

Azure PowerShell Overview

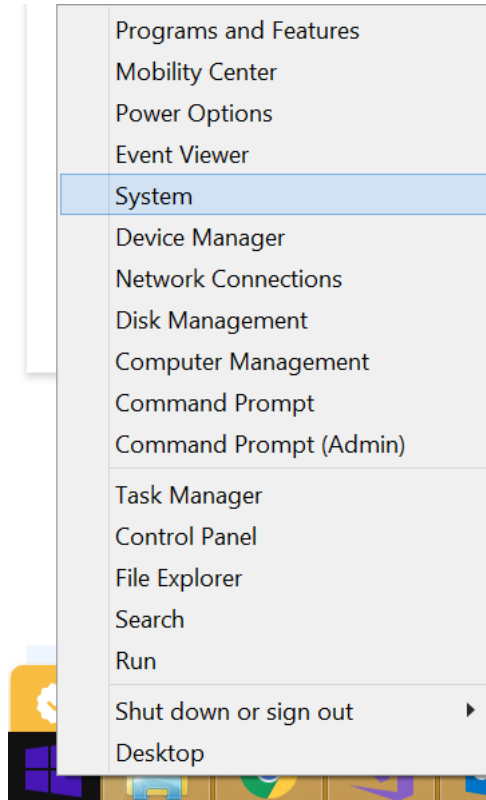
In this tutorial I'm going to show how to:

- Find out which PowerShell version is available on Local Machine
- Install/Upgrade PowerShell on Local Machine
- PowerShell Scripts
- PowerShell ISE
- Cloud Shell

Step 01: Find out which PowerShell version is available on Local Machine

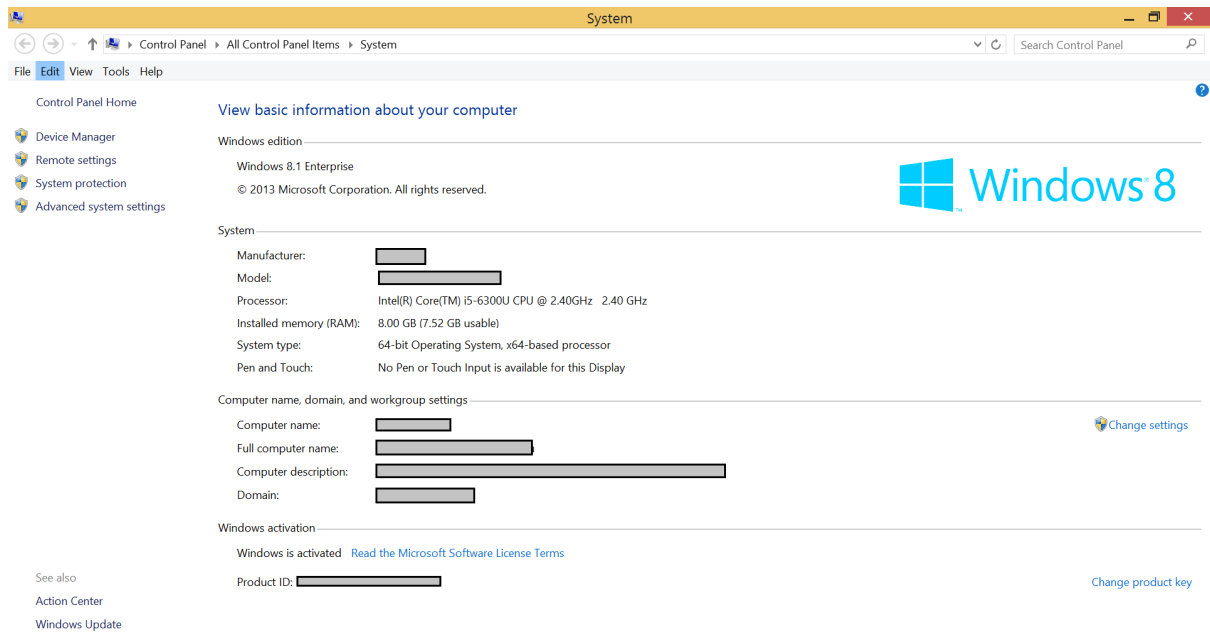
First, we need to find out what version of PowerShell is required to download.

I have a Windows system. To find out System details, right Click on Windows Start button and Click System.

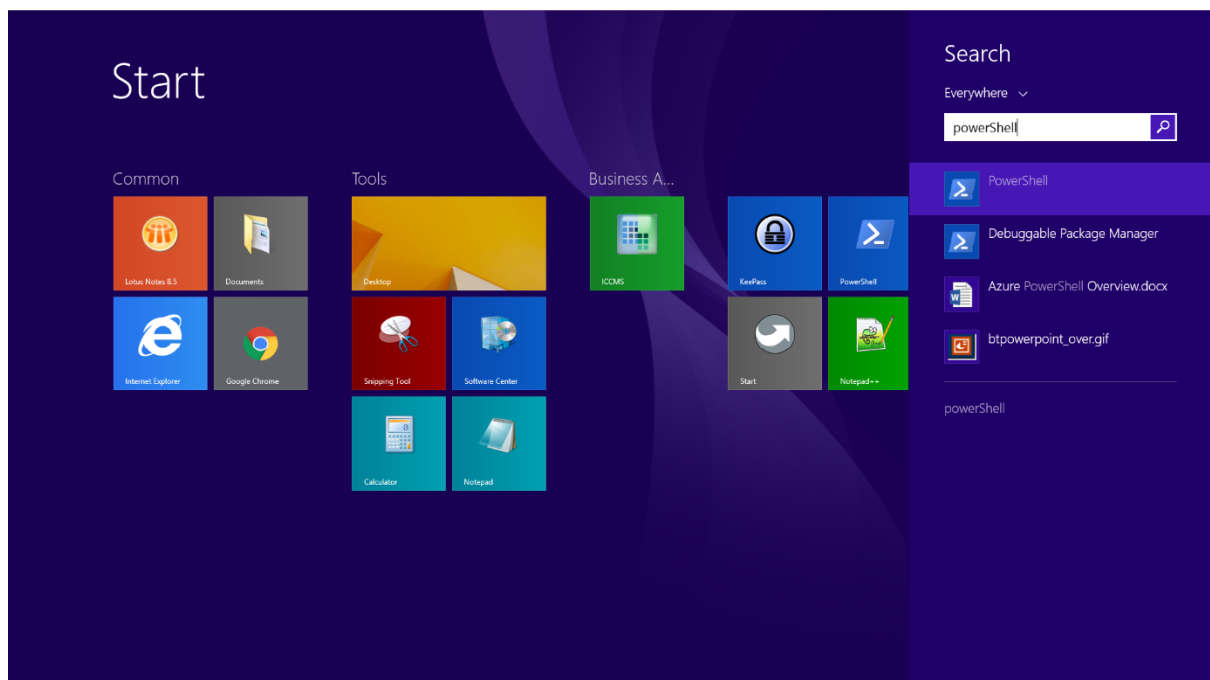


System Configuration:

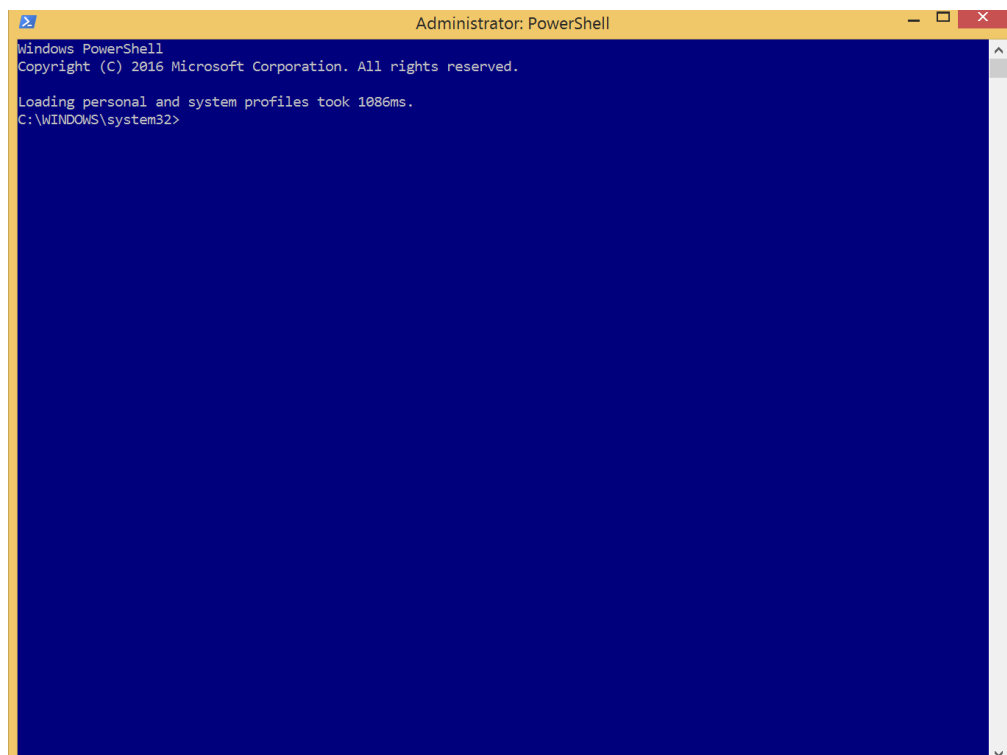
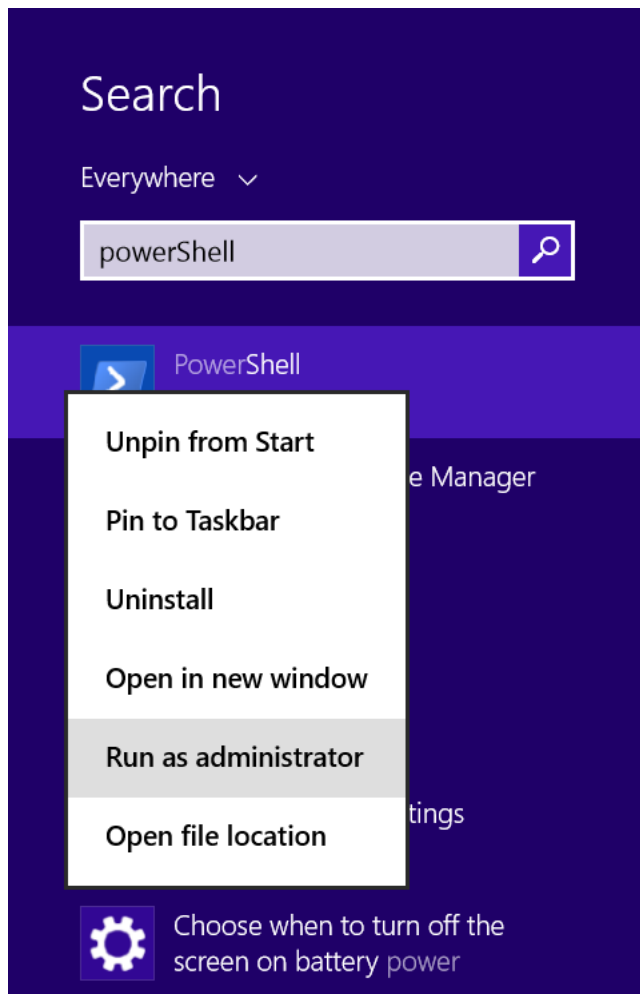
- Windows 8
- 64 Bit



Normally Windows 8 comes with PowerShell installed.

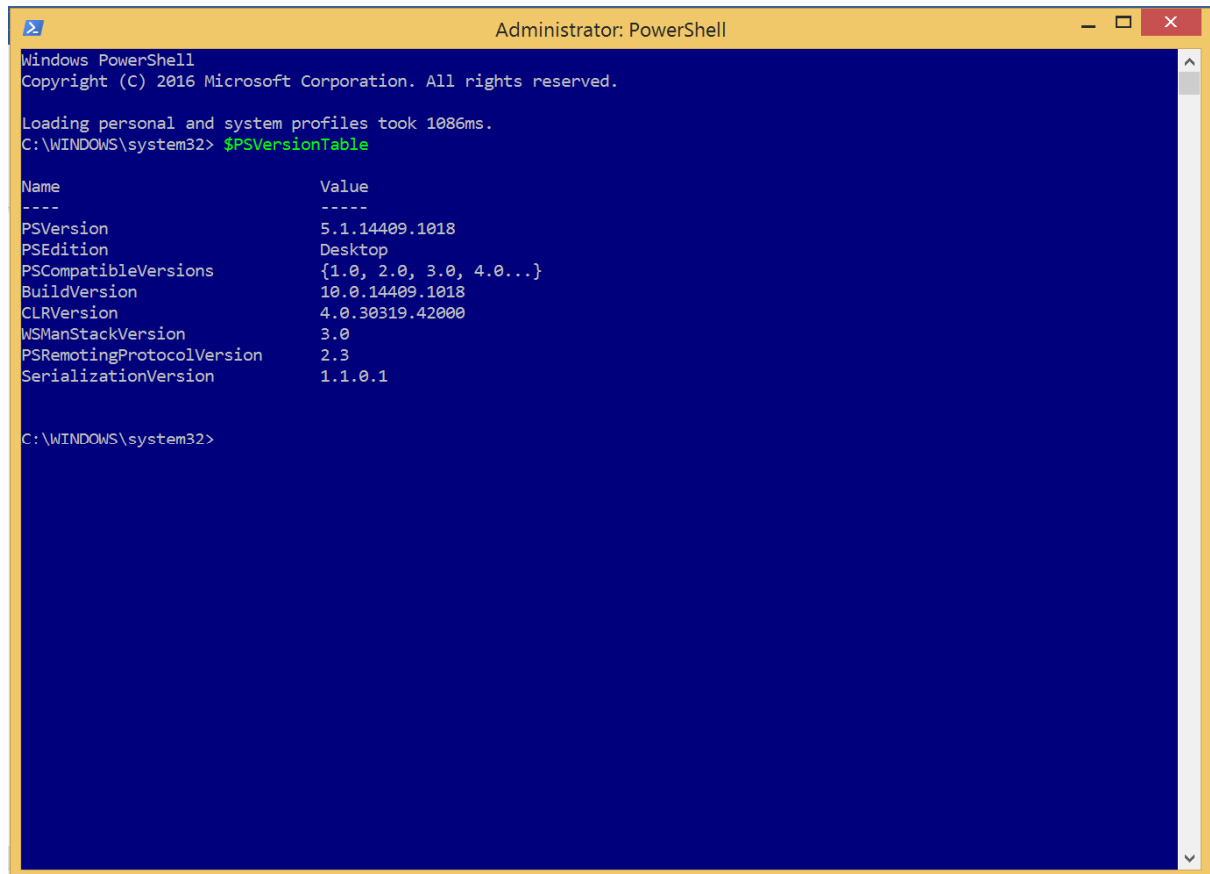


Right click and “Run As Administrator”.



Run bellow command to find out the PowerShell version.

\$PSVersionTable



The screenshot shows a Windows PowerShell window titled "Administrator: PowerShell". The window has a yellow title bar and a dark blue background. The text inside the window is white. It shows the standard PowerShell startup messages, followed by the command `$PSVersionTable` being entered at the prompt. The output is a table of version information.

