Making Admin Magic with PowerShell

Woo Hoo!

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Agenda

PowerShell Love
Microsoft's Modules a bit
Talk about PnP
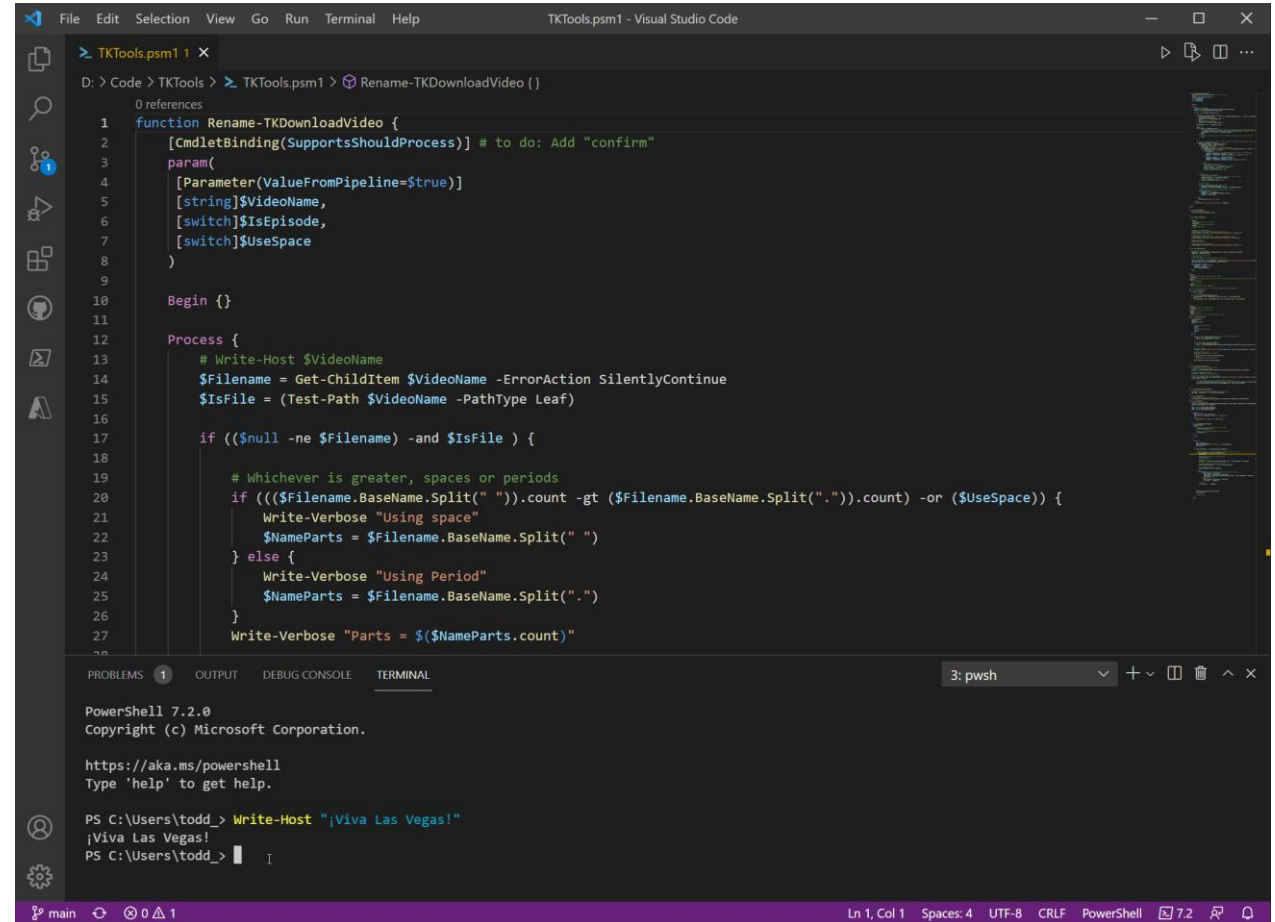Look at some fun scripts

Environments

Why PowerShell Anyway?

