXOMailbox -Filter "RecipientType -eq 'UserMailbox'"
7 Get-EXOMailbox -Filter "RecipientType -eq 'UserMailbox'" | Select
Name,EmailAddresses
```

5. Get-Content

The `Get-Content` cmdlet retrieves the contents of a file or other item. This command can be used to read the contents of a file or to retrieve other types of data.

To retrieve the contents of a file named "example.txt", run the following command:

```
Get-Content example.txt
```

6. Where-Object

The `Where-Object` cmdlet filters input objects based on specified criteria. This command can be used to select specific items from a larger set of data. Often when you retrieve information from a system or resource, more than one record is returned. By piping the Where-Object cmdlet behind it we can filter the results.

For example, to get all files that are larger than 10 MB from the given directory, we can run the command below. The Get-ChildItem will get all the files, whereas the Where-Object cmdlet selects only the files that are greater than -gt the given size.

```
$path = "C:\temp\files\"
# Set file size
$sizeInMb = 10
# Calculate actual file size
$size = $sizeInMb*1024*1024
# Delete all files that are larger then given size
Get-ChildItem -Path $Path -Recurse -File | Where-Object { $_.length -gt $size }
```

7. Format-List / Format-Table

The `Format-List` and `Format-Table` cmdlets format the output of a command as either a list or table. Formatting the output makes the results easier to read.

Format-List, in short `fl`, is often used when you want to see all the results of a cmdlet. Cmdlets in PowerShell often only return a selection of the data. By piping the `Format-List` cmdlet behind it, you can see all the data. For example, the cmdlet Get-LocalUser returns only the basic information of the user account:

```
Get-LocalUser Admin
# Result
Name Enabled Description
---- ------- -----------
admin False
```

But when we add Format-List behind it, we can see all the information of the user account:

```
Get-LocalUser Admin | fl
# Result
AccountExpires :
Description :
Enabled : False
FullName :
PasswordChangeableDate : 27-6-2019 12:20:44
PasswordExpires :
UserMayChangePassword : True
PasswordRequired : False
```

PasswordLastSet : 27-6-2019 12:20:44
LastLogon : 27-9-2022 13:43:46
Name : admin
SID : S-1-5-21-3190960386-960769250-3760335402-1001
PrincipalSource : Local
Format-Table will format the results into a table. Most cmdlets that return multiple entries will format the result by default into a table. Otherwise, you can use the `Format-Table` cmdlet. If the columns don't fit in your console, then it can help to add the `-Autosize` parameter to the cmdlet

Get-Hotfix | ft -AutoSize

9. Get-ChildItem

The `Get-ChildItem` command is used to retrieve a list of files and/or directories in a specified path. It is similar to the dir command in Command Prompt. Only the advantage of the Get-ChildItem cmdlet is that we can use filter and other parameters to select only the results that we need.

For example, to get all txt files from the directory c:\test and its subfolders, we can use the command below in PowerShell:

Get-ChildItem -Path C:\Test\*.txt -Recurse

10. Get-Credential

The `Get-Credential` command is used to prompt the user for a username and password. It returns a PSCredential object that can be used to authenticate the user in other commands.

$cred = Get-Credential
Connect-MsolService -Credential $cred
This will prompt the user for a username and password, and then use the returned credentials to connect to Microsoft Online Services.

25 Useful PowerShell Commands

There are **more than 200 PowerShell** commands that we can use. I am not going to list all of them in this article, but here are the **25 most useful** commands in categories for you:

File System Operations

11. Copy-Items

The `Copy-Item` cmdlet is used to copy files and directories from one location to another. It allows you to specify the source and destination locations and also provides options to overwrite existing files or retain their attributes. This is useful when you need to back up or transfer files and directories.

Learn more about the Copy-Item cmdlet in this article.

For example, the command below makes a copy of the documents folder to the folder d:\backup.

Copy-Item -Path C:\data\documents -Destination d:\backup -Recurse

12. Move-Item

We can also move items with PowerShell, with the help of the `Move-Item` cmdlet. It is similar to the `Copy-Item` cmdlet but instead of creating a copy, it moves the files and directories to the new location. This is useful when you need to move files and directories within your computer or between different computers.

Suppose you want to move a file named 'report.docx' from your desktop to a folder named 'documents'. You can use the following command to move the file to the 'documents' folder.

Move-Item -Path C:\users\username\desktop\report.docx -Destination C:\data\documents

13. Remove-Item

The `Remove-Item` cmdlet is used to delete a file or a directory. It can also delete files within a directory and its subdirectories. You can use the `-Recurse` parameter to remove directories and their contents recursively. It can also delete read-only files, hidden files, and system files. However, it will prompt you for confirmation before deleting any read-only or hidden files.

Learn more about the Remove-Item cmdlet in this article.

To delete a file, you can use the following command:

Remove-Item C:\Temp\file.txt

14. Test-Path

The `Test-Path` cmdlet is used to check if a file or a directory exists at a specified location. It returns `True` if the file or directory exists, and `False` if it doesn't exist. When working with files or directories you should really be using the cmdlet a lot. Read all about the Test-Path cmdlet in this article.

To check if a file exists, you can use the following command:

Test-Path C:\Temp\file.txt

15. New-PSDrive

The `New-PSDrive` cmdlet is used to create a new Windows PowerShell drive that is "mapped" to a location in a data store, such as a network drive, a directory on the local computer, or a registry key. The drive that is created behaves like a normal Windows drive and can be accessed by using standard Windows commands.

For example, to create a new drive that maps to a network share, you can use the command below in PowerShell. Learn more about the New-PSDrive cmdlet in this article.

