

Install the PnP PowerShell Module for SharePoint Online

[September 21, 2024](#) [Salaudeen Rajack](#)

The PnP PowerShell module has become an indispensable tool for many SharePoint administrators and developers. This open-source module, created by Microsoft's Patterns and Practices (PnP) initiative, provides a robust set of commands for managing SharePoint Online and SharePoint Server through PowerShell.

In this post, I will provide an overview of the PnP PowerShell module, discuss how to install and update it, demonstrate some key commands and capabilities, and share some of the common tasks to manage your SharePoint environment.

Whether you are new to the PnP PowerShell module or looking to get more out of it, this post will help take your skills to the next level. By the end, you'll have the module installed and connected to SharePoint Online using an authenticated session to execute commands.

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What is PnP PowerShell?



The new PnP PowerShell module [PnP.PowerShell](#) is a cross-platform, .net framework-based PowerShell product that can run on any operating system that supports .net core, like Windows, Linux, macOS, etc., and provides 500+ cmdlets to work with Microsoft 365 environment (No support for On-Premises server products, As a side note!) cloud products like SharePoint Online, Microsoft Teams, Microsoft Planner, Security & Compliance, Azure Active Directory, and more.

Some of the key features of PnP PowerShell include:

- Ability to connect to SharePoint Online and on-premises environments.
- A wide range of cmdlets for managing sites, lists, libraries, content types, fields, and more.
- Support for provisioning and deploying SharePoint artifacts.
- Integration with the SharePoint REST API and CSOM (Client-Side Object Model).
- Extensibility through custom cmdlets and scripts.
- Working with SharePoint files and folders.
- Managing Microsoft 365 users and groups.

If you are administering Microsoft SharePoint, you know that PnP PowerShell is an essential tool for managing your environment. It's an open-source component and community-provided library with active community members providing support, so there won't be any SLA or direct support from Microsoft. This article will show you how to install the PnP PowerShell module for SharePoint Online.

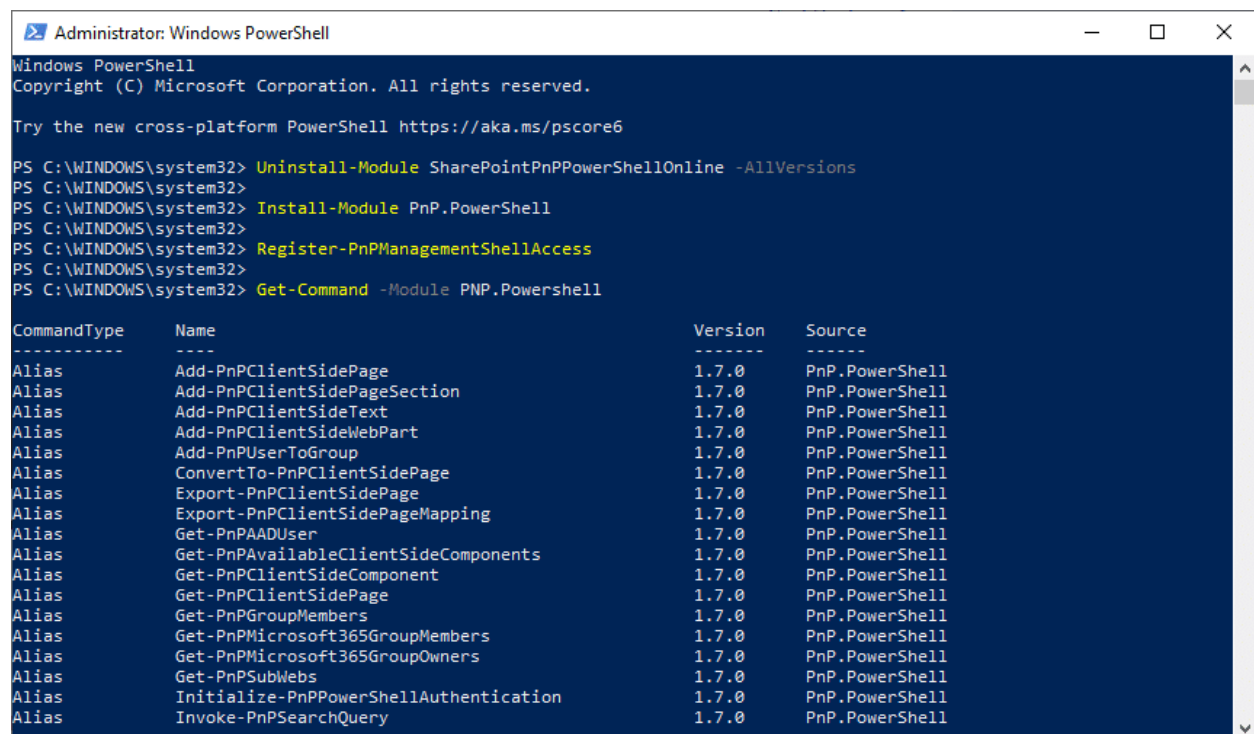
How to Install the PnP PowerShell Module: Step-by-Step

Managing SharePoint Online environments often requires executing repetitive administrative tasks – like creating sites, setting permissions, and configuring libraries. Carrying out these tasks manually through the SharePoint admin center can be time-consuming. That’s where the Patterns and Practices (PnP) PowerShell module comes into play.