- Repeatability
- Consistency
- Free Documentation

- Be the toolmaker, not the tool user

VS Code

- Not just for developers
- Free download
- PowerShell Extension
- Not a bad place
- Source Control
- Github & Azure Dev Ops
- In the browser
  - https://vscode.dev
  - https://github1s.com/pnp/powershell
  - Just hit .

Windows Terminal

- The Future
- Windows Store
- Tabs

- https://github.com/Microsoft/Terminal
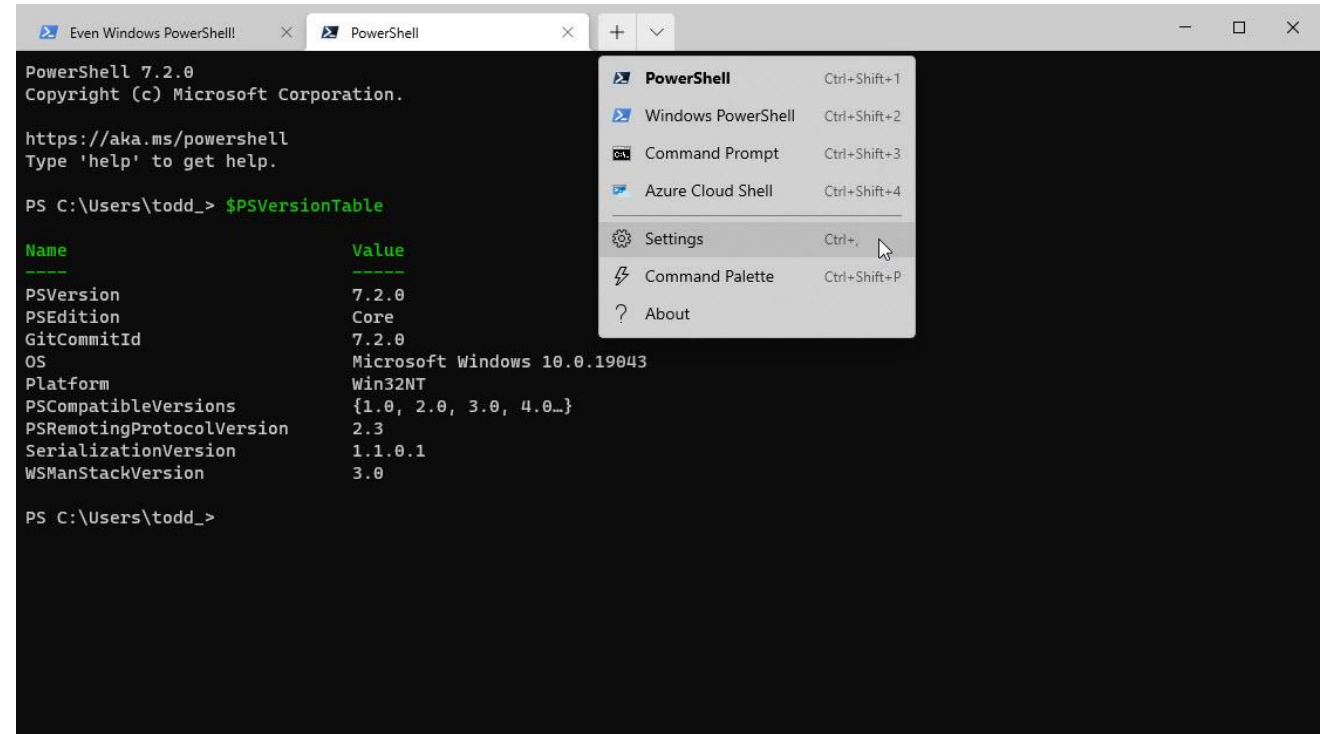
Get a Dev Tenant