```
New-PSDrive -Name "N" -PSProvider FileSystem -Root "\\Server\Share"
```

Data Input/Output

16. Get-Content

The `Get-Content` cmdlet reads the content of a file and returns it as an object. You can use this cmdlet to read text files, log files, and other types of files. By default, `Get-Content` returns the contents of a file as a single string. However, you can use the `-Delimiter` parameter to split the file into individual lines or other segments.

Learn more about the Get-Content cmdlet in this article.

```
# Read the contents of a text file
Get-Content -Path "C:\Temp\example.txt"
# Read the contents of a file and display only the first 5 lines
Get-Content -Path "C:\Temp\example.txt" -TotalCount 5
```

17. Get-Clipboard

The `Get-Clipboard` cmdlet retrieves the contents of the Windows clipboard. You can use this cmdlet to get text, images, and other types of data that have been copied to the clipboard.

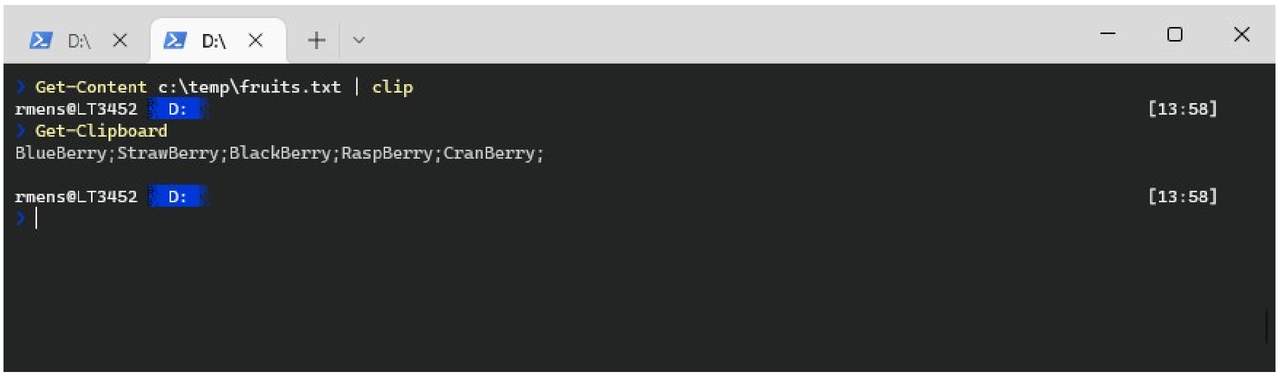
```
# Get the contents of the clipboard as text
Get-Clipboard -Format Text
# Get the contents of the clipboard as an image
Get-Clipboard -Format Image
```

But we can not only retrieve data from the Clipboard, we can also copy data to the clipboard with PowerShell. Simply pipe `clip` behind your command to store the results on your clipboard:

```
Get-Content -path "c:\temp\fruits.txt" | clip
```

You can now simply paste the contents into any program that you want. To view/paste the contents of the clipboard in PowerShell use `Get-Clipboard`:

```
Get-Clipboard
# Result
BlueBerry;StrawBerry;BlackBerry;RaspBerry;CranBerry;
```



```
> Get-Content c:\temp\fruits.txt | clip
rmens@LT3452  D:                                                              [13:58]
> Get-Clipboard
BlueBerry;StrawBerry;BlackBerry;RaspBerry;CranBerry;