To install the new PnP PowerShell module, You have to follow these steps:

1. Uninstall the Legacy **SharePointPnPPowerShellOnline** Module, if already installed.
2. Install the New PnP PowerShell Module.
3. Register Azure AD Application and Grant Access to the tenant.

Let’s get started! Open the Windows PowerShell console as an Administrator and execute these steps to install PnP.PowerShell module.



```
Administrator: Windows PowerShell
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\WINDOWS\system32> Uninstall-Module SharePointPnPPowerShellOnline -AllVersions
PS C:\WINDOWS\system32>
PS C:\WINDOWS\system32> Install-Module PnP.PowerShell
PS C:\WINDOWS\system32>
PS C:\WINDOWS\system32> Register-PnPManagementShellAccess
PS C:\WINDOWS\system32>
PS C:\WINDOWS\system32> Get-Command -Module PNP.PowerShell

CommandType      Name                                     Version      Source
-----
Alias             Add-PnPClientSidePage                  1.7.0        PnP.PowerShell
Alias             Add-PnPClientSidePageSection           1.7.0        PnP.PowerShell
Alias             Add-PnPClientSideText                  1.7.0        PnP.PowerShell
Alias             Add-PnPClientSideWebPart               1.7.0        PnP.PowerShell
Alias             Add-PnPUserToGroup                     1.7.0        PnP.PowerShell
Alias             ConvertTo-PnPClientSidePage            1.7.0        PnP.PowerShell
Alias             Export-PnPClientSidePage               1.7.0        PnP.PowerShell
Alias             Export-PnPClientSidePageMapping        1.7.0        PnP.PowerShell
Alias             Get-PnPAADUser                         1.7.0        PnP.PowerShell
Alias             Get-PnPAvailableClientSideComponents  1.7.0        PnP.PowerShell
Alias             Get-PnPClientSideComponent             1.7.0        PnP.PowerShell
Alias             Get-PnPClientSidePage                  1.7.0        PnP.PowerShell
Alias             Get-PnPGroupMembers                    1.7.0        PnP.PowerShell
Alias             Get-PnPMicrosoft365GroupMembers       1.7.0        PnP.PowerShell
Alias             Get-PnPMicrosoft365GroupOwners        1.7.0        PnP.PowerShell
Alias             Get-PnPSubWebs                         1.7.0        PnP.PowerShell
Alias             Initialize-PnPPowerShellAuthentication  1.7.0        PnP.PowerShell
Alias             Invoke-PnPSearchQuery                  1.7.0        PnP.PowerShell
```

Step 1: Uninstall the Legacy SharePointPnPPowerShellOnline Module

Check if the classic PnP PowerShell module is installed with the below command:

- 1 `Get-Module SharePointPnPPowerShellOnline -ListAvailable | Select-Object Name,Version | Sort-Object Version -Descending`

This returns the Name and version of legacy PnP PowerShell installed on the machine (If any). Uninstall Any previous PnP PowerShell Modules for SharePoint Online installed:

- 1 `Uninstall-Module SharePointPnPPowerShellOnline -Force -AllVersions`

Step 2: Install the New PnP PowerShell Module

How do I install a new PowerShell module? To install the new PnP PowerShell module, use:

1 | Install-Module PnP.PowerShell

This will download and install the PnP PowerShell module from the [PowerShell Gallery](#). How to install PnP PowerShell offline? If needed, You can also use setup files from GitHub, Download the PnP PowerShell Offline Installation package, and install it with the following:

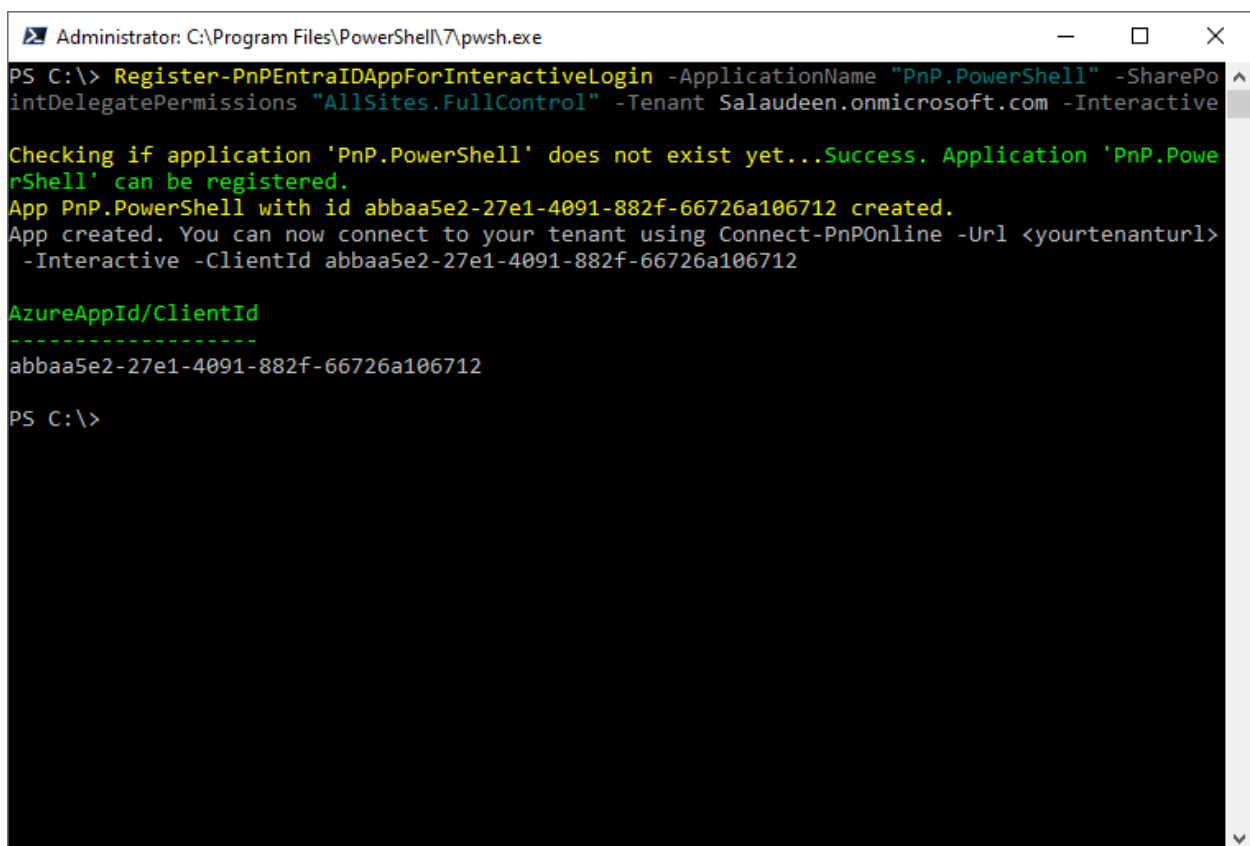
1 | Install-Package C:\Path\File.nupkg

Step 3: Register a new Azure AD Application ID and Grant Access to the tenant

The final step is creating an Azure App ID that grants the tenant access to the Azure AD Application. Make sure you run the below command from an account that has access to create App IDs in your Entra ID.

1 | Register-PnPEntraIDAppForInteractiveLogin -ApplicationName "PnP PowerShell" -SharePointDelegatePermissions "AllSites.FullControl" -Tenant Salaudeen.onmicrosoft.com -Interactive

Replace the value for the -Tenant accordingly. Make a note of the AppID created!