- Great place to noodle around
- Free
- 100% less chance you'll get sacked

- https://www.toddklindt.com/GetDevTenant
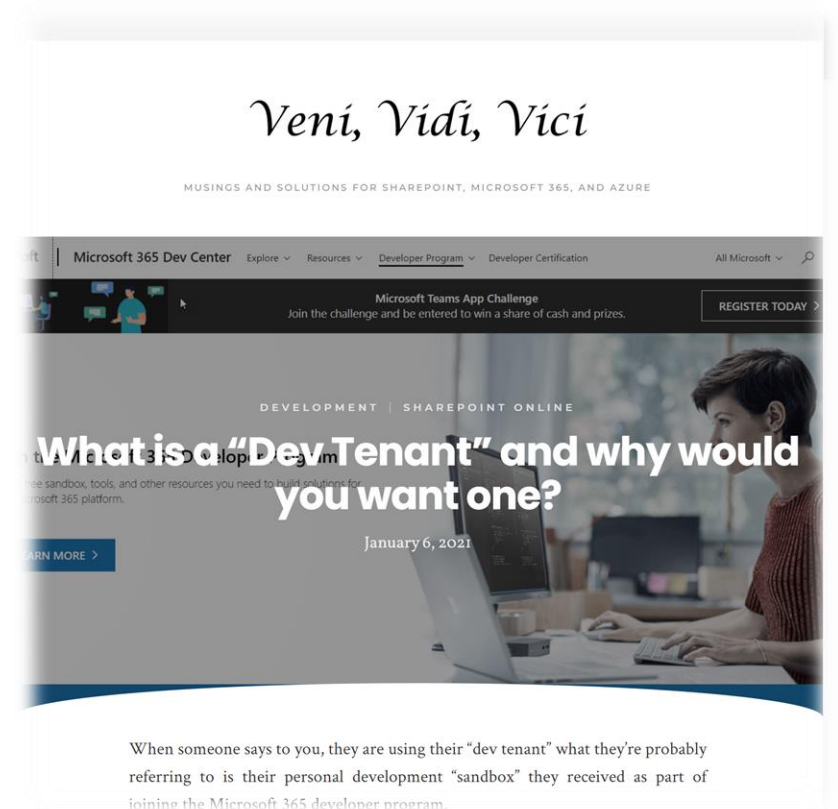
Let's talk about Passwords

- You will need your M365 username and password a lot
- Good and bad options
- Annoying but secure
  - $Credentials = Get-Credential
- Less annoying and way, way less secure
  - $username = admin@company.onmicrosoft.com
  - $password = "RightHereInPlainText"
  - $secure = $password | ConvertTo-SecureString -AsPlainText –Force
  - $Credentials = New-Object System.Management.Automation.PSCredential ($username, $secure)

Windows Credential Manager

- Built into Windows
- Let Microsoft worry about them securely
- Add-PnPStoredCredential
- Get-PnPStoredCredential