rmens@LT3452  D:                                                              [13:58]
>
```

clip command in PowerShell

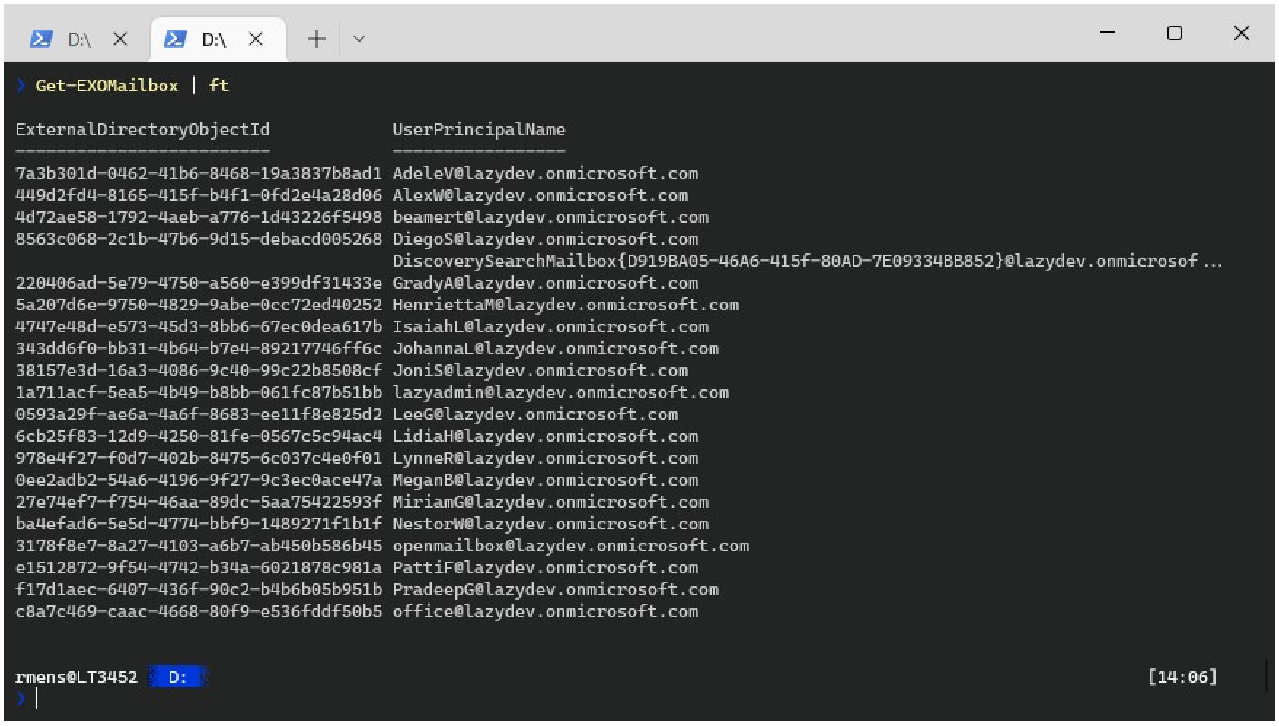
18. Out-File

The `Out-File` cmdlet sends output to a file. You can use this cmdlet to save the output of a command or script to a text file, CSV file, or other types of file. For CSV files it's better to use the `Export-CSV` cmdlet though.

# Save the output of a command to a text file
Get-Service | Out-File -FilePath "C:\Temp\services.txt"
# Save the output of a command to a CSV file
Get-Process | Select-Object Name, CPU | Out-File -FilePath "C:\Temp\processes.csv" -Encoding UTF8

19. Out-GridView

When testing scripts or working in PowerShell we often output the result directly in the console. We can format the result set as a table with format-table or in short ft. But with large data sets, this isn't always the best option. Data may be truncated or columns are missing in your overview.

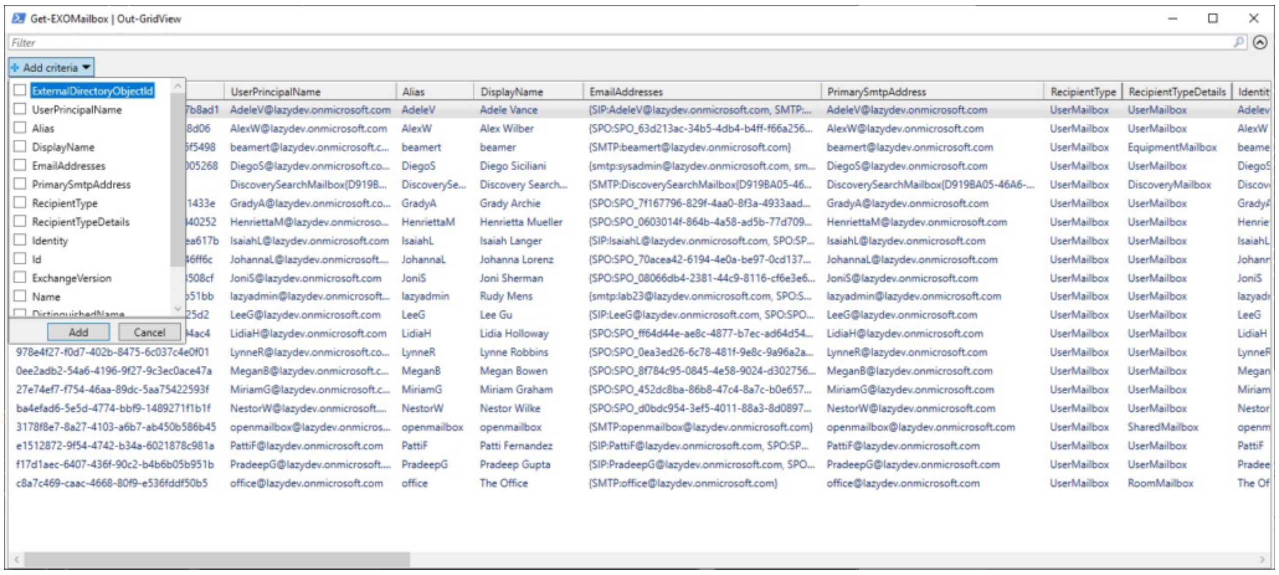