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

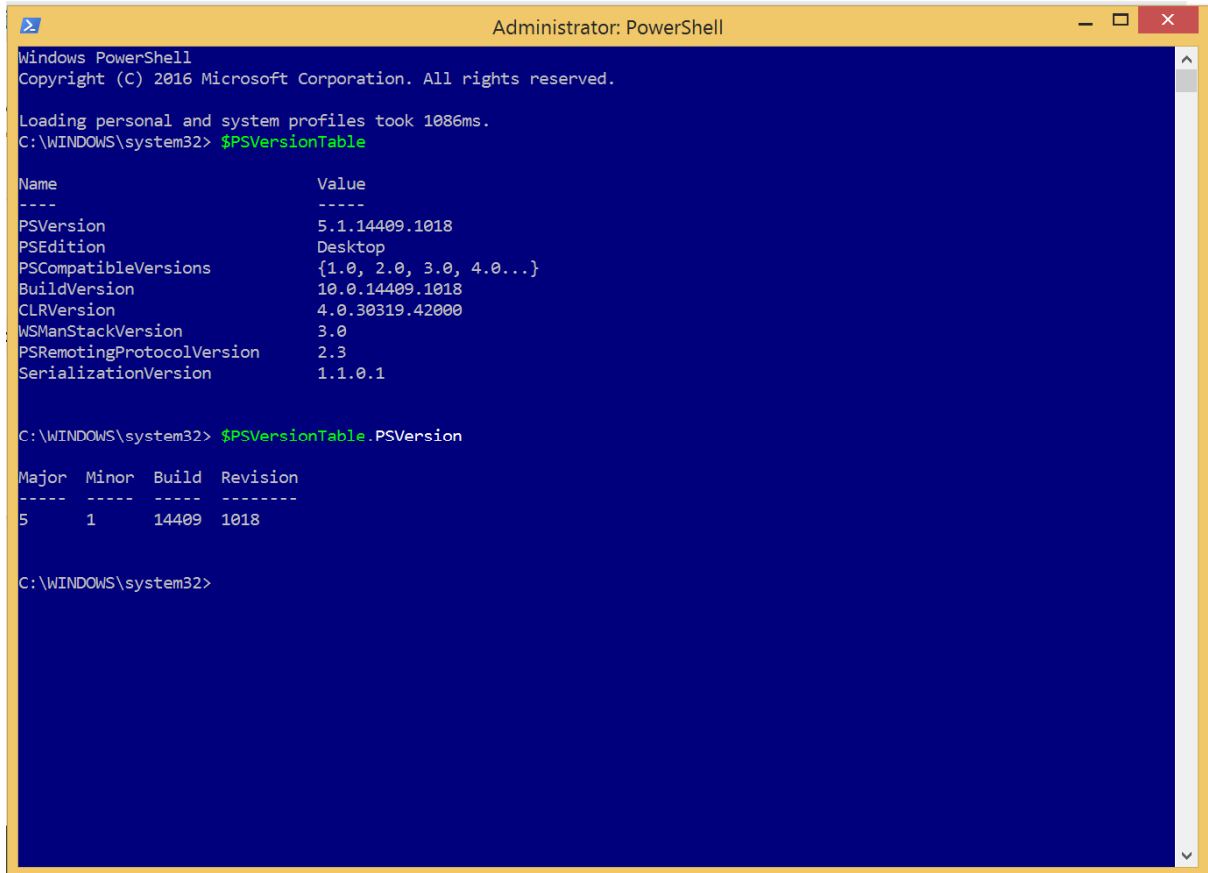
Loading personal and system profiles took 1086ms.
C:\WINDOWS\system32> $PSVersionTable

Name                           Value
----                           -
PSVersion                      5.1.14409.1018
PSEdition                      Desktop
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0...}
BuildVersion                   10.0.14409.1018
CLRVersion                     4.0.30319.42000
WSManStackVersion              3.0
PSRemotingProtocolVersion      2.3
SerializationVersion           1.1.0.1

C:\WINDOWS\system32>
```

If you want to access specific value under “PSVersionTable” we can use dot notation.

\$PSVersionTable.PSVersion



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

Loading personal and system profiles took 1086ms.
C:\WINDOWS\system32> $PSVersionTable

Name                           Value
----                           -
PSVersion                      5.1.14409.1018
PSEdition                      Desktop
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0...}
BuildVersion                   10.0.14409.1018
CLRVersion                     4.0.30319.42000
WSManStackVersion              3.0
PSRemotingProtocolVersion      2.3
SerializationVersion           1.1.0.1

C:\WINDOWS\system32> $PSVersionTable.PSVersion

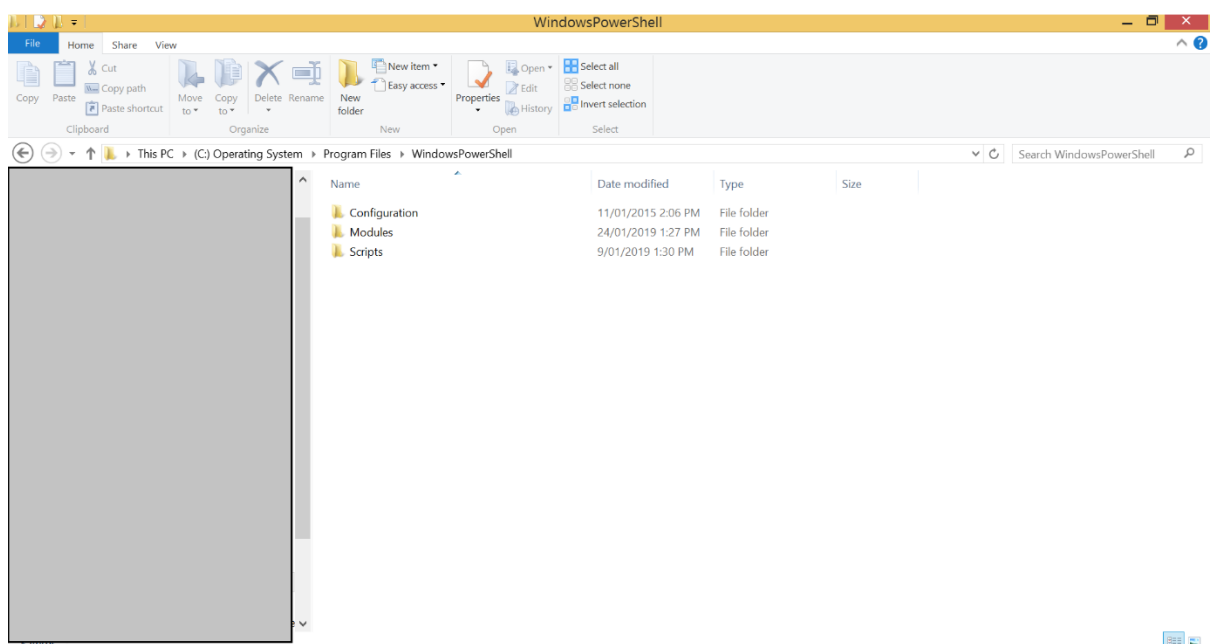
Major Minor Build Revision
-----
5      1      14409  1018

C:\WINDOWS\system32>
```

So, we have PowerShell 5.1 installed in our machine.

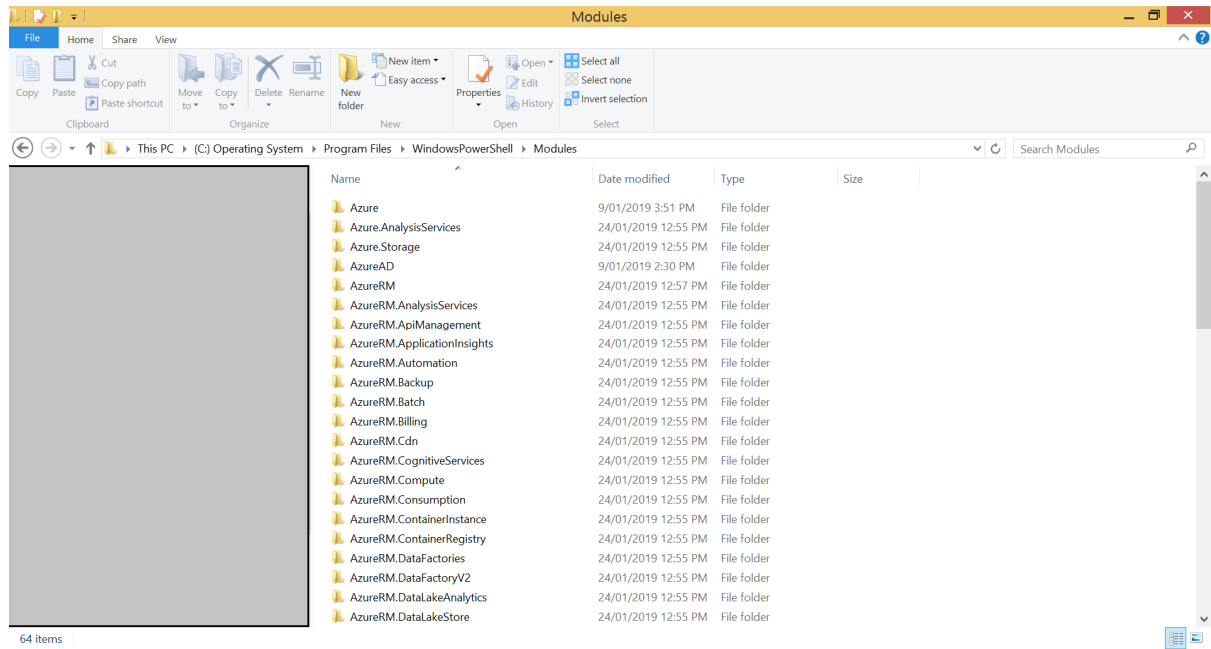
In my case Windows PowerShell is installed under:

C:\Program Files\WindowsPowerShell



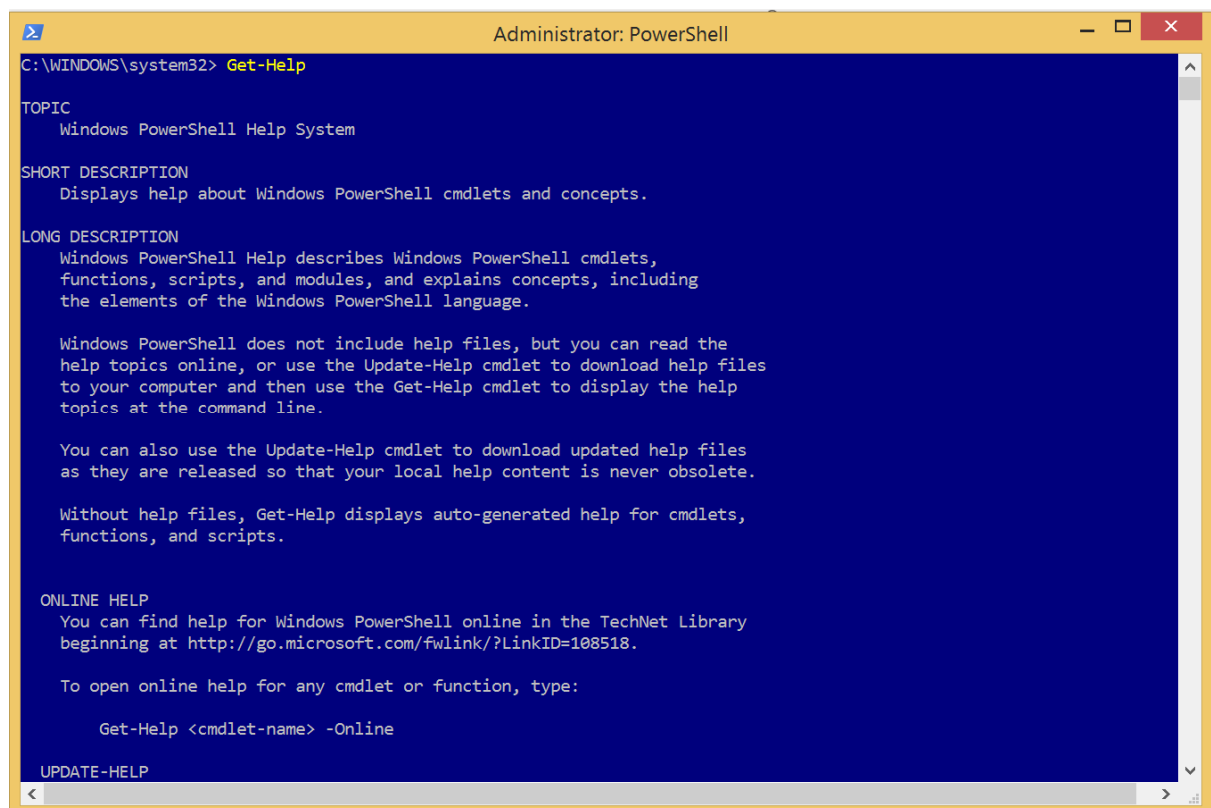
If you go inside Modules folder it will list all the Modules that are available.

C:\Program Files\WindowsPowerShell\Modules

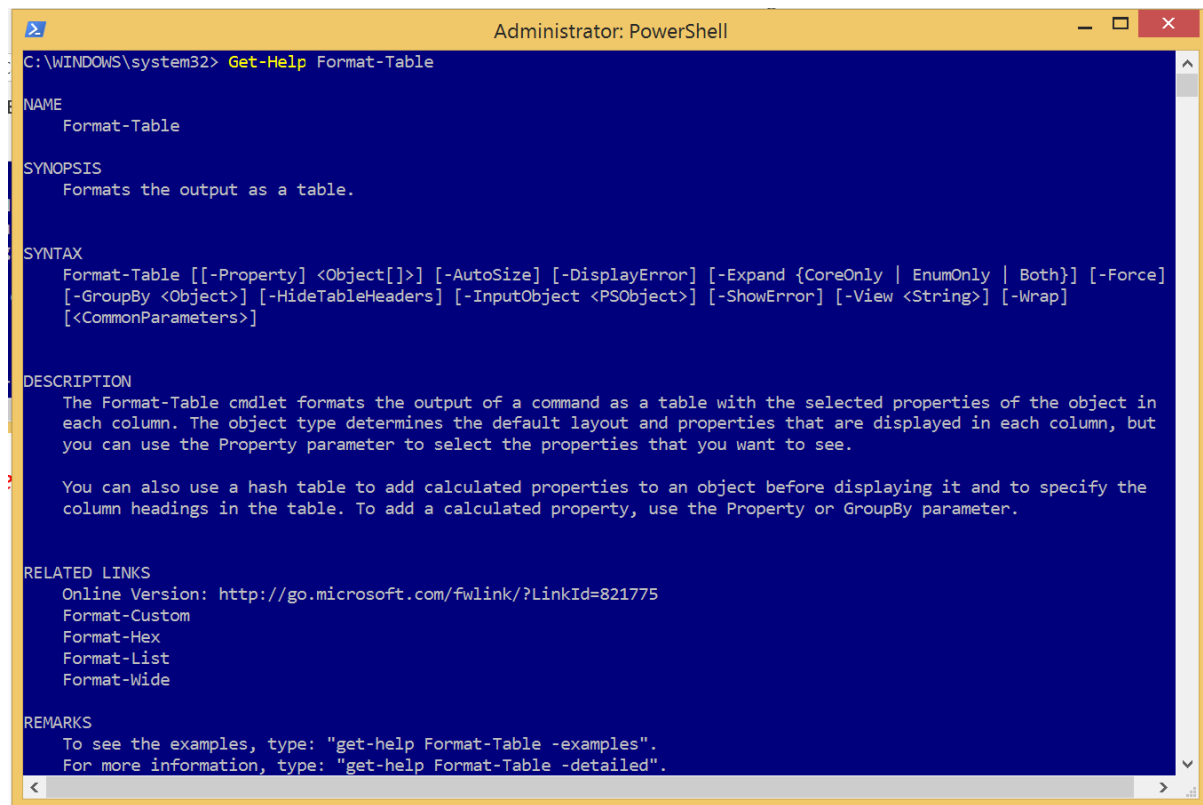


To get help relating to PowerShell run bellow command.