- No Secret Management Support


```
PS C:\Users\todd_> $Creds = Get-PnPStoredCredential -Name https://m365x995492-admin.sharepoint.com
PS C:\Users\todd_> Connect-SPOService -Url https://m365x995492-admin.sharepoint.com -Credential $Creds
PS C:\Users\todd_> Get-SPOSite

Url                                                                 Owner                                    Storage
                                                                                                             Quota

---                                                                 -----                                    ----------
https://m365x995492.sharepoint.com/search                                                                    26214400
https://m365x995492.sharepoint.com/sites/STS3                       admin@m365x995492.onmicrosoft.com        26214400
https://m365x995492.sharepoint.com/sites/RetailOperations          admin@m365x995492.onmicrosoft.com        26214400
https://m365x995492.sharepoint.com/sites/SalesAndMarketing          admin@m365x995492.onmicrosoft.com        26214400
https://m365x995492.sharepoint.com/sites/Petri1                                                              26214400
https://m365x995492.sharepoint.com/sites/ContosoNews                admin@m365x995492.onmicrosoft.com        26214400
https://m365x995492.sharepoint.com/sites/livelycreditor8                                                     26214400
https://m365x995492-my.sharepoint.com/                                                                       26214400
https://m365x995492.sharepoint.com/sites/ContosoBrand              admin@m365x995492.onmicrosoft.com         26214400
https://m365x995492.sharepoint.com/sites/USSales                                                             26214400
https://m365x995492.sharepoint.com/sites/Communications                                                      26214400
https://m365x995492.sharepoint.com/sites/Remoteliving                                                        26214400
https://m365x995492.sharepoint.com/sites/GlobalMarketing           admin@m365x995492.onmicrosoft.com         26214400
https://m365x995492.sharepoint.com/sites/operations                                                          26214400
https://m365x995492.sharepoint.com/sites/leadership-connection     admin@m365x995492.onmicrosoft.com         26214400
https://m365x995492.sharepoint.com/sites/benefits                  admin@m365x995492.onmicrosoft.com         26214400
https://m365x995492.sharepoint.com/sites/delete21                                                            26214400
https://m365x995492.sharepoint.com/sites/TestCommSite              adelev@m365x995492.onmicrosoft.com        26214400
https://m365x995492.sharepoint.com/sites/DigitalInitiativePublicRelations                                    26214400
https://m365x995492.sharepoint.com/sites/TestSite9                 adelev@m365x995492.onmicrosoft.com        26214400
https://m365x995492.sharepoint.com/sites/contosoteam                                                         26214400
https://m365x995492.sharepoint.com/sites/massivedepartment39                                                 26214400
https://m365x995492.sharepoint.com/sites/SOCTeam                                                             26214400
https://m365x995492.sharepoint.com/sites/office365adoption                                                   26214400
```

A Quick Word about MFA

- Use a certificates
- Use a custom app reg
- Conditional access

- Don't just shut it off

Certificates

- Good for server to server authentication
- Better than storing username and password or secret
- Self signed cert for testing
- More on this later

Microsoft Modules

Connect to your Azure AD Tenant

- ## MSOnline (Deprecated)
  ```
  $Credentials = Get-Credential
  Connect-MsolService -Credential $Credentials
  Get-MsolUSer
  Get-Command -Module msonline
  ```

- ## AzureAD (Deprecated March 2024)
  ```
  $Credentials = Get-PnPStoredCredential -Name https://m365x995492-admin.sharepoint.com
  Connect-AzureAD -Credential $Credentials
  Get-AzureADUser
  Get-Command -Module AzureAD
  ```

Graph SDK

- Got its fingers in everything
- Find project on Github
  - https://github.com/microsoftgraph/msgraph-sdk-powershell
  - Install-Module Microsoft.Graph
  - Install-Module Microsoft.Graph.Beta
- Not for the faint of heart
- Cmdlets mostly generated by AutoREST
- Future of AzureAD module
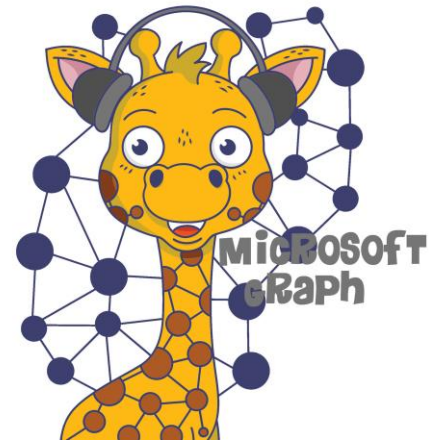
PowerShell with SharePoint Online

- Be prepared for disappointment
  - Getting better with age
- Allows basic manipulation of SharePoint Online
  - Users and groups
  - Tenants
  - Site Collections
  - Hub Sites
  - Multi-Geo
- `Install-Module -Name Microsoft.Online.SharePoint.PowerShell`

Get used to disappointment.