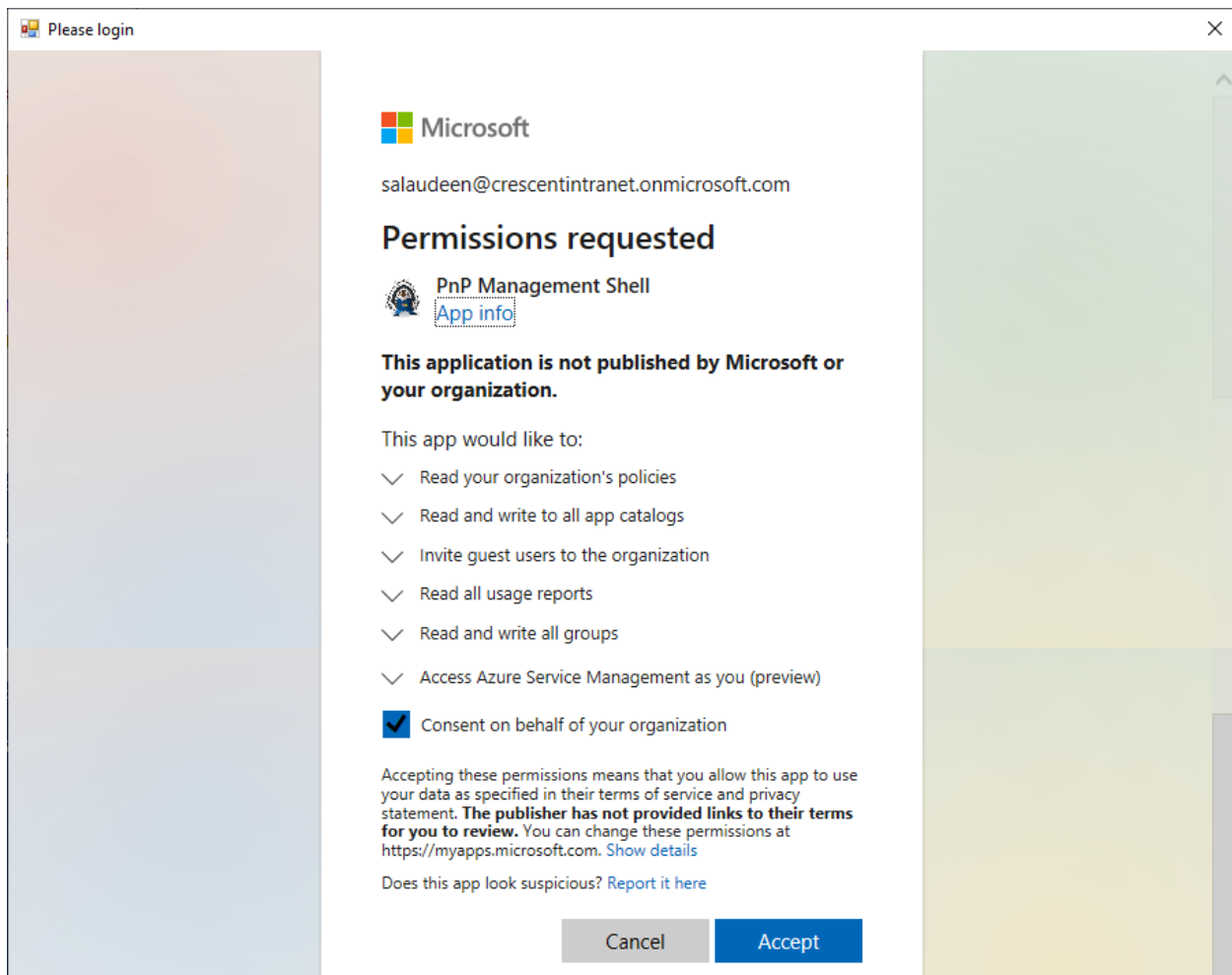
```
Administrator: C:\Program Files\PowerShell\7\pwsh.exe
PS C:\> Register-PnPEntraIDAppForInteractiveLogin -ApplicationName "PnP.PowerShell" -SharePointDelegatePermissions "AllSites.FullControl" -Tenant Salaudeen.onmicrosoft.com -Interactive

Checking if application 'PnP.PowerShell' does not exist yet...Success. Application 'PnP.PowerShell' can be registered.
App PnP.PowerShell with id abbaa5e2-27e1-4091-882f-66726a106712 created.
App created. You can now connect to your tenant using Connect-PnPOnline -Url <yourtenanturl> -Interactive -ClientId abbaa5e2-27e1-4091-882f-66726a106712

AzureAppId/ClientId
-----
abbaa5e2-27e1-4091-882f-66726a106712

PS C:\>
```

Executing the above cmdlet creates a new App ID, and you'll be prompted to log in and provide consent for your tenant. To complete this step, you must log in with Global Admin (or Tenant Administrator) permissions.