Get-Help



Get-Help Format-Table



A screenshot of a PowerShell window titled "Administrator: PowerShell" showing the help for the `Format-Table` command. The window has a blue background with white text. The command `Get-Help Format-Table` has been entered at the prompt. The output is structured with sections: NAME, SYNOPSIS, SYNTAX, DESCRIPTION, RELATED LINKS, and REMARKS.

```
C:\WINDOWS\system32> Get-Help Format-Table

NAME
    Format-Table

SYNOPSIS
    Formats the output as a table.

SYNTAX
    Format-Table [[-Property] <Object[]>] [-AutoSize] [-DisplayError] [-Expand {CoreOnly | EnumOnly | Both}] [-Force]
    [-GroupBy <Object>] [-HideTableHeaders] [-InputObject <PSObject>] [-ShowError] [-View <String>] [-Wrap]
    [<CommonParameters>]

DESCRIPTION
    The Format-Table cmdlet formats the output of a command as a table with the selected properties of the object in
    each column. The object type determines the default layout and properties that are displayed in each column, but
    you can use the Property parameter to select the properties that you want to see.

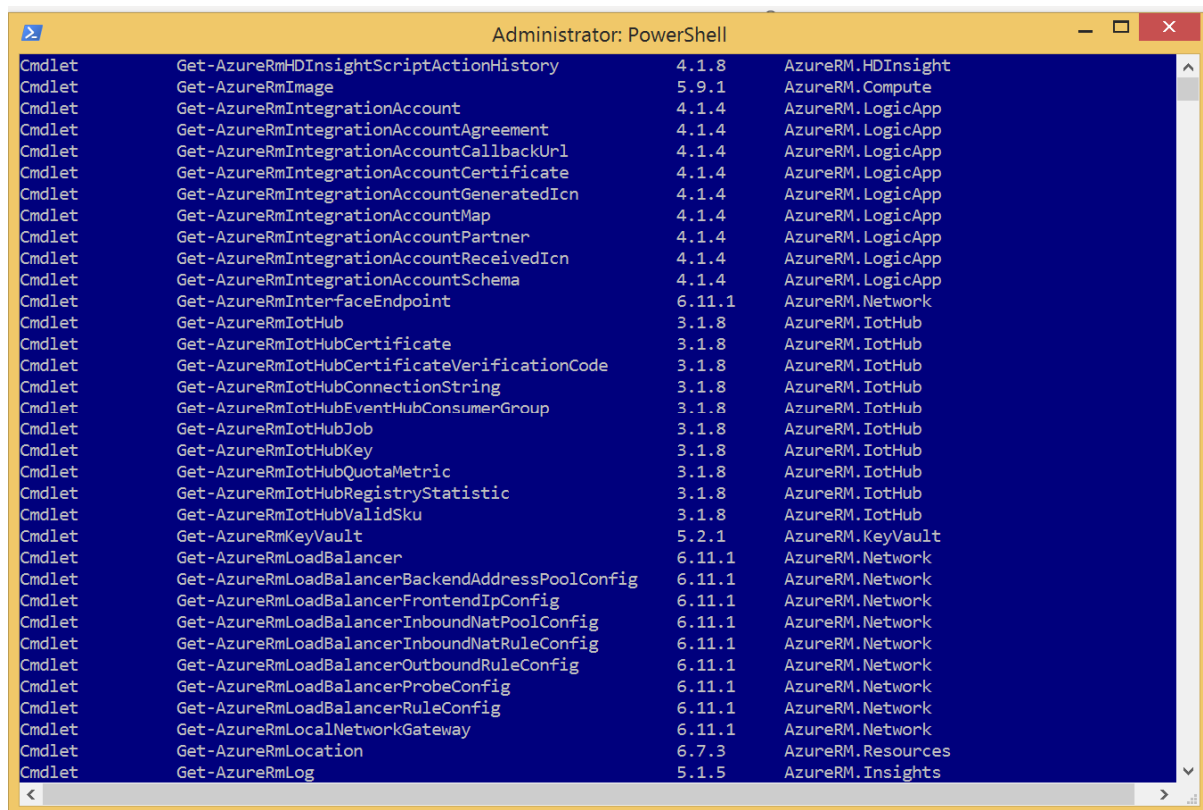
    You can also use a hash table to add calculated properties to an object before displaying it and to specify the
    column headings in the table. To add a calculated property, use the Property or GroupBy parameter.

RELATED LINKS
    Online Version: http://go.microsoft.com/fwlink/?LinkId=821775
    Format-Custom
    Format-Hex
    Format-List
    Format-Wide

REMARKS
    To see the examples, type: "get-help Format-Table -examples".
    For more information, type: "get-help Format-Table -detailed".
```

To generate a list of cmdlets, functions installed in your machine.

Get-Command

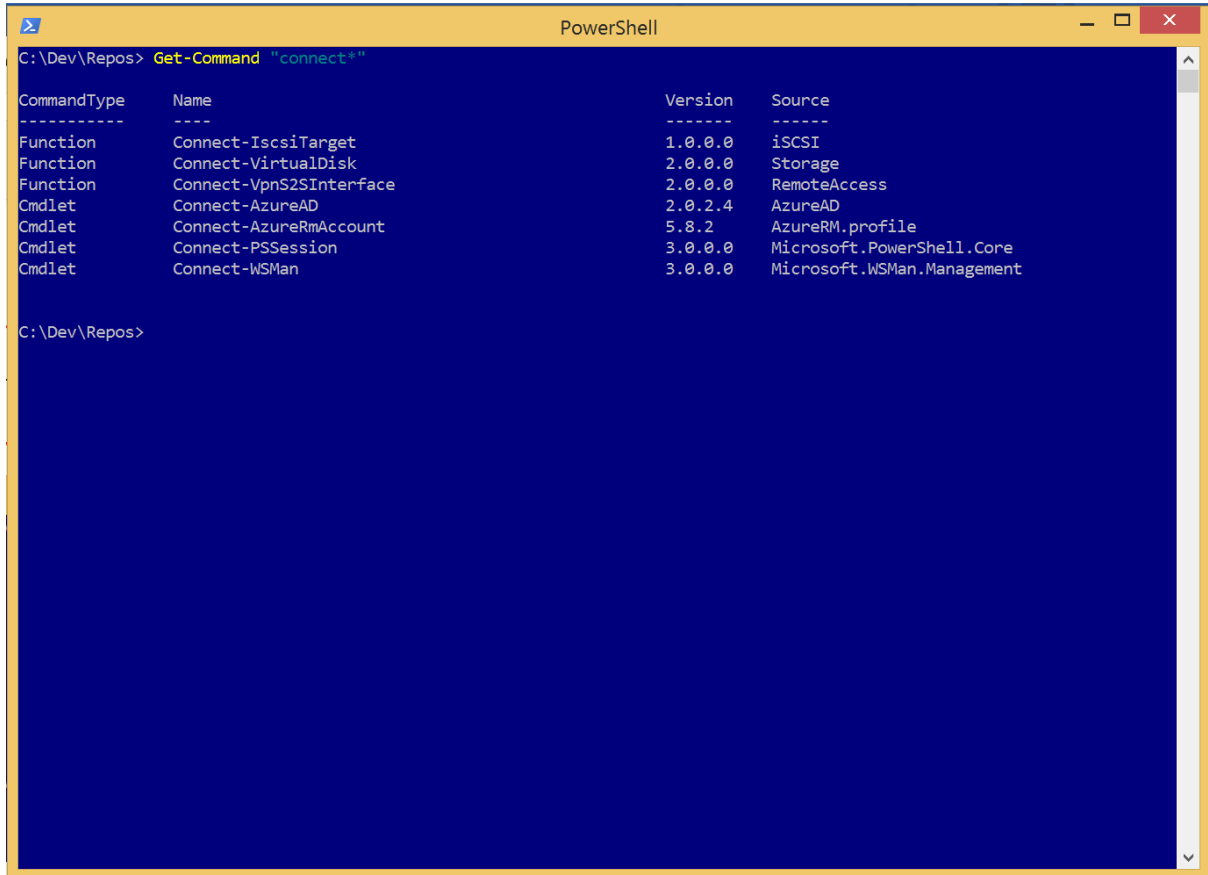


A screenshot of a PowerShell window titled "Administrator: PowerShell" showing the output of the `Get-Command` command. The window has a blue background with white text. The command `Get-Command` has been entered at the prompt. The output is a table with four columns: Cmdlet, Name, Version, and Module.

Cmdlet	Name	Version	Module
Get-AzureRmHDInsightScriptActionHistory	Get-AzureRmHDInsightScriptActionHistory	4.1.8	AzureRM.HDInsight
Get-AzureRmImage	Get-AzureRmImage	5.9.1	AzureRM.Compute
Get-AzureRmIntegrationAccount	Get-AzureRmIntegrationAccount	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountAgreement	Get-AzureRmIntegrationAccountAgreement	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountCallbackUrl	Get-AzureRmIntegrationAccountCallbackUrl	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountCertificate	Get-AzureRmIntegrationAccountCertificate	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountGeneratedIcon	Get-AzureRmIntegrationAccountGeneratedIcon	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountMap	Get-AzureRmIntegrationAccountMap	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountPartner	Get-AzureRmIntegrationAccountPartner	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountReceivedIcon	Get-AzureRmIntegrationAccountReceivedIcon	4.1.4	AzureRM.LogicApp
Get-AzureRmIntegrationAccountSchema	Get-AzureRmIntegrationAccountSchema	4.1.4	AzureRM.LogicApp
Get-AzureRmInterfaceEndpoint	Get-AzureRmInterfaceEndpoint	6.11.1	AzureRM.Network
Get-AzureRmIoTHub	Get-AzureRmIoTHub	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubCertificate	Get-AzureRmIoTHubCertificate	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubCertificateVerificationCode	Get-AzureRmIoTHubCertificateVerificationCode	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubConnectionString	Get-AzureRmIoTHubConnectionString	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubEventHubConsumerGroup	Get-AzureRmIoTHubEventHubConsumerGroup	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubJob	Get-AzureRmIoTHubJob	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubKey	Get-AzureRmIoTHubKey	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubQuotaMetric	Get-AzureRmIoTHubQuotaMetric	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubRegistryStatistic	Get-AzureRmIoTHubRegistryStatistic	3.1.8	AzureRM.IoTHub
Get-AzureRmIoTHubValidSku	Get-AzureRmIoTHubValidSku	3.1.8	AzureRM.IoTHub
Get-AzureRmKeyVault	Get-AzureRmKeyVault	5.2.1	AzureRM.KeyVault
Get-AzureRmLoadBalancer	Get-AzureRmLoadBalancer	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerBackendAddressPoolConfig	Get-AzureRmLoadBalancerBackendAddressPoolConfig	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerFrontendIPConfig	Get-AzureRmLoadBalancerFrontendIPConfig	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerInboundNatPoolConfig	Get-AzureRmLoadBalancerInboundNatPoolConfig	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerInboundNatRuleConfig	Get-AzureRmLoadBalancerInboundNatRuleConfig	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerOutboundRuleConfig	Get-AzureRmLoadBalancerOutboundRuleConfig	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerProbeConfig	Get-AzureRmLoadBalancerProbeConfig	6.11.1	AzureRM.Network
Get-AzureRmLoadBalancerRuleConfig	Get-AzureRmLoadBalancerRuleConfig	6.11.1	AzureRM.Network
Get-AzureRmLocalNetworkGateway	Get-AzureRmLocalNetworkGateway	6.11.1	AzureRM.Network
Get-AzureRmLocation	Get-AzureRmLocation	6.7.3	AzureRM.Resources
Get-AzureRmLog	Get-AzureRmLog	5.1.5	AzureRM.Insights

To generate a list of cmdlets, functions installed in your machine that starts with “connect”.

Get-Command "connect"*



```
C:\Dev\Repos> Get-Command "connect*"

CommandType      Name                                Version      Source
-----
Function         Connect-IscsiTarget                1.0.0.0      iSCSI
Function         Connect-VirtualDisk                2.0.0.0      Storage
Function         Connect-VpnS2SInterface            2.0.0.0      RemoteAccess
Cmdlet           Connect-AzureAD                    2.0.2.4      AzureAD
Cmdlet           Connect-AzureRmAccount             5.8.2        AzureRM.profile
Cmdlet           Connect-PSSession                  3.0.0.0      Microsoft.PowerShell.Core
Cmdlet           Connect-WSMan                      3.0.0.0      Microsoft.WSMan.Management

C:\Dev\Repos>
```

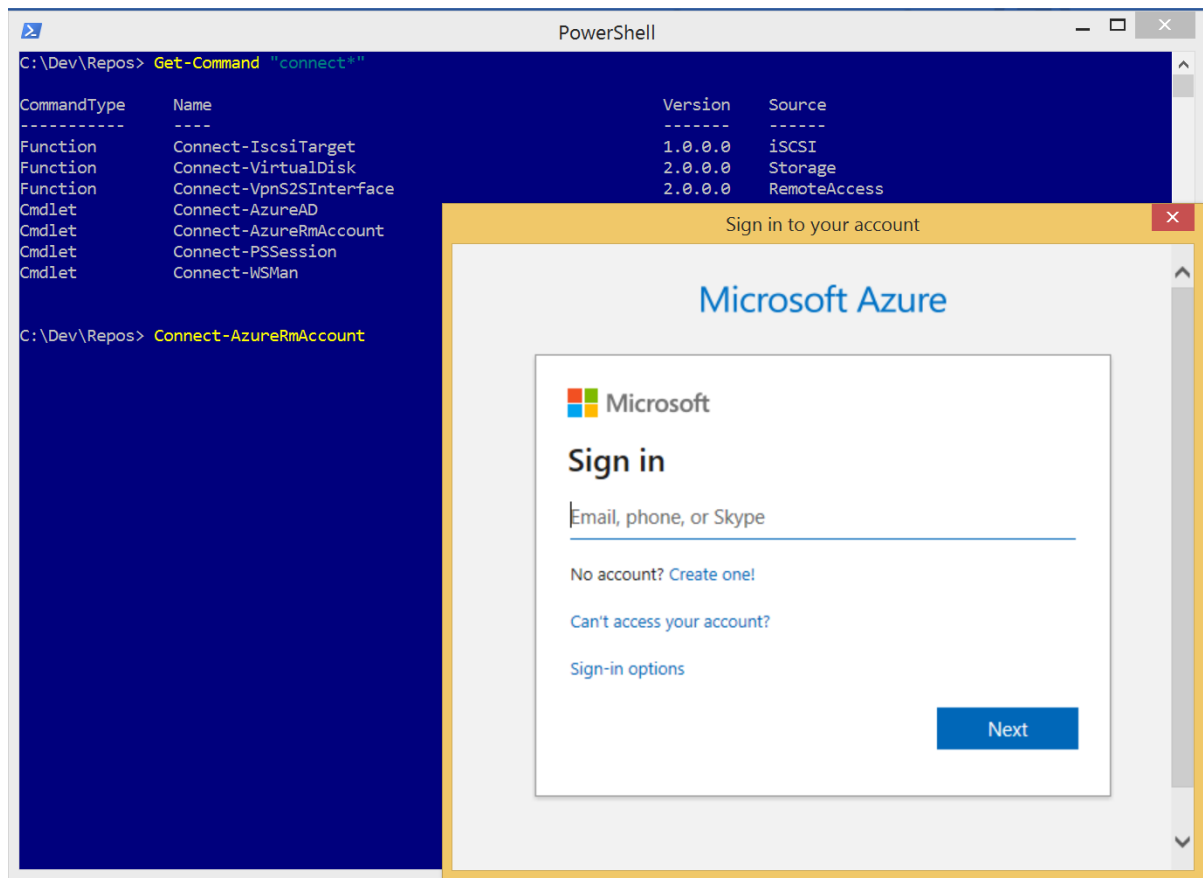
Notice that we have a command called “Connect-AzureRmAccount”

Cmdlet *Connect-AzureRmAccount* *5.8.2* *AzureRM.profile*

This is the command we use to connect to Azure Account.