```
> Get-EXOMailbox | ft

ExternalDirectoryObjectId            UserPrincipalName
-------------------------            -----------------
7a3b301d-0462-41b6-8468-19a3837b8ad1 AdeleV@lazydev.onmicrosoft.com
449d2fd4-8165-415f-b4f1-0fd2e4a28d06 AlexW@lazydev.onmicrosoft.com
4d72ae58-1792-4aeb-a776-1d43226f5498 beamert@lazydev.onmicrosoft.com
8563c068-2c1b-47b6-9d15-debacd005268 DiegoS@lazydev.onmicrosoft.com
                                     DiscoverySearchMailbox{D919BA05-46A6-415f-80AD-7E09334BB852}@lazydev.onmicrosof ...
220406ad-5e79-4750-a560-e399df31433e GradyA@lazydev.onmicrosoft.com
5a207d6e-9750-4829-9abe-0cc72ed40252 HenriettaM@lazydev.onmicrosoft.com
4747e48d-e573-45d3-8bb6-67ec0dea617b IsaiahL@lazydev.onmicrosoft.com
343dd6f0-bb31-4b64-b7e4-89217746ff6c JohannaL@lazydev.onmicrosoft.com
38157e3d-16a3-4086-9c40-99c22b8508cf JoniS@lazydev.onmicrosoft.com
1a711acf-5ea5-4b49-b8bb-061fc87b51bb lazyadmin@lazydev.onmicrosoft.com
0593a29f-ae6a-4a6f-8683-ee11f8e825d2 LeeG@lazydev.onmicrosoft.com
6cb25f83-12d9-4250-81fe-0567c5c94ac4 LidiaH@lazydev.onmicrosoft.com
978e4f27-f0d7-402b-8475-6c037c4e0f01 LynneR@lazydev.onmicrosoft.com
0ee2adb2-54a6-4196-9f27-9c3ec0ace47a MeganB@lazydev.onmicrosoft.com
27e74ef7-f754-46aa-89dc-5aa75422593f MiriamG@lazydev.onmicrosoft.com
ba4efad6-5e5d-4774-bbf9-1489271f1b1f NestorW@lazydev.onmicrosoft.com
3178f8e7-8a27-4103-a6b7-ab450b586b45 openmailbox@lazydev.onmicrosoft.com
e1512872-9f54-4742-b34a-6021878c981a PattiF@lazydev.onmicrosoft.com
f17d1aec-6407-436f-90c2-b4b6b05b951b PradeepG@lazydev.onmicrosoft.com
c8a7c469-caac-4668-80f9-e536fddf50b5 office@lazydev.onmicrosoft.com