In case you are not a global admin, use: **Register-PnPManagementShellAccess -ShowConsentUrl** and share the URL you get from this cmdlet with the Tenant Admin, and they can complete this consent step from the URL you share.

```
Select Administrator: Windows PowerShell

The NuGet
provider must be available in 'C:\Program Files\PackageManagement\ProviderAssemblies' or
'C:\Users\tppocgrowth\AppData\Local\PackageManagement\ProviderAssemblies'. You can also install the NuGet pro
vider by
running 'Install-PackageProvider -Name NuGet -MinimumVersion 2.8.5.201 -Force'. Do you want PowerShellGet to
install
and import the NuGet provider now?
[Y] Yes [N] No [S] Suspend [?] Help (default is "Y"): Y

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
PS C:\WINDOWS\system32> Register-PnPManagementShellAccess -ShowConsentUrl

Share the following URL with a person that has appropriate access rights on the Azure AD to grant consent fo
r
Application Registrations:

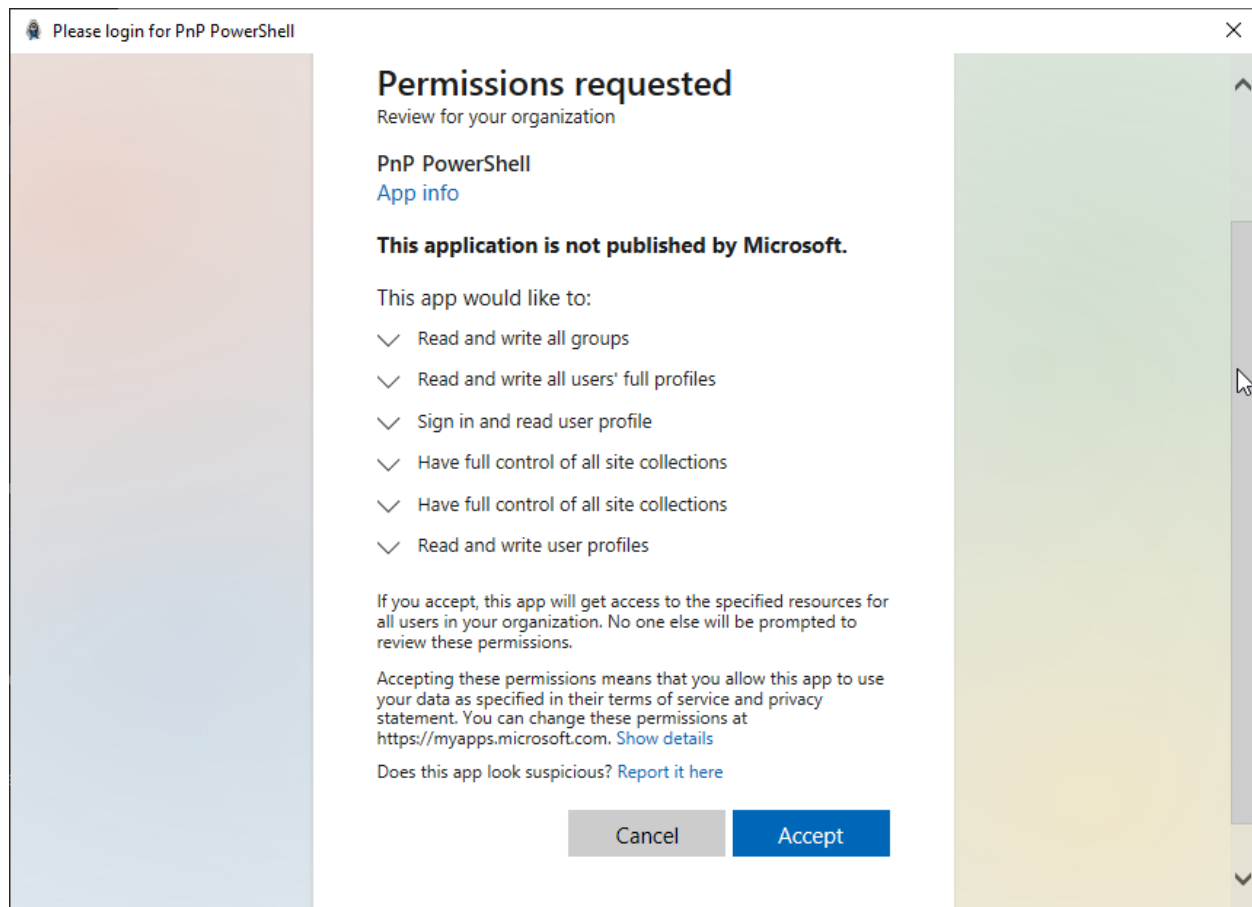
https://login.microsoftonline.com/{M365-Tenant-Id}/adminconsent?client_id=31359c7f-bd7e-475c-86db-fdb8c93754

To get M365-Tenant-Id value, use the Get-PnPTenantId cmdlet:
https://pnp.github.io/powershell/cmdlets/Get-PnPTenantId.html
```

Register an App for PnP PowerShell

Alternatively, You can register an App for PnP PowerShell from Global Admin login:

- 1 | Register-PnPEntraIDApp -ApplicationName "PnP PowerShell" -Tenant Salaudeen.onmicrosoft.com -Interactive



This creates the app and grants necessary permissions, creates a PFX and CER files and gives you the Client ID and Thumbprint values.

Finally, You can verify the installation by getting a list of PnP PowerShell commands:

```
1 | Get-Command -Module PnP.PowerShell
```

Step 4: Add the App ID to Environment Variables

As a final step, You have to add the App ID to your environment variables. Otherwise, You'll end up adding the App ID as the first line in all your scripts:

```
1 | $env:ENTRAID_APP_ID = "abbaa5e2-27e1-4091-882f-66726a106712"
```