Run bellow command on PowerShell to sign in to Azure account.

Connect-AzureRmAccount

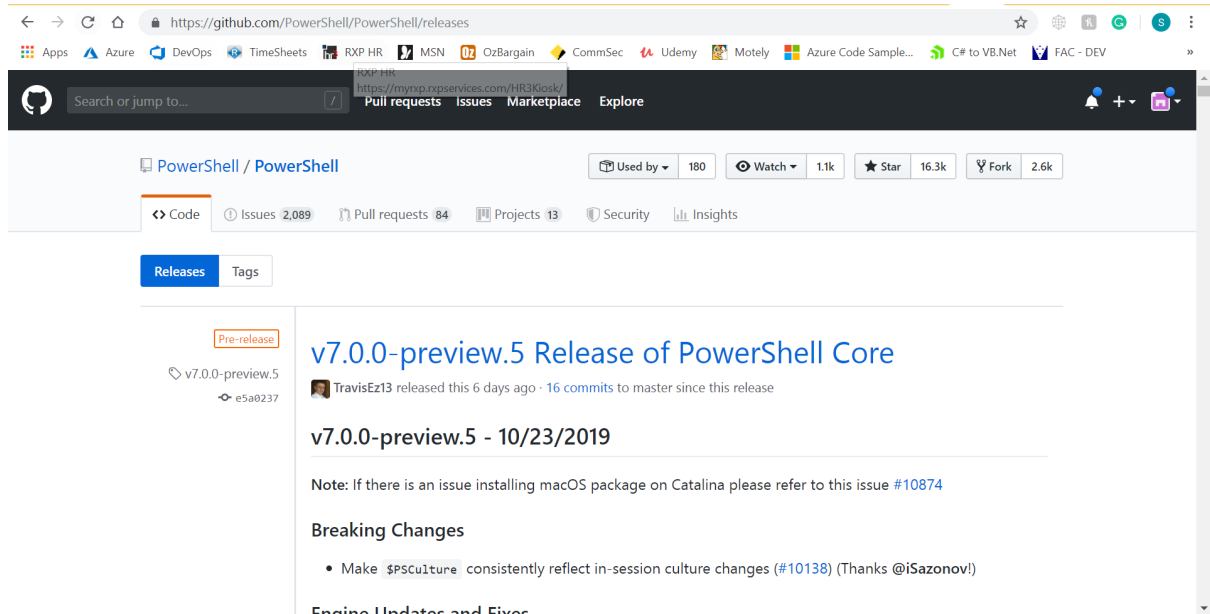


Step 02: Install/Upgrade PowerShell on Local Machine

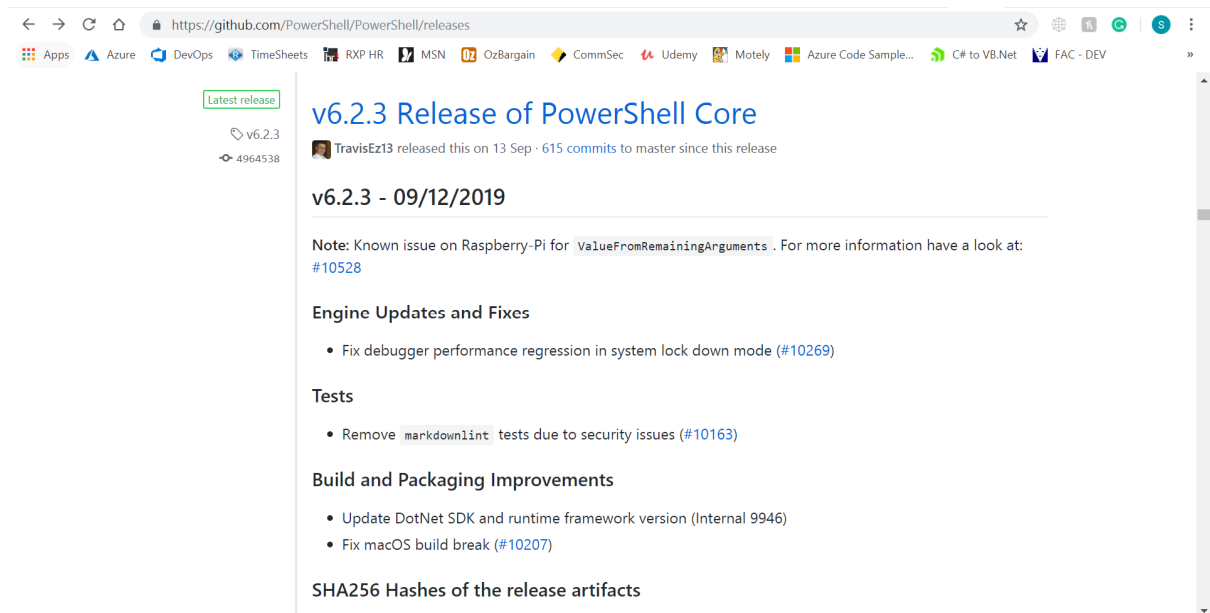
Let's say, we want to install/upgrade the PowerShell version to 6.2

Go to below URL to download PowerShell:

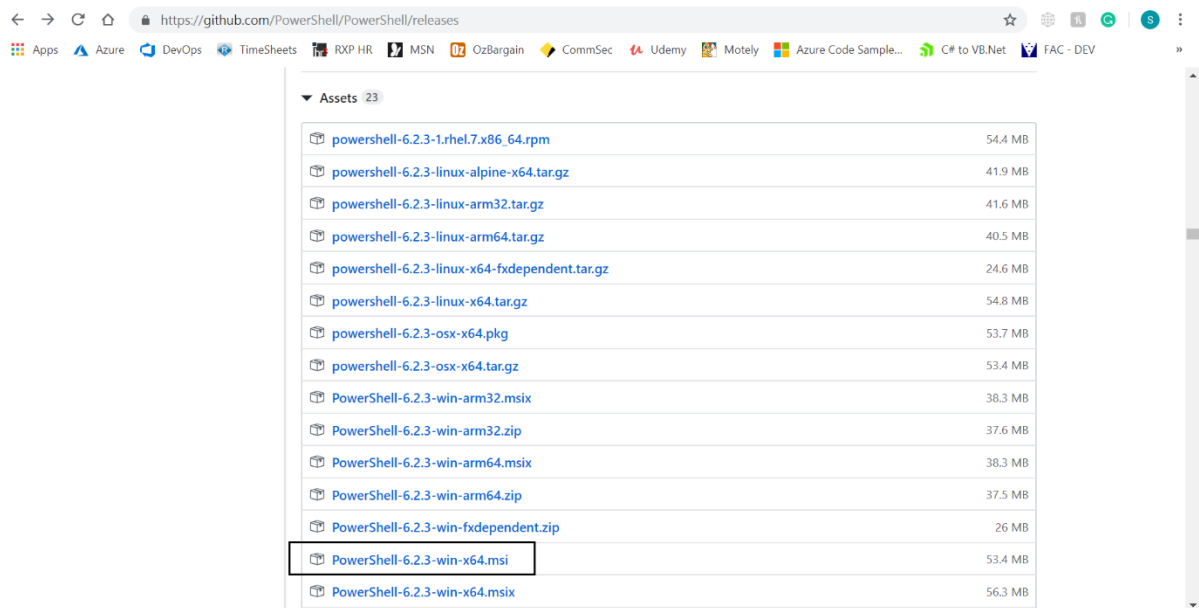
<https://github.com/PowerShell/PowerShell/releases>



Locate PowerShell version 6.2

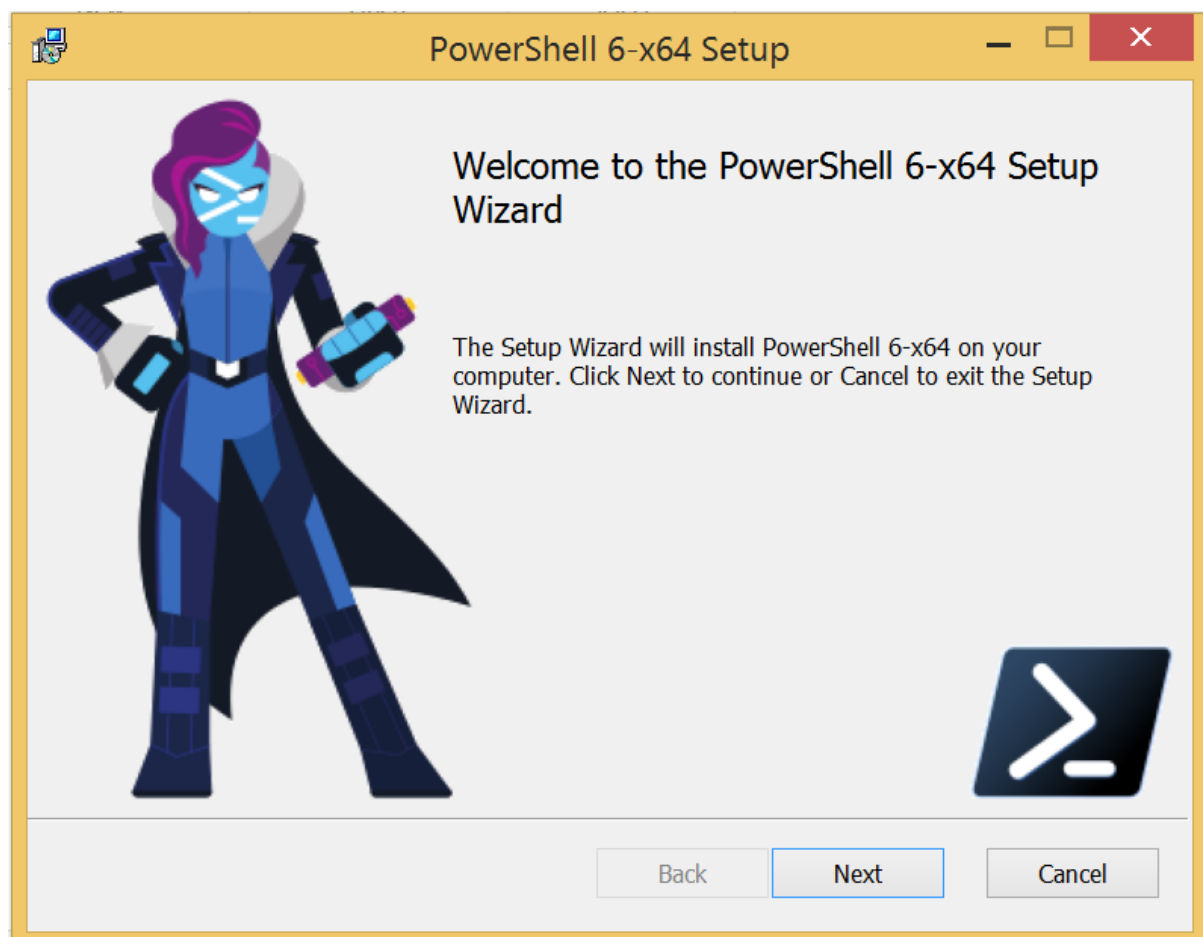


Since we have a 64-bit version download relevant .msi installation.

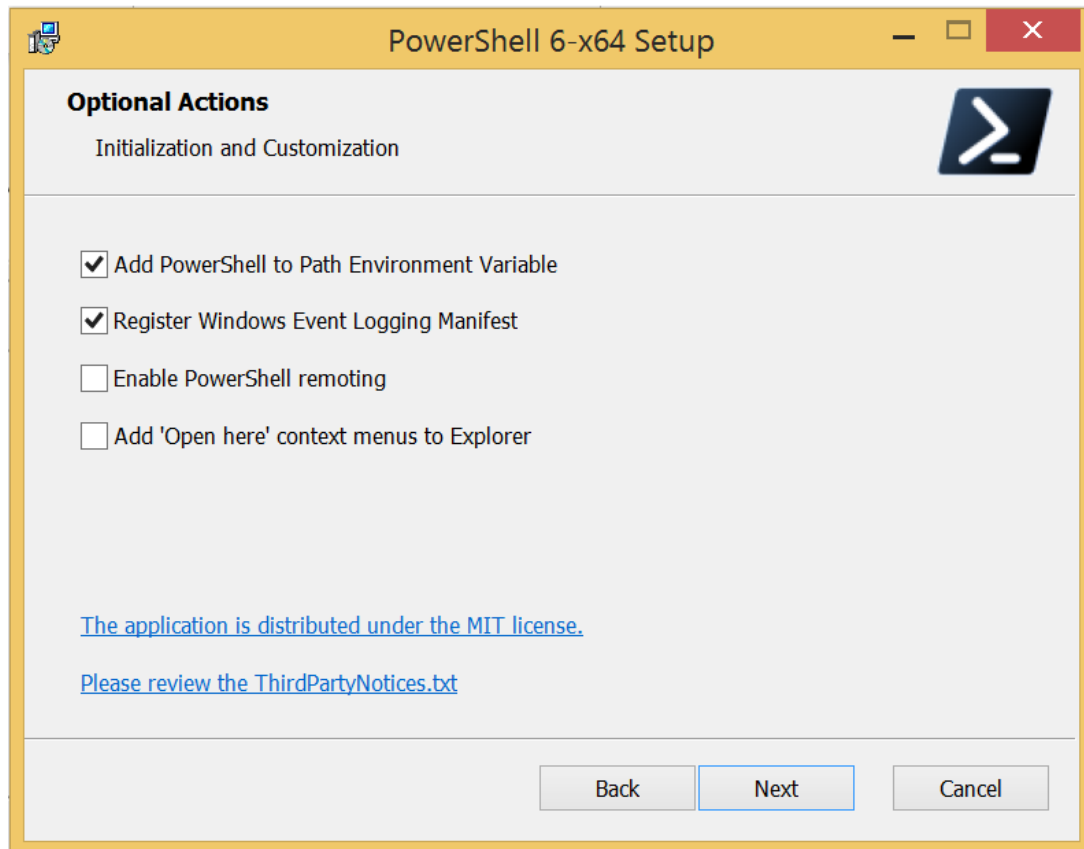
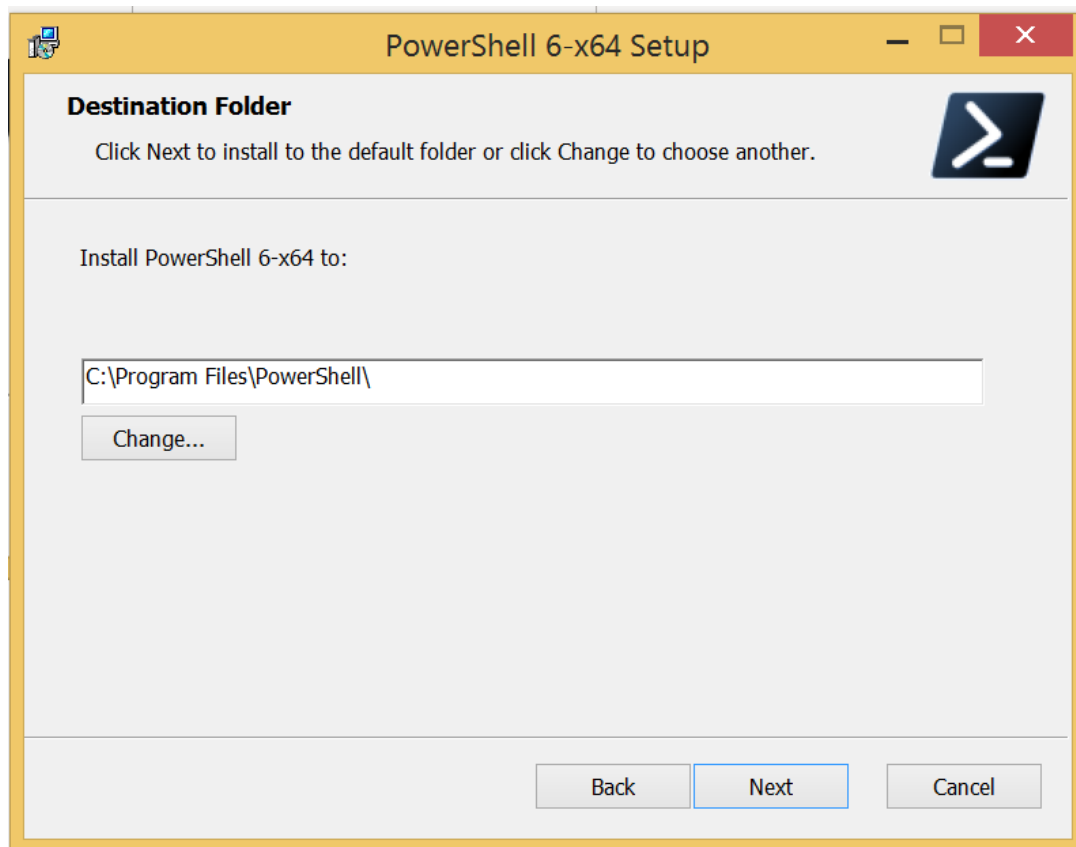