rmens@LT3452  D:                                                              [14:06]
>
```

Default table output in PowerShell

The grid view output is a great solution to that. It will output all the data in a nice searchable, sortable view in a new window. The table contains all columns, which you can sort and search through.

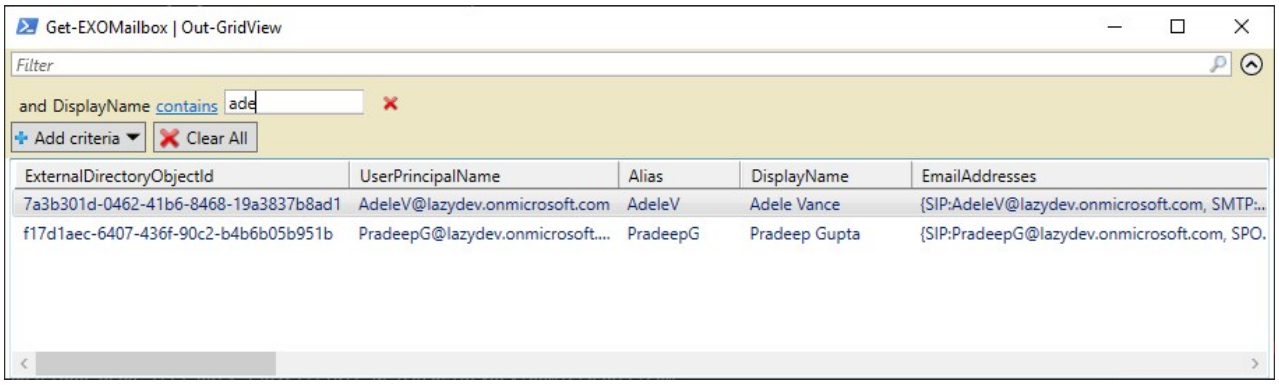
```
Get-EXOMailbox | Out-Gridview
```



	UserPrincipalName	Alias	DisplayName	EmailAddresses	PrimarySmtpAddress	RecipientType	RecipientTypeDetails	Identit
7b8ad1	AdeleV@lazydev.onmicrosoft.com	AdeleV	Adele Vance	{SIP:AdeleV@lazydev.onmicrosoft.com, SMTP:...	AdeleV@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Adelev
8d06	AlexW@lazydev.onmicrosoft.com	AlexW	Alex Wilber	{SPO:SPO_63d213ac-34b5-4db4-b4ff-f66a256...	AlexW@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	AlexW
5f5498	beamert@lazydev.onmicrosoft.c...	beamert	beamer	{SMTP:beamert@lazydev.onmicrosoft.com}	beamert@lazydev.onmicrosoft.com	UserMailbox	EquipmentMailbox	beame
005268	DiegoS@lazydev.onmicrosoft.co...	DiegoS	Diego Siciliani	{smtp:sysadmin@lazydev.onmicrosoft.com, sm...	DiegoS@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	DiegoS
	DiscoverySearchMailbox{D919B...	DiscoverySe...	Discovery Search...	{SMTP:DiscoverySearchMailbox{D919BA05-46...	DiscoverySearchMailbox{D919BA05-46A6-...	UserMailbox	DiscoveryMailbox	Discov
1433e	GradyA@lazydev.onmicrosoft.co...	GradyA	Grady Archie	{SPO:SPO_7f167796-829f-4aa0-8f3a-4933aad...	GradyA@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	GradyA
40252	HenriettaM@lazydev.onmicroso...	HenriettaM	Henrietta Mueller	{SPO:SPO_0603014f-864b-4a58-ad5b-77d709...	HenriettaM@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Henrie
ea617b	IsaiahL@lazydev.onmicrosoft.com	IsaiahL	Isaiah Langer	{SIP:IsaiahL@lazydev.onmicrosoft.com, SPO:SP...	IsaiahL@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	IsaiahL
46ff6c	JohannaL@lazydev.onmicrosoft....	JohannaL	Johanna Lorenz	{SPO:SPO_70acea42-6194-4e0a-be97-0cd137...	JohannaL@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Johann
3508cf	JoniS@lazydev.onmicrosoft.com	JoniS	Joni Sherman	{SPO:SPO_08066db4-2381-44c9-8116-cf6e3e6...	JoniS@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	JoniS
b51bb	lazyadmin@lazydev.onmicrosoft...	lazyadmin	Rudy Mens	{smtp:lab23@lazydev.onmicrosoft.com, SPO:S...	lazyadmin@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	lazyad
25d2	LeeG@lazydev.onmicrosoft.com	LeeG	Lee Gu	{SIP:LeeG@lazydev.onmicrosoft.com, SPO:SPO...	LeeG@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	LeeG
4ac4	LidiaH@lazydev.onmicrosoft.com	LidiaH	Lidia Holloway	{SPO:SPO_ff64d44e-ae8c-4877-b7ec-ad64d54...	LidiaH@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	LidiaH
978e4f27-f0d7-402b-8475-6c037c4e0f01	LynneR@lazydev.onmicrosoft.co...	LynneR	Lynne Robbins	{SPO:SPO_0ea3ed26-6c78-481f-9e8c-9a96a2a...	LynneR@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	LynneR
0ee2adb2-54a6-4196-9f27-9c3ec0ace47a	MeganB@lazydev.onmicrosoft.c...	MeganB	Megan Bowen	{SPO:SPO_8f784c95-0845-4e58-9024-d302756...	MeganB@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Megan
27e74ef7-f754-46aa-89dc-5aa75422593f	MiriamG@lazydev.onmicrosoft.c...	MiriamG	Miriam Graham	{SPO:SPO_452dc8ba-86b8-47c4-8a7c-b0e657...	MiriamG@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Miriam
ba4efad6-5e5d-4774-bbf9-1489271f1b1f	NestorW@lazydev.onmicrosoft....	NestorW	Nestor Wilke	{SPO:SPO_d0bdc954-3ef5-4011-88a3-8d0897...	NestorW@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Nestor
3178f8e7-8a27-4103-a6b7-ab450b586b45	openmailbox@lazydev.onmicros...	openmailbox	openmailbox	{SMTP:openmailbox@lazydev.onmicrosoft.com}	openmailbox@lazydev.onmicrosoft.com	UserMailbox	SharedMailbox	openm
e1512872-9f54-4742-b34a-6021878c981a	PattiF@lazydev.onmicrosoft.com	PattiF	Patti Fernandez	{SIP:PattiF@lazydev.onmicrosoft.com, SPO:SP...	PattiF@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	PattiF
f17d1aec-6407-436f-90c2-b4b6b05b951b	PradeepG@lazydev.onmicrosoft....	PradeepG	Pradeep Gupta	{SIP:PradeepG@lazydev.onmicrosoft.com, SPO...	PradeepG@lazydev.onmicrosoft.com	UserMailbox	UserMailbox	Pradee
c8a7c469-caac-4668-80f9-e536fddf50b5	office@lazydev.onmicrosoft.com	office	The Office	{SMTP:office@lazydev.onmicrosoft.com}	office@lazydev.onmicrosoft.com	UserMailbox	RoomMailbox	The Of

PowerShell Out-Gridview

In the top left corner, you can add filters to the result set, allowing you to easily find the correct data that you need:



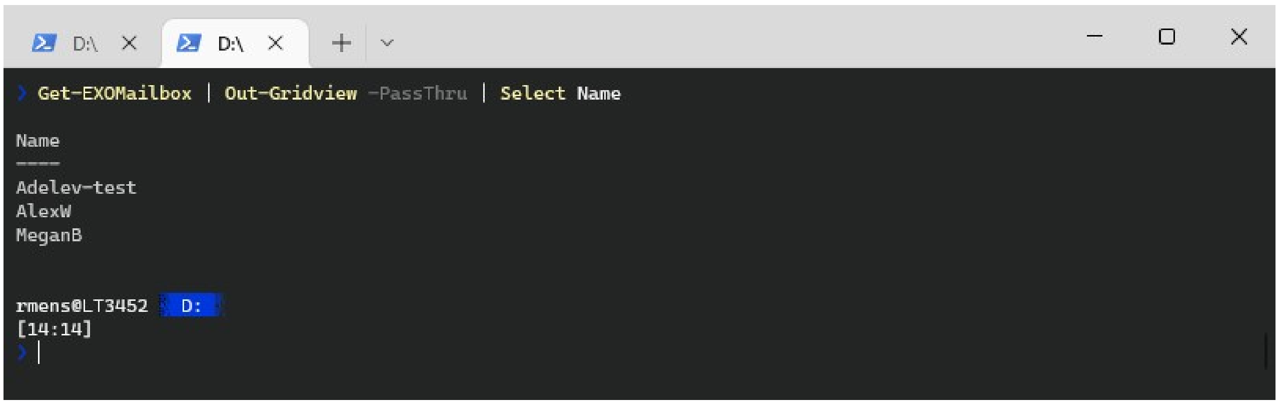
ExternalDirectoryObjectId	UserPrincipalName	Alias	DisplayName	EmailAddresses
7a3b301d-0462-41b6-8468-19a3837b8ad1	AdeleV@lazydev.onmicrosoft.com	AdeleV	Adele Vance	{SIP:AdeleV@lazydev.onmicrosoft.com, SMTP:...
f17d1aec-6407-436f-90c2-b4b6b05b951b	PradeepG@lazydev.onmicrosoft....	PradeepG	Pradeep Gupta	{SIP:PradeepG@lazydev.onmicrosoft.com, SPO.

Grid-view filter

Now the best part of the gridview in PowerShell, we can select the items we need and pass them back to PowerShell. For this, you will need to add the parameter `-PassThru` to the cmdlet:

```
Get-EXOMailbox | Out-Gridview -PassThru
```

Select the records that you need and press Ok. You can just pipe a select behind it, or store the results in a variable.



```
❯ Get-EXOMailbox | Out-Gridview -PassThru | Select Name

Name
----
Adelev-test
AlexW
MeganB


rmens@LT3452  D:
[14:14]
❯ |
```

20. Import-CSV

The `Import-CSV` cmdlet is used to import data from a CSV file to PowerShell. It converts the CSV file data into an object that can be easily manipulated using other cmdlets. This is useful when you need to work with large datasets that are stored in a CSV file.

Read more about the Import-CSV cmdlet in this article.

```
Import-CSV C:\data\employees.csv | Format-Table
```

21. Export-CSV

The Export-CSV command is also one of those commands that is great to use when you are retrieving data with PowerShell. We all know that Excel is great when it comes to processing data further. The Export-CSV command generates a CSV file from your data.

Add the NoTypeInformation and Encoding parameter behind it. The first will remove the header information in your CSV file and the latter makes sure that the right encoding is used.

Read more about Export-CSV in this article.

```
Get-EXOMailbox | Export-CSV -path c:\temp\mailbox.csv -NoTypeInformation -Encoding UTF8
```

System and Process Management

22. Enter-PSSession

Need to run a PowerShell command on the server? Most open a remote desktop, to start a PowerShell session on the server, but there is really no need for that. With PowerShell, we can start an interactive session with a remote computer using the `Enter-PSSession` cmdlet.

To start an interactive session, simply type:

```
Enter-PSSession -Computername LazySrvLab02
# Result
[LazySrvLab02]: PS C:\>
```

You can now run PowerShell commands on the server, just as if you are working directly on the server. If you need to authenticate with different credentials, then use the parameter `-credential` to specify the username that you want to use. You will be prompted for the password.

To exit the remote session, type `Exit-PSSession`

23. Start-Process

The `Start-Process` cmdlet is used to start a new process, such as an executable file or a script, and optionally pass it arguments. You can specify the file path, arguments, working directory, and other parameters when starting the process. This cmdlet is useful when you need to start a process from a script or command line.

Start-Process -FilePath "C:\Program Files\MyApp\MyApp.exe" -ArgumentList "-Option1", "-Option2"

24. Start-Transcript

The `Start-Transcript` cmdlet creates a transcript of a PowerShell session, which includes all commands entered and their output. The transcript is saved to a text file.

To create a transcript you will need to run the command below to start recording. When done, you can use the cmdlet `Stop-Transcript`. Learn more about Start-Transcript in this article.

Start-Transcript -Path C:\transcript.txt

25. Start-Sleep

The `Start-Sleep` cmdlet pauses a PowerShell session for a specified amount of time. This is useful for creating scripts that need to wait for a certain amount of time before executing the next command.

The command below pauses the script for 10 seconds. Learn more about the PowerShell Start-Sleep command in this article:

Start-Sleep -Seconds 10

26. Set-Alias

The `Set-Alias` cmdlet creates or changes an alias (alternate name) for a cmdlet or other command element in the current PowerShell session. This can help to save time typing long command names or to create custom abbreviations for frequently used commands.

In this example, we create an alias `l` for the `ls` command. Now instead of typing `ls` to list files, we can simply type `l`.

Set-Alias -Name l -Value ls

Data Analysis and Measurement

27. Select-String

The `Select-String` cmdlet searches through a given input (text files, strings, etc.) for a specific string pattern and outputs any lines that match the pattern. This is similar to the `grep` command in Unix/Linux systems.

Let’s say you have a log file that you want to search for lines that contain the word “error”. You can use `Select-String` to do this. The command below will search through the log file and output any lines that contain the word “error”. Read more about the PowerShell Select-String command in this article.