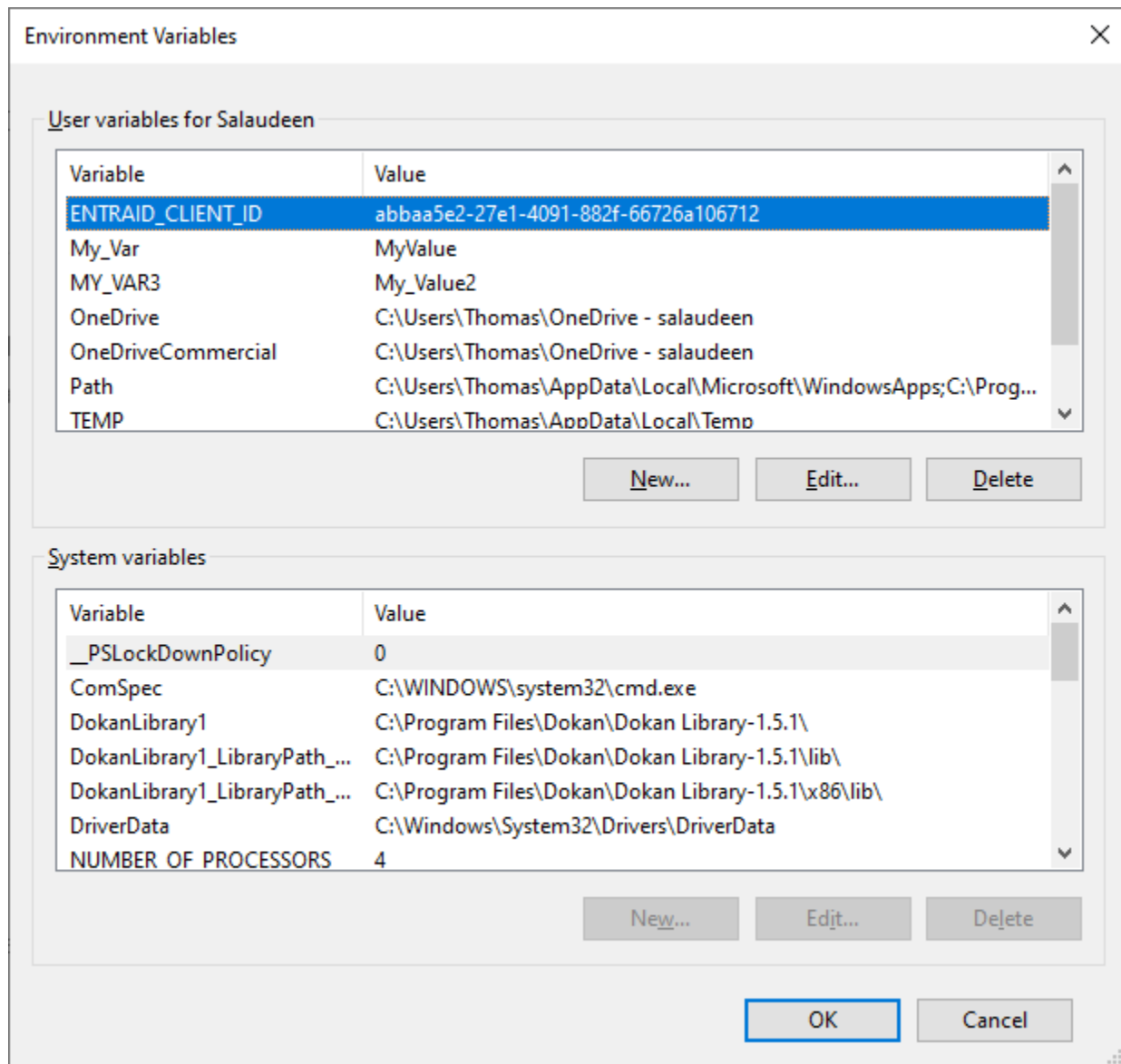
Here is how to add the App ID to environment variables:

```
1# Define the App ID
```

```
2$ENTRAID_APP_ID = "abbaa5e2-27e1-4091-882f-66726a106712"
```

```
3
```

```
4[System.Environment]::SetEnvironmentVariable("ENTRAID_CLIENT_ID", $ENTRAID_APP_ID, [EnvironmentVariableTarget]
```



Connect to SharePoint Online site using PnP PowerShell

How do I use PnP PowerShell in SharePoint Online? Once you are done with the above steps, You can connect to SharePoint Online through PnP PowerShell scripts with username and password with the following commands:

1#Connect to PnP Online

2Connect-PnPOnline -Url "https://Crescent.sharepoint.com/sites/Marketing/" -Credential (Get-Credential)

3

4#Get All Lists

5Get-PnPList

To connect using the App ID, use:

1# Variables

2\$SiteURL = "https://salaudeen.sharepoint.com/sites/Retail"

3\$ClientID = "abbaa5e2-27e1-4091-882f-66726a106712"

4

5# Connect to SharePoint Online site

6Connect-PnPOnline -Url \$SiteURL -Interactive -ClientId \$ClientID

Connect-PnPOnline using MFA

To connect to SharePoint Online using PnP PowerShell MFA (Multifactor authentication): Use the “-Interactive” switch instead of “Credentials” if your account is MFA enabled. Behind the scenes, each cmdlet executes a client-side object model code to achieve functions.

1#Connect to SharePoint site

2Connect-PnPOnline -Url "https://Crescent.sharepoint.com/sites/Marketing" -Interactive

3

4#Retrieve a List

5\$list = Get-PnPList -Identity "Documents"

This retrieves the list with the title “Documents” and assigns it to the \$list variable.

If you want to schedule your PowerShell script, You can use either the Windows Task scheduler or Azure Automation! [How to Schedule PowerShell Scripts with Azure Automation?](#)

PnP PowerShell to Connect to OneDrive for Business

Microsoft OneDrive for Business – The cloud-based storage and file-sharing part of the Office 365 suite can be managed with PowerShell, too. To access the OneDrive for Business site from PowerShell, you will need to first connect to the OneDrive site by running the following cmdlet: Connect-PnPOnline. Once you are authenticated, you can then run any available cmdlets against your OneDrive for Business site just as you would any other SharePoint Online site. E.g., let’s connect to the OneDrive site and create a new folder:

1 #Parameters

2 \$OneDriveSiteURL = "https://crescent-my.sharepoint.com/personal/salaudeen_crescent_com"