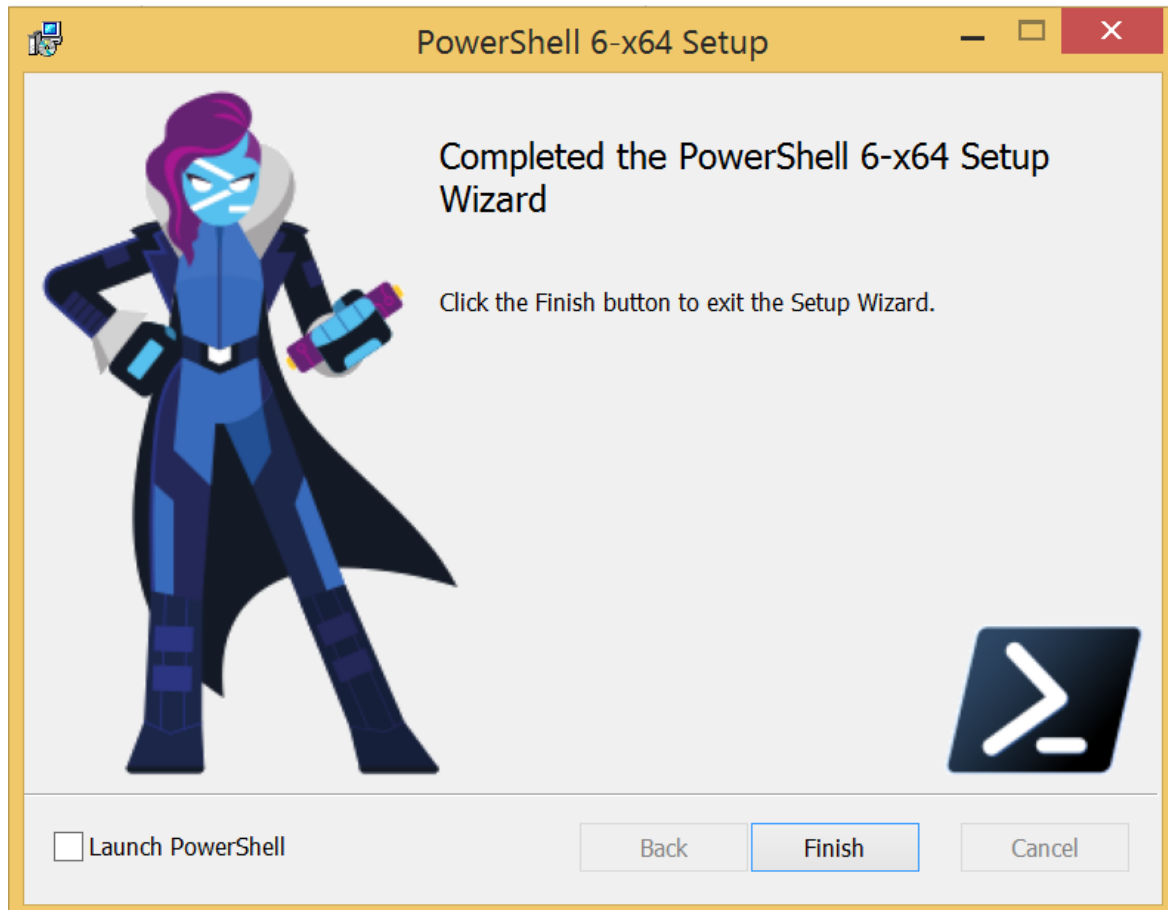
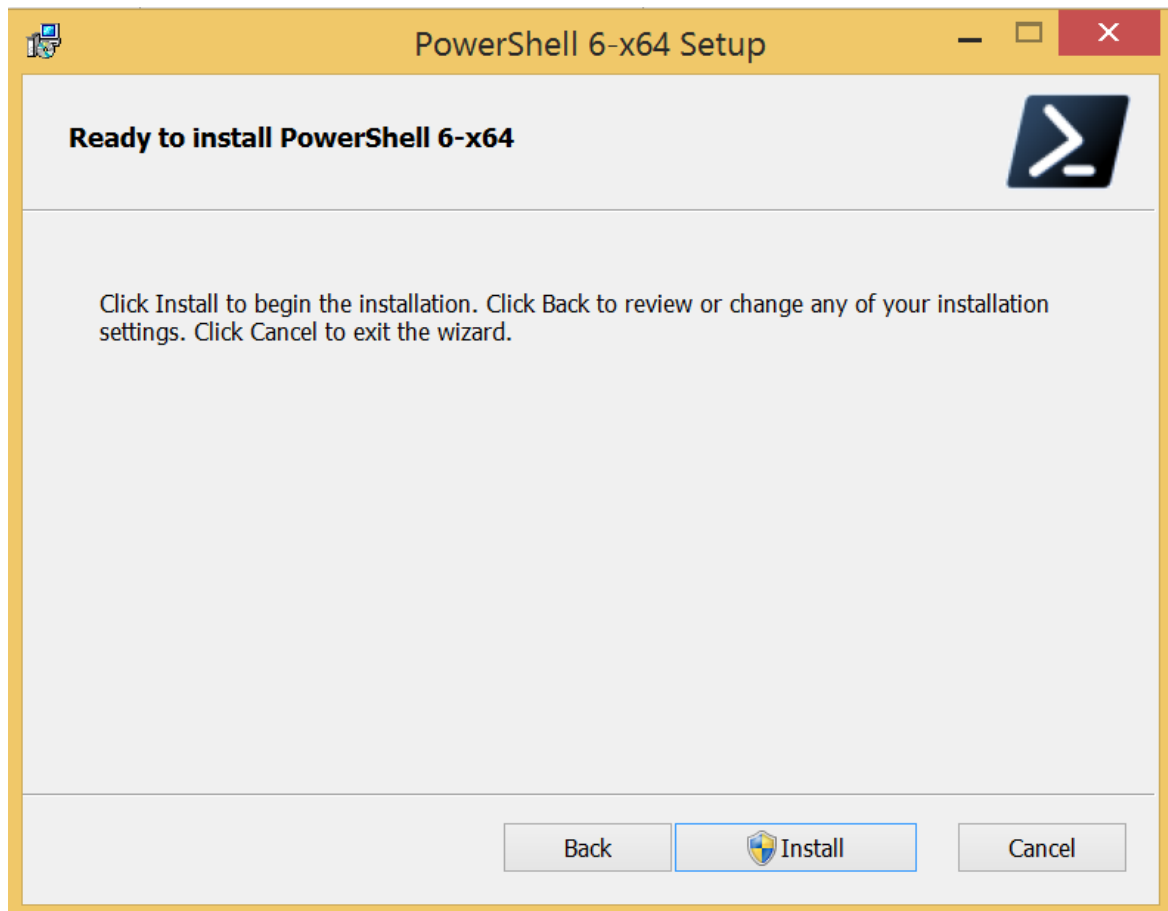
Asset	Size
powershell-6.2.3-1.rhel.7.x86_64.rpm	54.4 MB
powershell-6.2.3-linux-alpine-x64.tar.gz	41.9 MB
powershell-6.2.3-linux-arm32.tar.gz	41.6 MB
powershell-6.2.3-linux-arm64.tar.gz	40.5 MB
powershell-6.2.3-linux-x64-fxdependent.tar.gz	24.6 MB
powershell-6.2.3-linux-x64.tar.gz	54.8 MB
powershell-6.2.3-osx-x64.pkg	53.7 MB
powershell-6.2.3-osx-x64.tar.gz	53.4 MB
PowerShell-6.2.3-win-arm32.msix	38.3 MB
PowerShell-6.2.3-win-arm32.zip	37.6 MB
PowerShell-6.2.3-win-arm64.msix	38.3 MB
PowerShell-6.2.3-win-arm64.zip	37.5 MB
PowerShell-6.2.3-win-fxdependent.zip	26 MB
PowerShell-6.2.3-win-x64.msi	53.4 MB
PowerShell-6.2.3-win-x64.msix	56.3 MB

Once download completes Install it.



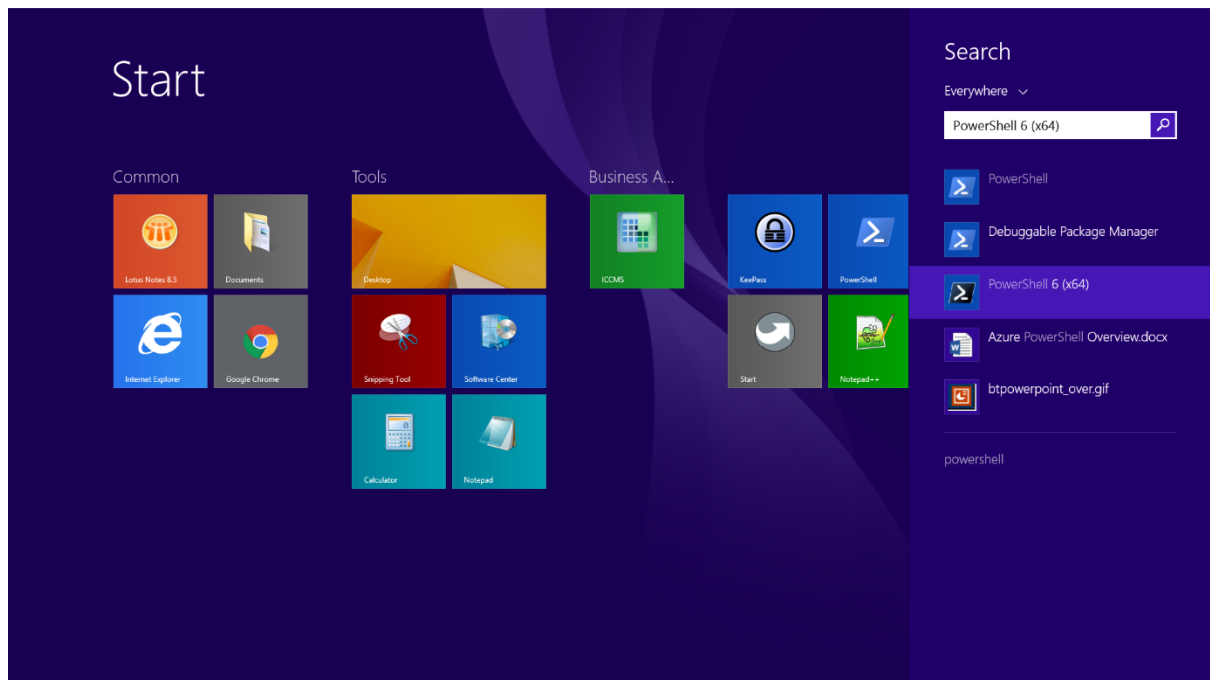
Set the installation location.



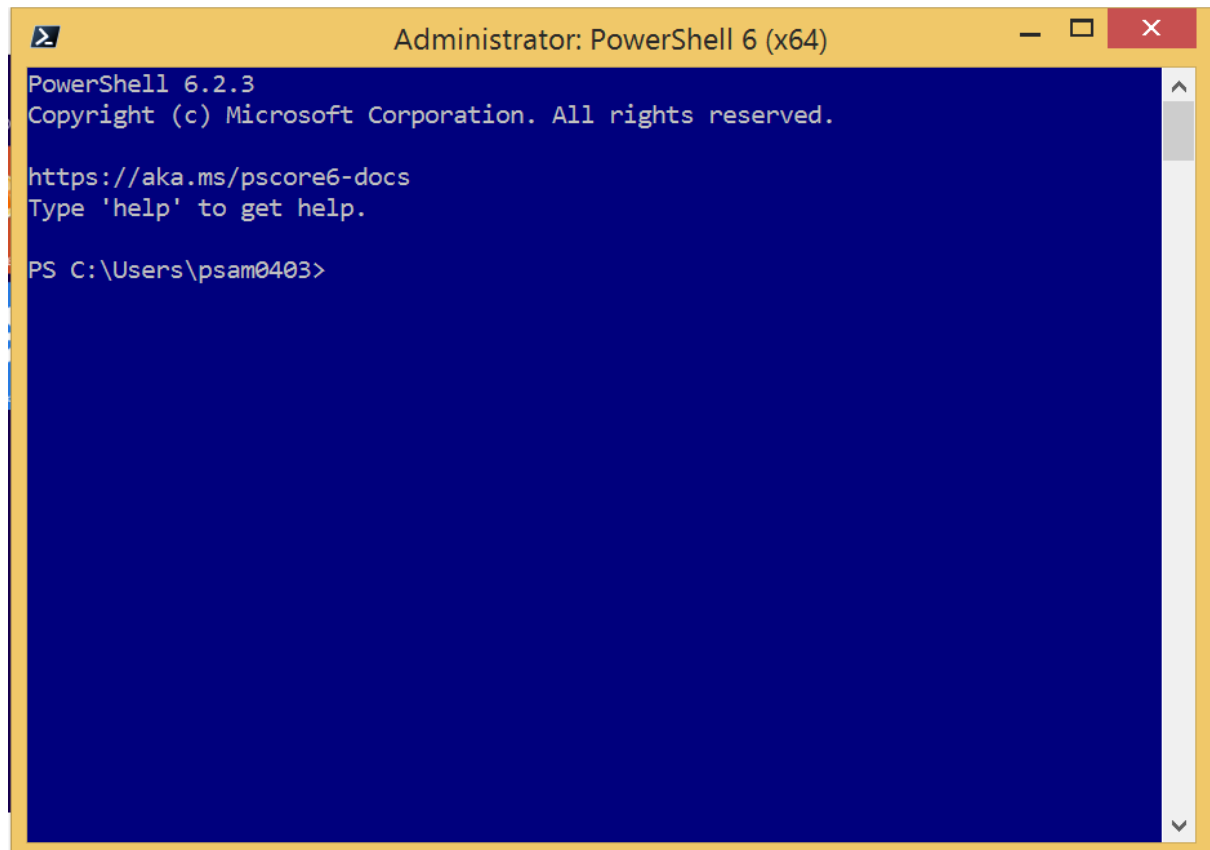


Once the installation completes open PowerShell in Administrator mode.