```
Select-String -Path C:\logs\logfile.txt -Pattern "error"
```

27. Measure-Command

The `Measure-Command` cmdlet measures the time it takes for a command to run. This is useful for optimizing scripts and identifying performance bottlenecks.

Let’s say you have a script that you want to optimize. You can use `Measure-Command` to measure the time it takes for a specific command to run. For example, the following command will measure the time it takes to copy a file from one location to another:

```
Measure-Command {Copy-Item -Path C:\files\file.txt -Destination D:\backup\file.txt}
```

The output of the command will show the elapsed time, as well as other statistics such as the CPU time used and the number of garbage collections performed.

28. Measure-Object

The `Measure-Object` cmdlet calculates the properties of numeric objects such as the sum, average, minimum, maximum, and standard deviation. It is useful for analyzing the output of other PowerShell commands.

Suppose we want to calculate the average size of all the files in a directory. We can use the `Get-ChildItem` cmdlet to retrieve the files in the directory and pipe the output to the `Measure-Object` cmdlet to calculate the average size:

```
Get-ChildItem C:\temp | Measure-Object -Property Length -Average
```

29. Compare-Object

The `Compare-Object` cmdlet compares two sets of objects and returns the differences. It is useful for finding differences between two sets of data.

For example, let’s compare to array with fruits:

```
$fruits = "apple","kiwi","pear"
$basket = "kiwi","raspbery"
```

```
Compare-Object -IncludeEqual $fruit $basket
# Result
InputObject SideIndicator
----------- -------------
kiwi ==
raspbery =>
grape <=
pear <=
```

30. Sort-Object

The `Sort-Object` cmdlet sorts objects in ascending or descending order based on one or more properties. It can be used to sort any type of object, such as files, directories, registry keys, or PowerShell objects.

In this example, we use `Get-ChildItem` to get a list of files and directories in the current directory. We then pipe that output to `Sort-Object` to sort the list by name in descending order, and finally use `Select-Object` to show only the first 10 items in the sorted list.

```
Get-ChildItem | Sort-Object -Property Name -Descending | Select-Object -First 10
```

Data Conversion and Transformation

31. ConvertTo-Html

The `ConvertTo-Html` cmdlet converts PowerShell objects into HTML format. It is useful for generating reports and displaying data in a more readable format.

Suppose we want to generate an HTML report of the running processes on a computer. We can use the `Get-Process` cmdlet to retrieve the running processes and pipe the output to the `ConvertTo-Html` cmdlet to generate an HTML report:

```
Get-Process | ConvertTo-Html | Out-File C:\temp\processes.html
```

32. ConvertTo-SecureString

The `ConvertTo-SecureString` cmdlet converts a plaintext string to a secure string that can be used to store sensitive data, such as passwords or API keys, in a more secure way. It is useful for preventing unauthorized access to sensitive data.

For example, we want to store a password in a variable for use in a script. We can use the `Read-Host` cmdlet to prompt the user for a password, and then pipe the output to the `ConvertTo-SecureString` cmdlet to convert it to a secure string:

```
$password = Read-Host "Enter password" -AsSecureString
$cred = New-Object System.Management.Automation.PSCredential ("username",
$password)
```

Utility Functions

33. Get-Random

When writing scripts it’s not uncommon to use a random function to generate a random integer. But the `Get-Random` cmdlet in PowerShell can do more than just generate an integer. It’s also capable of selecting a random entry from an array for example.

The **Get-Random** cmdlet uses the RandomNumberGenerator class which allows it to generate cryptographically secure randomness. It returns by default an integer between 0 and 2,147,483,647. But of course, we specify a minimum and maximum value.

```
Get-Random -Minimum -50 -Maximum 150
# Result
111
```
Get-Random can also be used to select a random item from an array:

```
$array = 'apple','pear','raspberry','kiwi','banana','melon','blueberry'
$array | Get-Random
# Result
raspberry
```

34. Get-Date

The `Get-Date` cmdlet returns the current date and time on the local computer. You can use this cmdlet to perform date and time calculations and to display the date and time in a specific format.

Make sure that your read this article to learn more about the Get-Date cmdlet.

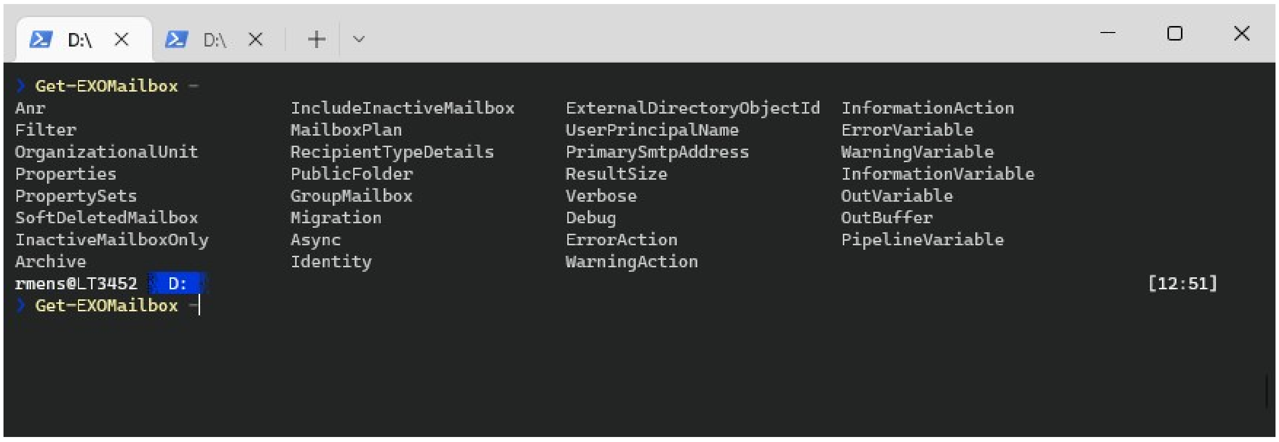
```
# Get the current date and time
Get-Date
# Get the date and time 10 days from now
Get-Date -Date (Get-Date).AddDays(10)
# Get the date and time in a specific format
Get-Date -Format "yyyy-MM-dd hh:mm:ss"
```

Bonus Tips

35. Ctrl + Space

This is not really a PowerShell command, but you wish that you knew about this key combination earlier. When using a cmdlet we all often type the hyphen `-` and then tab through all the possible parameters that the cmdlet has.

But did you know you can view all parameters at once? To try this out, type a cmdlet and press `Ctrl + Space`:



```
❯ Get-EXOMailbox -
Anr                        IncludeInactiveMailbox     ExternalDirectoryObjectId  InformationAction
Filter                     MailboxPlan                UserPrincipalName          ErrorVariable
OrganizationalUnit         RecipientTypeDetails       PrimarySmtpAddress         WarningVariable
Properties                 PublicFolder               ResultSize                 InformationVariable
PropertySets               GroupMailbox               Verbose                    OutVariable
SoftDeletedMailbox         Migration                  Debug                      OutBuffer
InactiveMailboxOnly        Async                      ErrorAction                PipelineVariable
Archive                    Identity                   WarningAction
rmens@LT3452   D:                                                                                   [12:51]
❯ Get-EXOMailbox -
```

Display all nouns and parameters

It will display all nouns and parameters that you can use with the cmdlet. Now pressing Ctrl + Space is a method you will need to get used to, but you can also set the following in your PowerShell profile:

Set-PSReadlineKeyHandler -Key Tab -Function Complete
This way you will only need to type the hyphen and **press Tab twice** to list all parameters.

36. Set-StrictMode

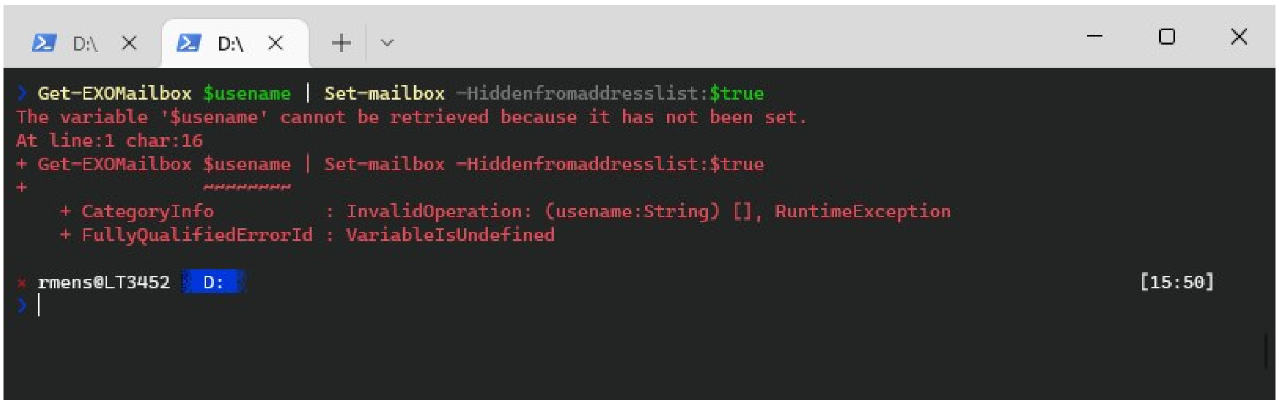
The Set-StrictMode command in PowerShell establishes and enforces coding rules. By default, strict mode is turned off and that can cause a real mess. When strict mode is off, PowerShell threats uninitialized variables as `$null` or `0`, for example.

Note the following code:

$username = 'adelev'
Get-EXOMailbox $usename | Set-mailbox -Hiddenfromaddresslist:$true
In the example above, I have misspelled the `$username` variable in the Get-ExoMailbox command. If Strict Mode is not enabled, PowerShell will handle the misspelled variable `$usename` as a `$null`, with the result that the cmdlet will get all mailboxes and hide them all from the address list.

When you set StrictMode to version 2, PowerShell will instead throw an error that the variable is not set.

Set-StrictMode -Version 2



```
> Get-EXOMailbox $usename | Set-mailbox -Hiddenfromaddresslist:$true
The variable '$usename' cannot be retrieved because it has not been set.
At line:1 char:16
+ Get-EXOMailbox $usename | Set-mailbox -Hiddenfromaddresslist:$true
+                ~~~~~~~~
    + CategoryInfo          : InvalidOperation: (usename:String) [], RuntimeException
    + FullyQualifiedErrorId : VariableIsUndefined

x rmens@LT3452  D:                                                              [15:50]
> |
```

Strict Mode set

I recommend adding the `Set-StrictMode -Version 2` command to your PowerShell Profile.

Wrapping Up

With PowerShell, we can always learn new things, and improve our scripts or work methods, to make our work easier. These PowerShell commands can really help you with that. Commands like `Set-StrictMode` and the full autocomplete function are one of the best commands to know and use.

I hope you found this list with PowerShell commands useful or if you have any questions or suggestions, please drop a comment below!

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