3 \$FolderName = "Archives"

4

5 Try {

6 #PowerShell to Connect to OneDrive for Business

```
7    Connect-PnPOnline -Url $OneDriveSiteURL -Interactive
8
9    #ensure folder in SharePoint Online using powershell
10   Resolve-PnPFolder -SiteRelativePath "Documents/$FolderName"
11}
12catch {
13   write-host "Error: $($_.Exception.Message)" -foregroundcolor Red
14}
```

Managing PnP PowerShell Module

Let's see how to update it, find the installed module version, and uninstall the module:

Update PnP PowerShell for SharePoint Online

How do I update PnP PowerShell? To update the PnP PowerShell to the latest version, run the following:

```
1 Update-Module -Name "PnP.PowerShell"
```

This will download and install the latest version of the PnP PowerShell module on your local machine.

A screenshot of a Windows PowerShell window titled "Select Administrator: Windows PowerShell". The terminal shows the following output:

```
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.  
  
Installing package 'PnP.PowerShell'  
Copying unzipped package to 'C:\Users\Thomas\AppData\Local\Temp\30650294\PnP.PowerShell'  
[ooooooooooooooooooooooooooooooooooooooooooooooooooooooooooooo] 
```

The progress bar consists of a series of 'o' characters, followed by a pink square indicating the current position, and another series of 'o' characters. The background of the terminal window is teal.

What version of PnP PowerShell do I have?

To check the installed version of PnP PowerShell in your system, use:

```
1 Get-InstalledModule -Name "PnP.PowerShell"
```

Uninstall the PnP PowerShell Module

If you would like to remove the PnP PowerShell, you can run the following:

```
1 Uninstall-Module -Name "PnP.PowerShell"
```

Can I have both the New PnP PowerShell and the Classic PnP Modules?

If you want to use the PnP PowerShell module for SharePoint Server (On-Premises), You can install it along with Pnp.PowerShell module as:

```
1 Install-Module -Name SharePointPnPPowerShell2019 -AllowClobber
```

This script installs the SharePointPnPPowerShell2019 module and makes cmdlets available from this module. You can use “Import-Module SharePointPnPPowerShell2019” on the first line to instruct your script to load and use Cmdlets from this specific module. As a side note, the old SharePointPnPPowerShellOnline module is archived and no longer updated.

At times, You may need to use the CSOM PowerShell scripts with the combination of PnP PowerShell cmdlets, as we don’t have PnP PowerShell cmdlets for each and everything in SharePoint Online: [How to Connect to SharePoint online using CSOM PowerShell?](#)

Most Common PnP PowerShell Cmdlets for SharePoint Online

Here are some of the most common PnP PowerShell cmdlets for SharePoint Online from the PnP.PowerShell module.

Cmdlet	Description	Reference
Connect-PnPOnline	Connects to a SharePoint site. Required before executing most other cmdlets.	How to Connect to SharePoint Online using PnP PowerShell?
Get-PnPList	Retrieves a list or library from the site.	How to Get a List in SharePoint Online using PnP PowerShell?
Add-PnPListItem	Adds an item to a list.	How to Add a New List Item in SharePoint Online using PnP PowerShell?
Set-PnPListItem	Updates a list item with new data.	How to Update List Items in SharePoint Online using PnP PowerShell?
Remove-PnPListItem	Deletes an item from a list.	How to Delete a List Item in SharePoint Online using PnP PowerShell?
Get-PnPFile	Downloads a file from the SharePoint site.	How to Download a File from SharePoint Online using PnP PowerShell?
Add-PnPFile	Uploads a file to a document library or folder.	How to Upload Files to SharePoint Online using PnP PowerShell?
Set-PnPFile	Updates properties of a file.	How to Update Document Properties in SharePoint Online using PnP PowerShell?
Remove-PnPFile	Deletes a file from a document library.	How to Delete a File from SharePoint Online Document Library using PnP PowerShell?

Cmdlet	Description	Reference
Get-PnPWeb	Retrieves information about the site.	How to Get Subsites in SharePoint Online using PnP PowerShell?
New-PnPWeb	Creates a new sub-site.	How to Create a Subsite in SharePoint Online using PnP PowerShell?
Set-PnPWeb	Updates properties of the site.	How to Change the SharePoint Online Site (Name) using PnP PowerShell?
Get-PnPUser	Retrieves a user from the site.	How to Get All Users in SharePoint Online Collection using PnP PowerShell?
Add-PnPGroupMember	Adds a user to a group.	How to Add User to a Group in SharePoint Online using PnP PowerShell?
Get-PnPTenantSite	Retrieves a list of site collections.	How to Get All Site Collections in SharePoint Online using PnP PowerShell?
New-PnPList	Creates a new list or library.	How to Create a Document Library in SharePoint Online using PnP PowerShell? How to Create a List in SharePoint Online using PnP PowerShell?
Remove-PnPList	Deletes a list or library.	How to Delete a List in SharePoint Online using PnP PowerShell? How to Delete a Document Library in SharePoint Online using PnP PowerShell?
Get-PnPFolder	Retrieves a folder within a list or library.	How to Get a Folder in SharePoint Online Document Library using PnP PowerShell?
Add-PnPFolder	Creates a new folder within a list or library.	How to Create a Folder in SharePoint Online using PnP PowerShell?
Remove-PnPFolder	Deletes a folder from a list or library.	How to Delete a Folder in SharePoint Online using PnP PowerShell?