Now we can see 2 PowerShell versions.

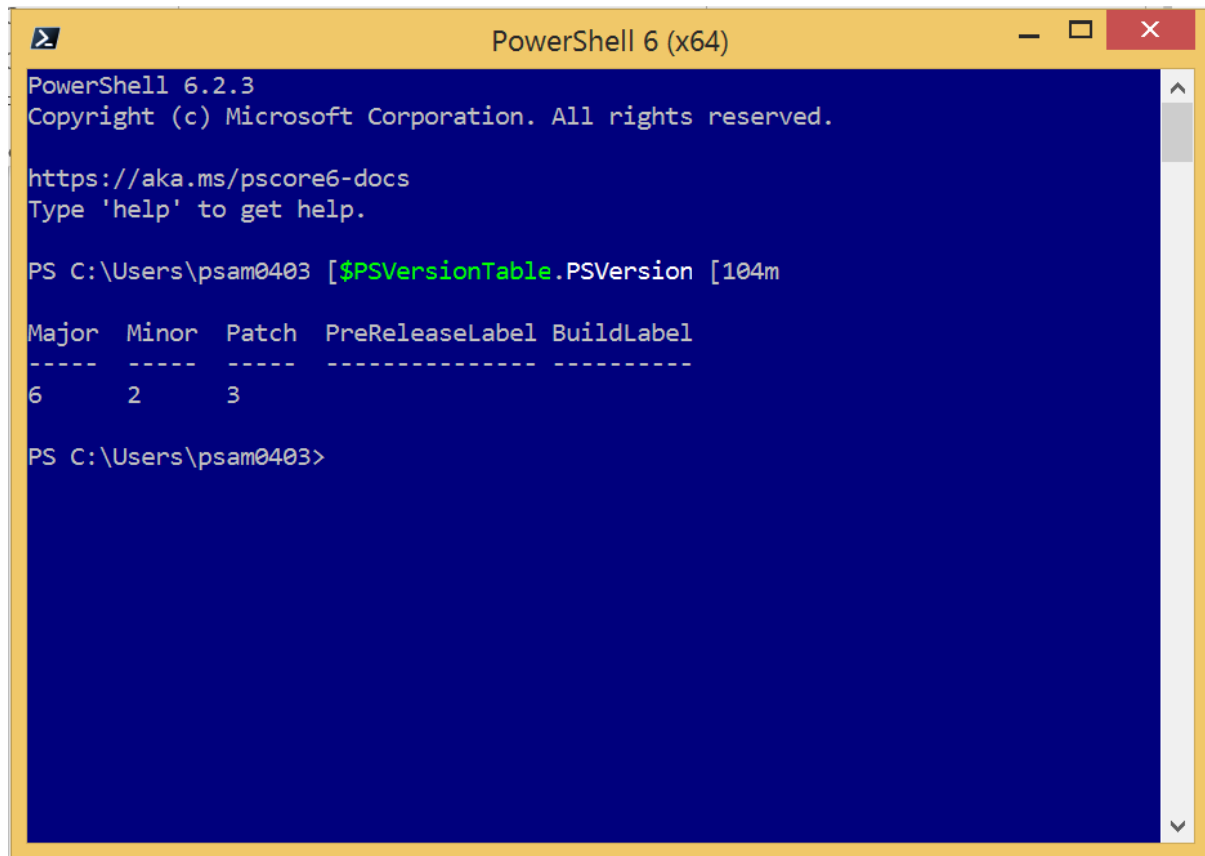


Select "PowerShell 6 (x64)" right click and "Run As Administrator".



Run bellow command to check the version.

\$PSVersionTable.PSVersion



```
PowerShell 6 (x64)
PowerShell 6.2.3
Copyright (c) Microsoft Corporation. All rights reserved.
https://aka.ms/pscore6-docs
Type 'help' to get help.

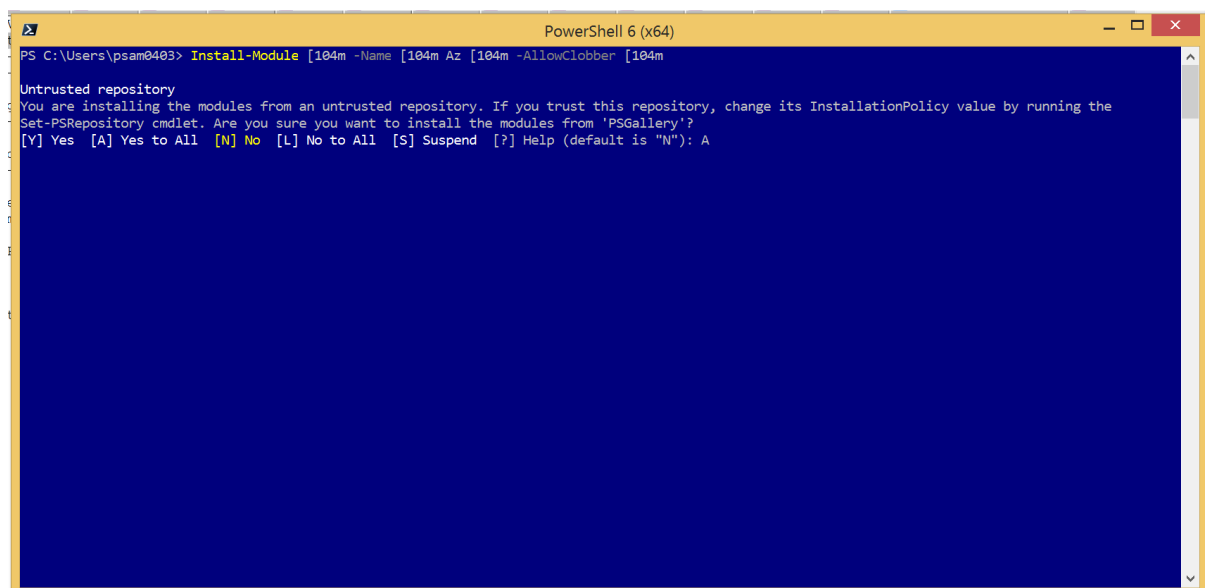
PS C:\Users\psam0403 [ $PSVersionTable.PSVersion [104m

Major  Minor  Patch  PreReleaseLabel BuildLabel
-----
6      2      3
PS C:\Users\psam0403>
```

Run bellow command to Install Modules.

Install-Module -Name Az -AllowClobber

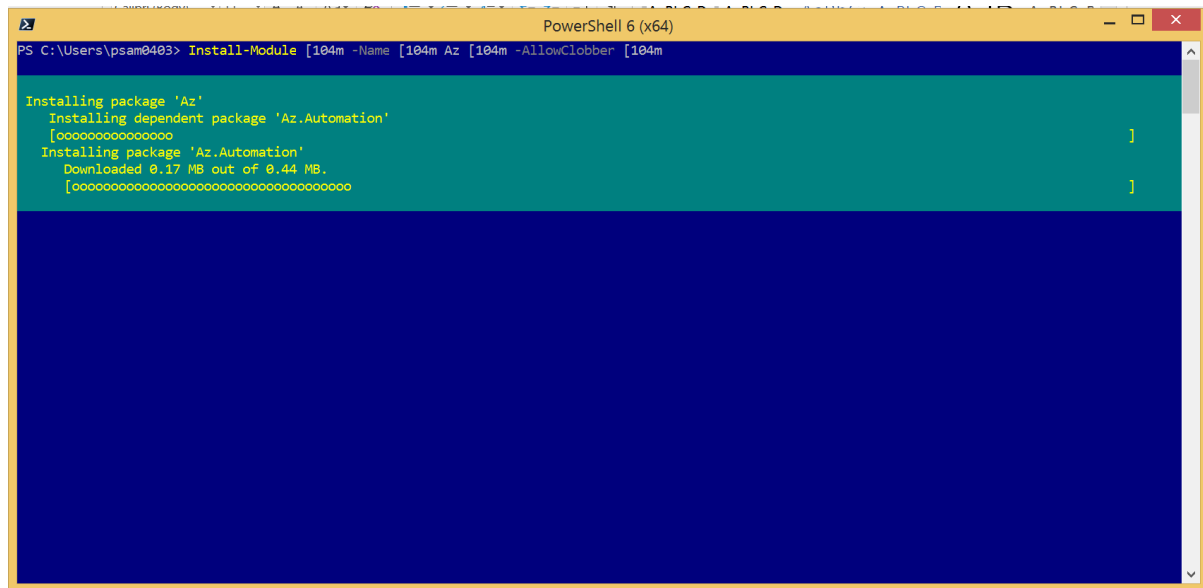
Select option [A] Yes to All



```
PowerShell 6 (x64)
PS C:\Users\psam0403> Install-Module [104m -Name [104m Az [104m -AllowClobber [104m

Untrusted repository
You are installing the modules from an untrusted repository. If you trust this repository, change its InstallationPolicy value by running the
Set-PSRepository cmdlet. Are you sure you want to install the modules from 'PSGallery'?
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "N"): A
```


It will take bit of time to download all the modules.

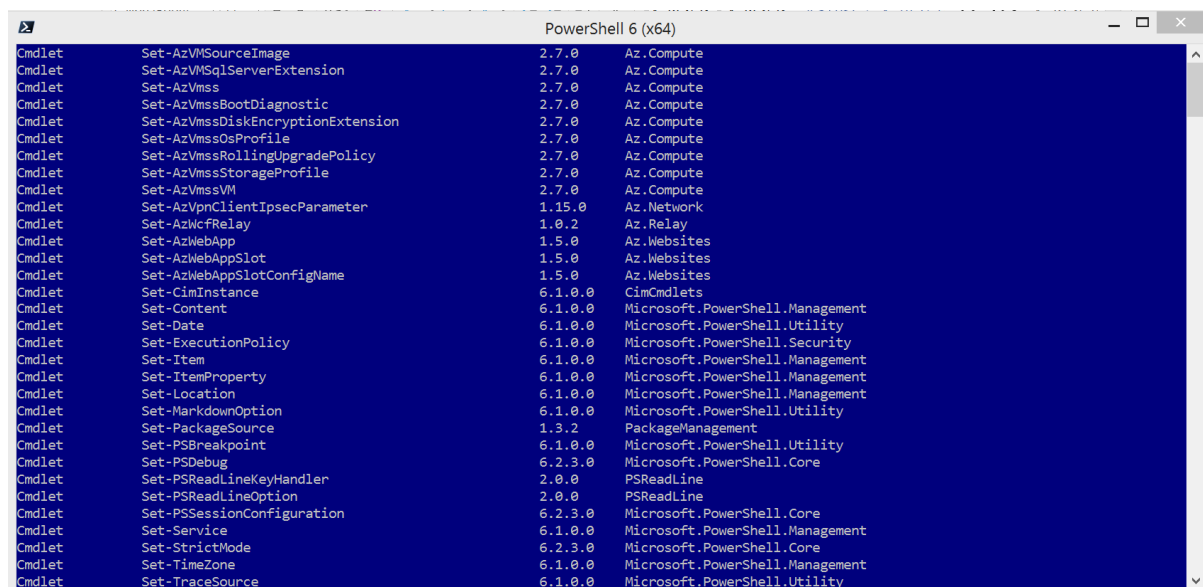


```
PS C:\Users\psame0403> Install-Module [104m -Name [104m Az [104m -AllowClobber [104m

Installing package 'Az'
Installing dependent package 'Az.Automation'
[ooooooooooooooooooooo]
Installing package 'Az.Automation'
Downloaded 0.17 MB out of 0.44 MB.
[ooooooooooooooooooooo]
```

Run bellow command again to generate a list of cmdlets, functions installed in your machine.

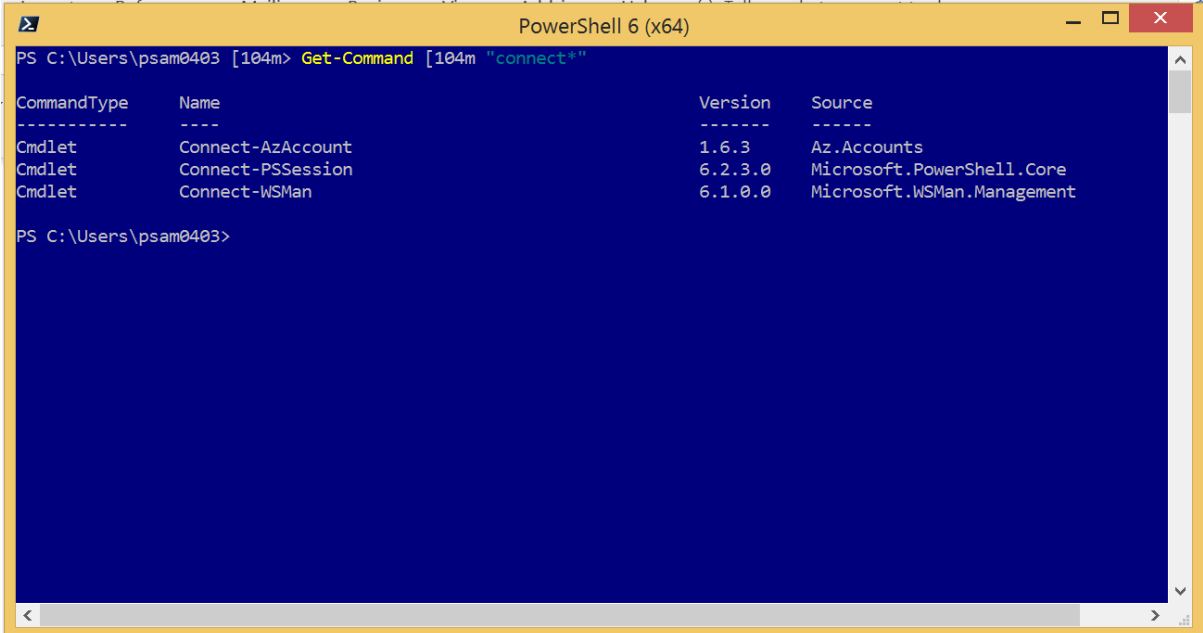
Get-Command



```
Cmdlet      Set-AzVMSourceImage      2.7.0      Az.Compute
Cmdlet      Set-AzVMSqlServerExtension 2.7.0      Az.Compute
Cmdlet      Set-AzVmss                2.7.0      Az.Compute
Cmdlet      Set-AzVmssBootDiagnostic  2.7.0      Az.Compute
Cmdlet      Set-AzVmssDiskEncryptionExtension 2.7.0      Az.Compute
Cmdlet      Set-AzVmssOsProfile       2.7.0      Az.Compute
Cmdlet      Set-AzVmssRollingUpgradePolicy 2.7.0      Az.Compute
Cmdlet      Set-AzVmssStorageProfile  2.7.0      Az.Compute
Cmdlet      Set-AzVmssVM              2.7.0      Az.Compute
Cmdlet      Set-AzVpnClientIpsecParameter 1.15.0     Az.Network
Cmdlet      Set-AzWcfRelay            1.0.2      Az.Relay
Cmdlet      Set-AzWebApp              1.5.0      Az.Websites
Cmdlet      Set-AzWebAppSlot          1.5.0      Az.Websites
Cmdlet      Set-AzWebAppSlotConfigName 1.5.0      Az.Websites
Cmdlet      Set-CimInstance           6.1.0.0    CimCmdlets
Cmdlet      Set-Content               6.1.0.0    Microsoft.PowerShell.Management
Cmdlet      Set-Date                  6.1.0.0    Microsoft.PowerShell.Utility
Cmdlet      Set-ExecutionPolicy       6.1.0.0    Microsoft.PowerShell.Security
Cmdlet      Set-Item                  6.1.0.0    Microsoft.PowerShell.Management
Cmdlet      Set-ItemProperty          6.1.0.0    Microsoft.PowerShell.Management
Cmdlet      Set-Location              6.1.0.0    Microsoft.PowerShell.Management
Cmdlet      Set-MarkdownOption        6.1.0.0    Microsoft.PowerShell.Utility
Cmdlet      Set-PackageSource         1.3.2      PackageManagement
Cmdlet      Set-PSBreakpoint          6.1.0.0    Microsoft.PowerShell.Utility
Cmdlet      Set-PSDebug               6.2.3.0    Microsoft.PowerShell.Core
Cmdlet      Set-PSReadLineKeyHandler  2.0.0      PSReadLine
Cmdlet      Set-PSReadLineOption      2.0.0      PSReadLine
Cmdlet      Set-PSSessionConfiguration 6.2.3.0    Microsoft.PowerShell.Core
Cmdlet      Set-Service               6.1.0.0    Microsoft.PowerShell.Management
Cmdlet      Set-StrictMode            6.2.3.0    Microsoft.PowerShell.Core
Cmdlet      Set-TimeZone              6.1.0.0    Microsoft.PowerShell.Management
Cmdlet      Set-TraceSource           6.1.0.0    Microsoft.PowerShell.Utility
```

Run bellow command again to generate a list of cmdlets, functions installed in your machine that starts with “connect”.

Get-Command "connect"*



```
PS C:\Users\psam0403 [104m> Get-Command [104m "connect*"

CommandType      Name                                Version      Source
-----
Cmdlet            Connect-AzAccount                  1.6.3        Az.Accounts
Cmdlet            Connect-PSSession                  6.2.3.0      Microsoft.PowerShell.Core
Cmdlet            Connect-WSMan                      6.1.0.0      Microsoft.WSMan.Management

PS C:\Users\psam0403>
```

Notice that we have a different list compared to the list we got earlier. That is because we installed PowerShell 6.2

Step 03: PowerShell Scripts

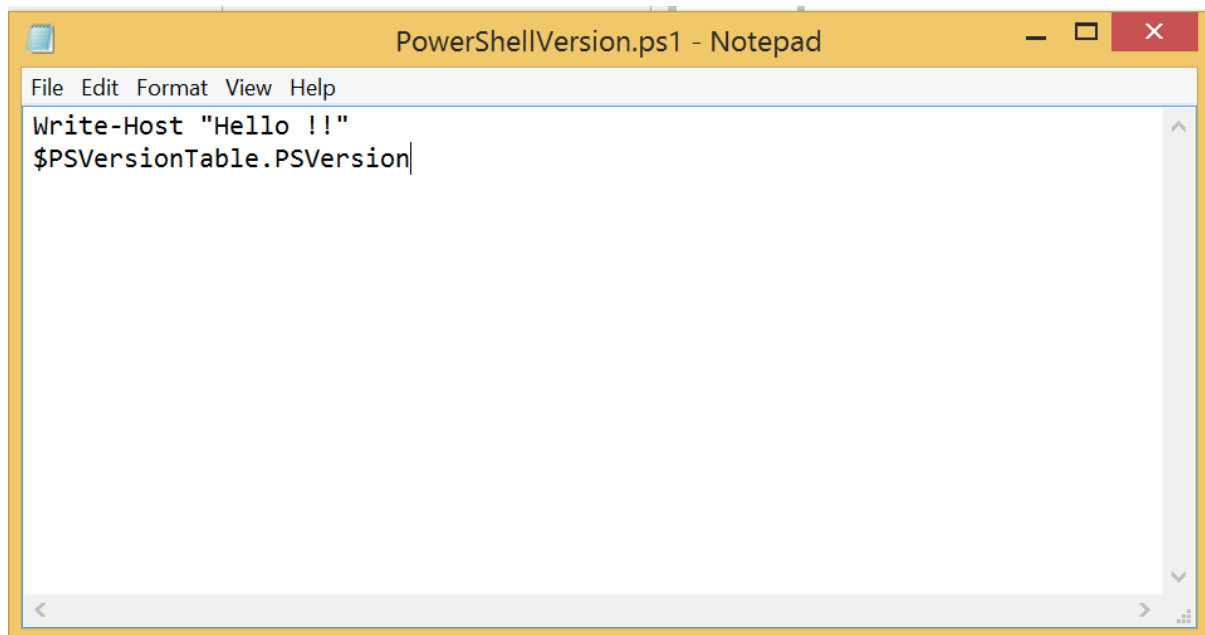
PowerShell scripts are store in .ps1 file. By default, you can't run a script by just double-clicking a file. This protects your system from accidental harm.

We are going to create a PowerShell Script file.

Create a .ps1 file with name "PowerShellVersion.ps1" on C:\PoweShell and copy bellow script to the file.

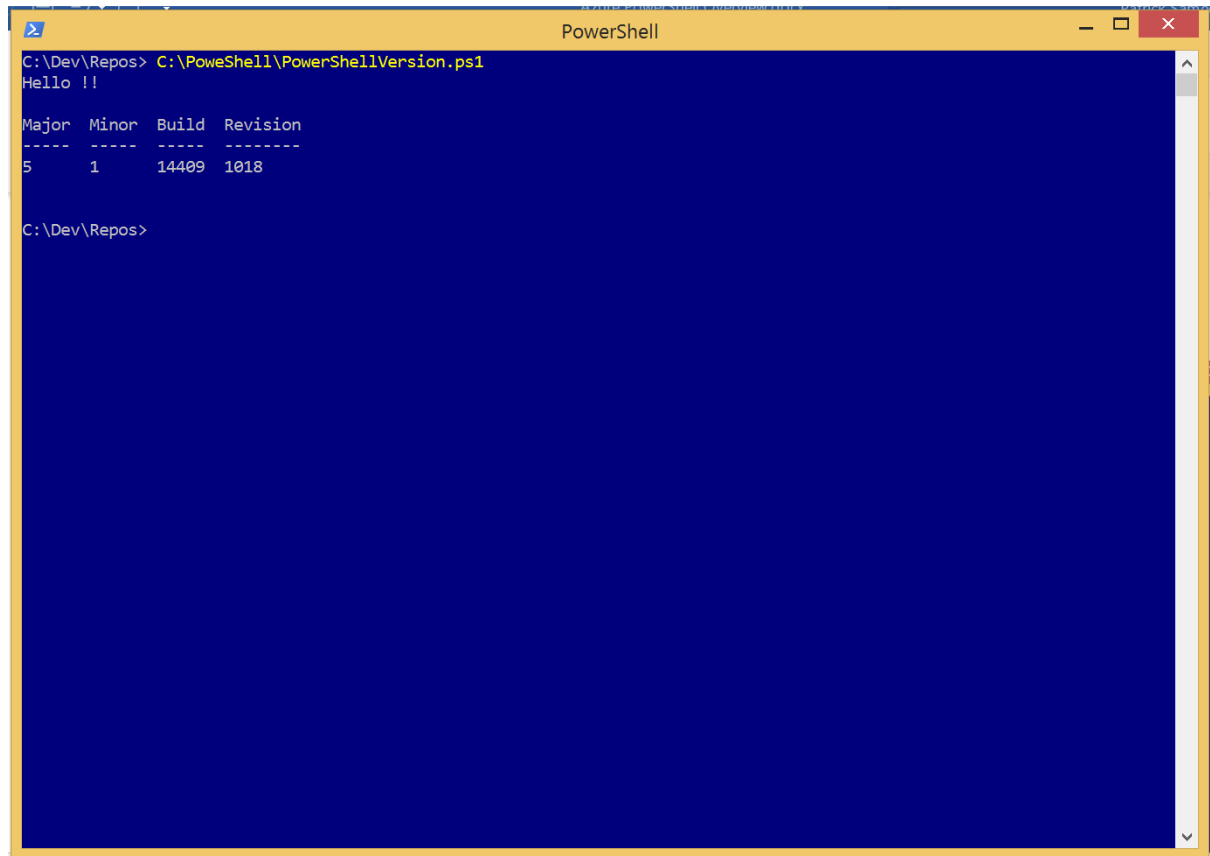
Write-Host "Hello !!"

\$PSVersionTable.PSVersion



Run bellow command on PowerShell.

C:\PoweShell\PowerShellVersion.ps1

A screenshot of a PowerShell console window. The window has a yellow title bar with the text "PowerShell" and standard Windows window controls. The command prompt shows the current directory as "C:\Dev\Repos". The user has entered the command "C:\PoweShell\PowerShellVersion.ps1". The script has executed, displaying "Hello !!". Below this, it shows a table of PowerShell version information with columns: Major, Minor, Build, and Revision. The values are 5, 1, 14409, and 1018 respectively. The prompt is now "C:\Dev\Repos>".

```
C:\Dev\Repos> C:\PoweShell\PowerShellVersion.ps1
Hello !!

Major  Minor  Build  Revision
-----
5      1      14409  1018

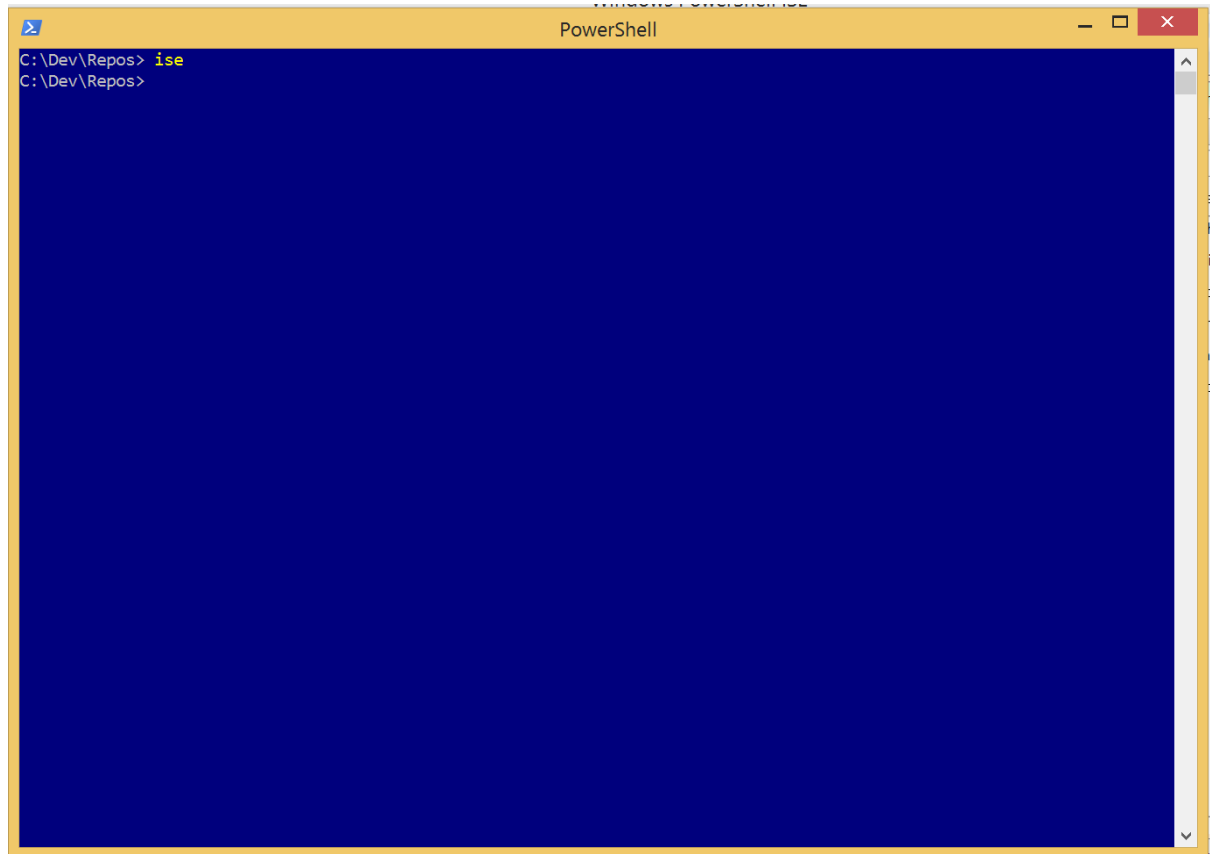
C:\Dev\Repos>
```

Step 04: PowerShell ISE

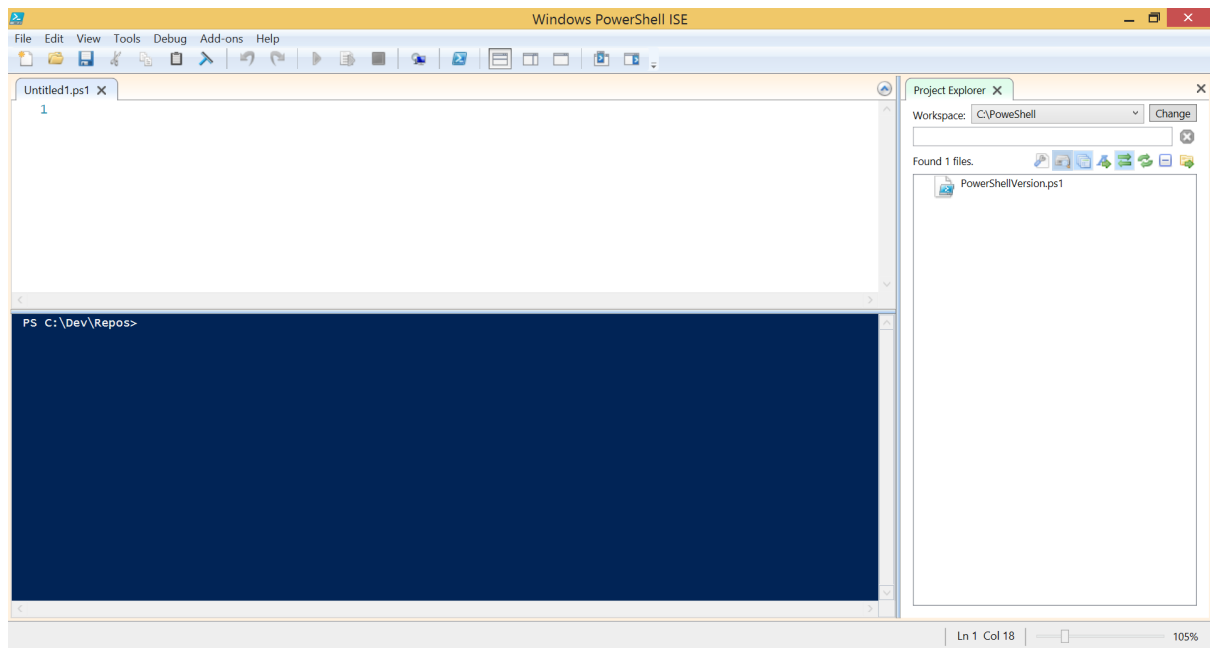
The Windows PowerShell Integrated Scripting Environment (ISE) is the default editor for Windows PowerShell. In this ISE, you can run commands, write test, and debug scripts in an in a window base GUI environment.