Cmdlet	Description	Reference
Get-PnPField	Retrieves a field (column) from a list.	How to Get List Fields in SharePoint Online using PnP PowerShell?
Add-PnPField	Adds a new field (column) to a list.	How to Add a Column to List in SharePoint Online using PnP PowerShell?
Remove-PnPField	Removes a field (column) from a list.	How to Delete a Column from a List in SharePoint Online using PnP PowerShell?
Set-PnPField	Updates a field (column) in a list.	How to Change List Field Settings in SharePoint Online using PnP PowerShell?
Get-PnPView	Retrieves a view from a list.	How to Get List Views in SharePoint Online using PnP PowerShell?
Add-PnPView	Creates a new view in a list.	How to Create a List View in SharePoint Online using PnP PowerShell?
Remove-PnPView	Deletes a view from a list.	How to Delete a List View in SharePoint Online using PnP PowerShell?
Set-PnPView	Modifies a view in a list.	How to Update a List View in SharePoint Online using PnP PowerShell?
Get-PnPGroup	Retrieves a SharePoint group.	How to Get SharePoint Groups from SharePoint Online site using PnP PowerShell?
New-PnPGroup	Creates a new SharePoint group.	How to Create a Group in SharePoint Online using PnP PowerShell?
Remove-PnPGroup	Deletes a SharePoint group.	How to Delete Group in SharePoint Online using PnP PowerShell?
Set-PnPSite	Sets properties of a site collection.	How to Enable Custom Script in SharePoint Online using PowerShell? How to Change the Site Logo in SharePoint Online using PowerShell?

Cmdlet	Description	Reference
Get-PnPPropertyBag, Set-PnPPropertyBag	Retrieves/sets key-value pairs from the property bag.	How to Get-Set Property Bag Values in SharePoint Online with PnP PowerShell?
Add-PnPApp	Retrieves installed apps from the site.	How to Deploy an App to App Catalog in SharePoint Online?
Install-PnPApp	Installs an app to the site.	How to Add an App to SharePoint Online using PnP PowerShell?
Uninstall-PnPApp	Uninstalls an app from the site.	How to Remove an App in SharePoint Online using PnP PowerShell?
Get-PnPSiteTemplate, Invoke-PnPSiteTemplate	Gets/Applies a site template.	How to Copy a Site in SharePoint Online using PnP PowerShell?
Get-PnPNavigationNode, Add-PnPNavigationNode	Retrieves/Adds navigation nodes from the site.	How to Add Top Navigation Links in SharePoint Online using PnP PowerShell? How to Add a Link to Quick Launch in SharePoint Online using PnP PowerShell?
Remove-PnPNavigationNode	Removes a navigation node from the site.	How to Remove a Link in Quick Launch or Top Navigation in SharePoint Online using PowerShell?
Get-PnPTermGroup	Retrieves term groups from the term store.	How to Export-Import Site Collections in SharePoint Online using PowerShell?
New-PnPTermGroup	Creates a new term group in the term store.	How to Create a New Term Group in SharePoint Online using PowerShell?
Remove-PnPTermGroup	Deletes a term group from the term store.	How to Delete a Term Group in SharePoint Online using PowerShell?
Set-PnPTermSet	Updates a term set in a term group.	How to Update a Term Set in SharePoint Online using PnP PowerShell?

Cmdlet	Description	Reference
New-PnPTermSet	Creates a new term set in a term group.	How to Create a New Term Set in SharePoint Online using PnP PowerShell?
Get-PnPTerm	Retrieves terms from a term set.	How to Get Terms from a Term Set in SharePoint Online using PowerShell?
Add-PnPTerm	Adds a new term to a term set.	How to Create a Term in SharePoint Online Store using PowerShell?
Remove-PnPTerm	Removes a term from a term set.	How to Delete a Term in SharePoint Online Store using PowerShell?

Conclusion

And that wraps up this guide on installing and configuring the incredibly useful PnP PowerShell module for SharePoint Online! As you've seen, getting set up with PnP PowerShell is quick and easy with just a few PowerShell commands.

Now that the module is installed, you have access to a vast suite of commands for efficiently administering your SharePoint Online environments. From creating sites, lists, libraries, and columns to applying themes, managing permissions, and more, the possibilities are endless with PnP PowerShell. As SharePoint Online continues to evolve, so will the PnP PowerShell module, with new features added regularly.

I hope you found this guide helpful. The PnP PowerShell module can massively boost your productivity as a SharePoint admin or developer. Automating tasks allows you to focus on more strategic initiatives rather than heavy manual configuration.