Run bellow command to open PowerShell ISE.

ise

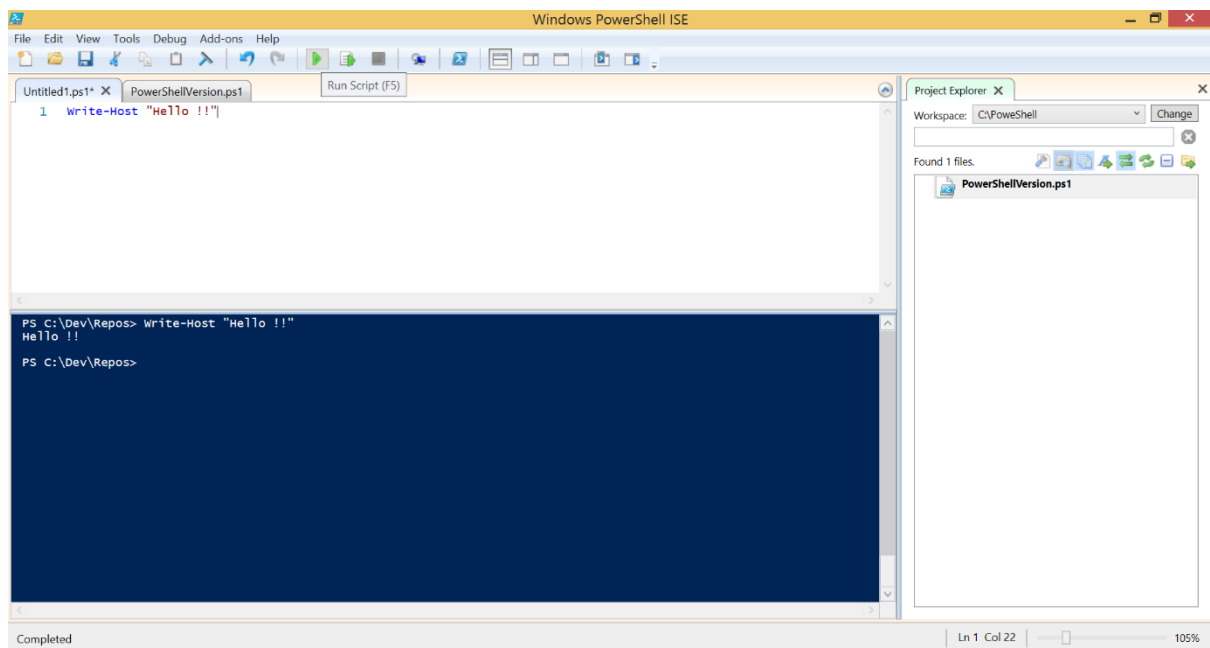


It will open Windows PowerShell ISE.



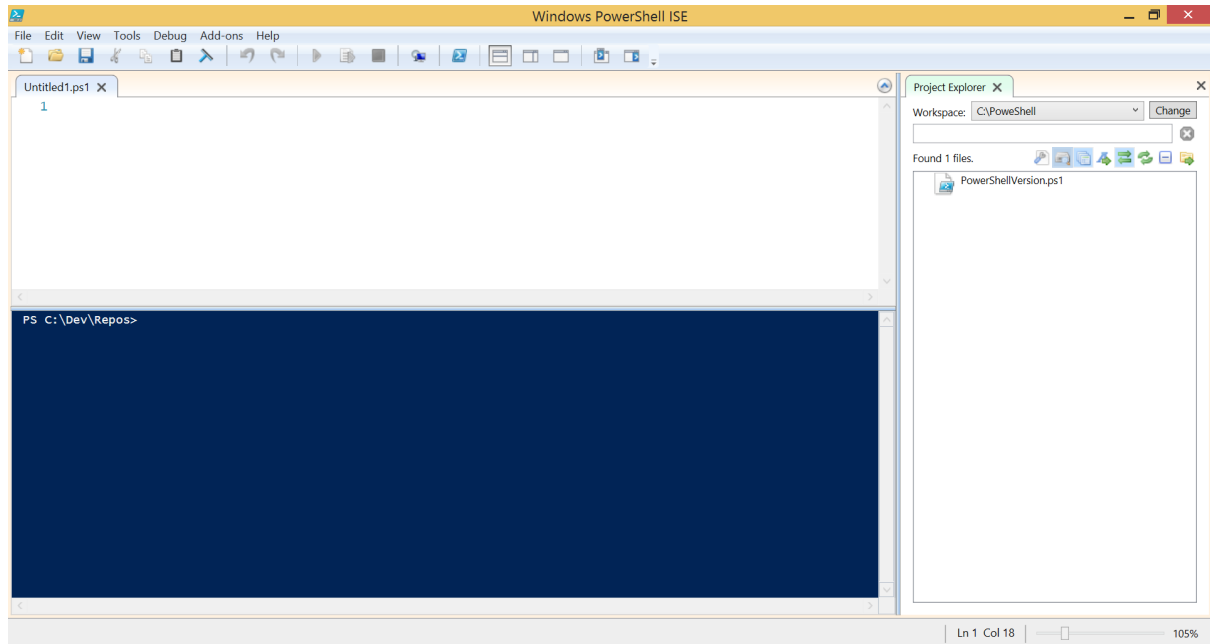
Add bellow command on the new blank window and Click Run Script (F5) button.

Write-Host "Hello !!"

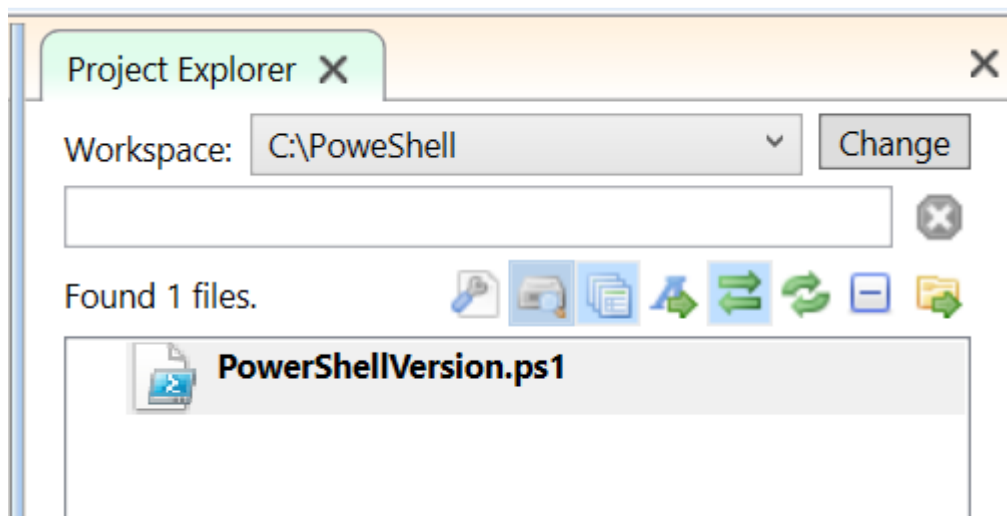


Through Project Explorer we can set a folder location. Then it will list all the .ps1 files under the selected folder.

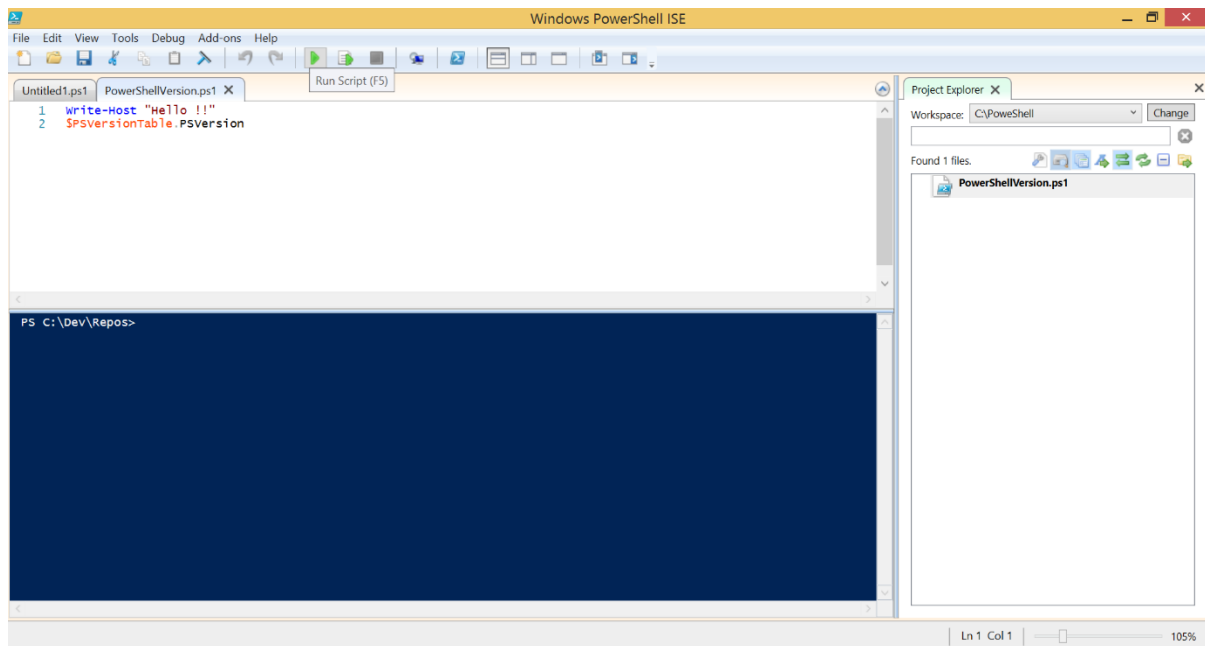
We'll set the *C:\PowerShell* as the Workspace. It will list the PowerShellVersion.ps1 file under that folder location.



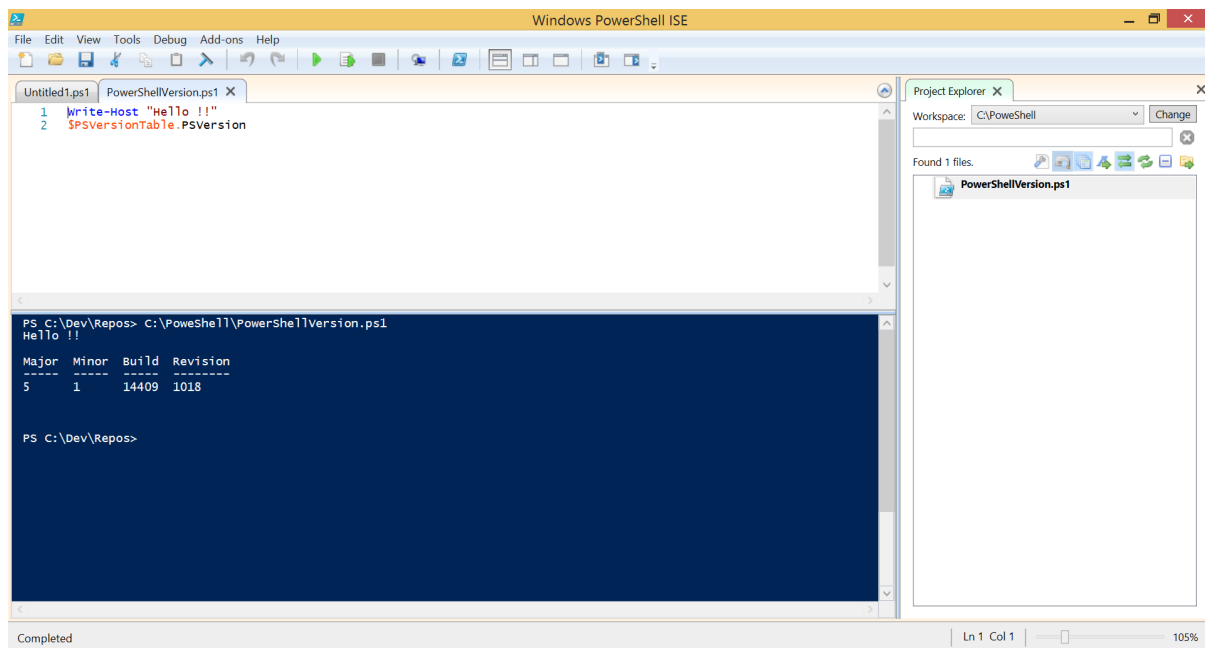
Double click on PowerShellVersion.ps1



It will open the PowerShellVersion.ps1 on a different tab.



Click Run Script (F5) button.



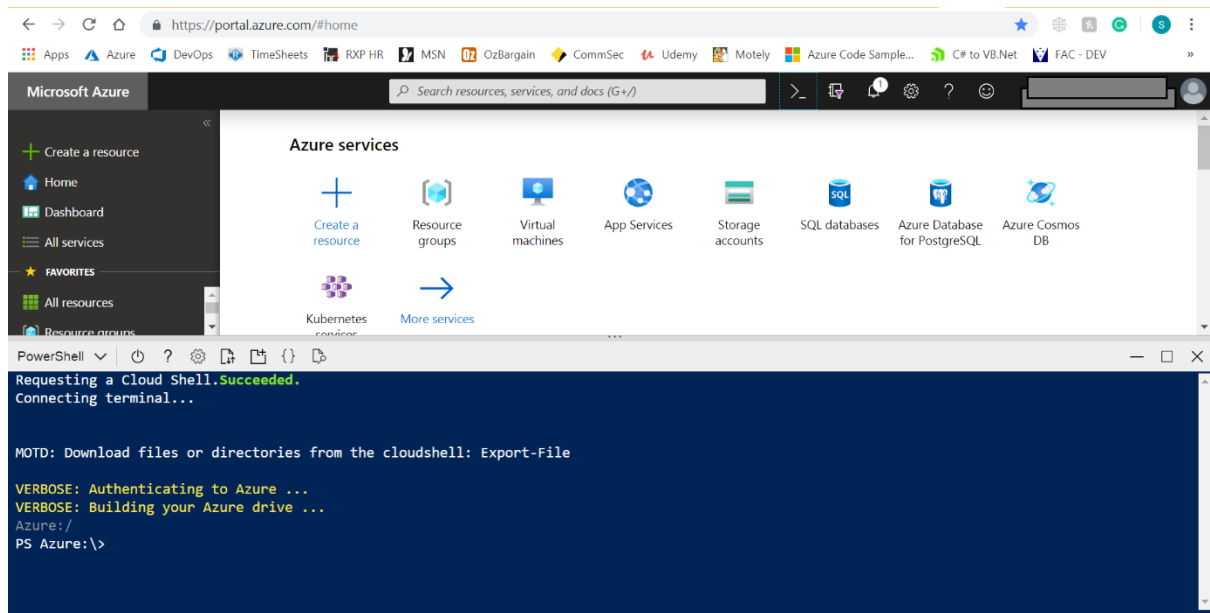
Step 05: Cloud Shell

Azure Cloud Shell is an interactive, authenticated, browser-accessible shell for managing Azure resources.

You can launch Cloud Shell by Clicking ">_" icon on Azure Portal.



It will open below window.



Run bellow command to check the version.

\$PSVersionTable.PSVersion

```
PowerShell
MOTD: Download files or directories from the cloudshell: Export-File

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
Azure:/
PS Azure:\> $PSVersionTable.PSVersion

Major Minor Patch PreReleaseLabel BuildLabel
-----
6      2      3
Azure:/
PS Azure:\>
```

Run bellow command to check the status of the VM's

Get-AzVM -Status

```
PowerShell | ? | ⚙️ | 📄 | { } | 📌
MOTD: To Connect and Manage Exchange Online: Connect-EXOPSSession

VERBOSE: Authenticating to Azure ...
VERBOSE: Building your Azure drive ...
Azure:/
PS Azure:\> Get-AzVM -Status

ResourceGroupName      Name      Location  VmSize  OsType          NIC Provisioning Zone  PowerState MaintenanceAllowed
-----
MINE                   dev-vs2017 southeastasia Standard_E4s_v3 Windows dev-vs2017829      Succeeded    deallocated

Azure:/
PS Azure:\> 
```