Power Automate and Power Apps

- Flow and Power Apps
  - For both creators and Admins
  - Get list of all Flows and Power Apps
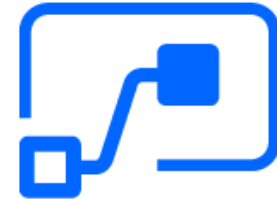
  - `Install-Module -Name Microsoft.PowerApps.Administration.PowerShell`
  - `Install-Module -Name Microsoft.PowerApps.PowerShell -AllowClobber`

  - `Add-PowerAppsAccount`

Office 365 / Microsoft 365 / Unified Groups

- No Groups module

- AzureAD / Graph
- SharePoint
- Exchange
- Teams
- PnP.PowerShell

Updating the Modules

- Find-Module to get current version
- Get-InstalledModule
- Get-Module -ListAvailable

- Update-Module Microsoft.Graph
- Update-Module Microsoft.Online.SharePoint.PowerShell
- Update-Module PnP.PowerShell
- Update-Module AzureAD

- https://www.toddklindt.com/PoshUpdateModules
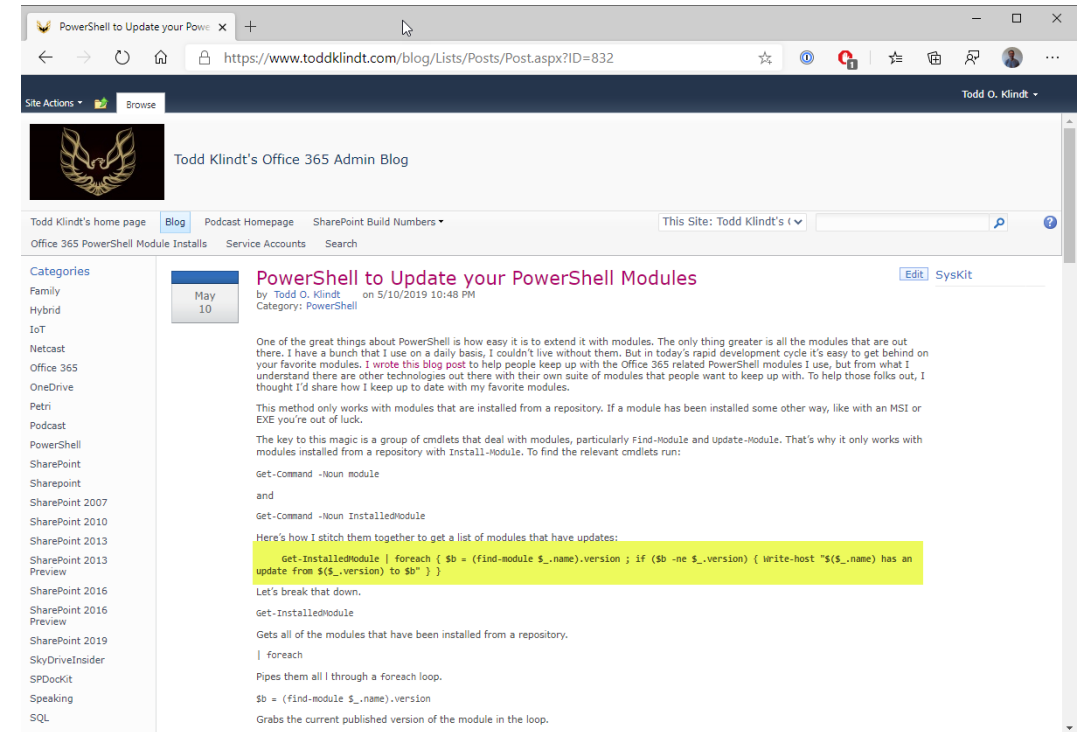
PnP PowerShell!!!

Patterns and Practices PowerShell (Phew!)

- GitHub
  - https://github.com/pnp/powershell
- Adds 680+ more cmdlets
- Scoped at Site Collection
- `Install-Module PnP.PowerShell`
- `Get-Command -Module PnP.PowerShell`
- Use `SharePointPnPPowerShellOnline` for on-prem SharePoint

Favorites

- PnPFile
  - Add-PnPFile, Copy-PnPFile
  - Find-PnPFile, Get-PnPFile
  - Move-PnPFile, Remove-PnPFile
  - Rename-PnPFile
  - Set-PnPFileCheckedIn
  - Set-PnPFileCheckedOut
- PnPList
  - Add, Get, Set, Remove
- Get-PnPListItem
  - Set-PnPListItem
- Get-PnPProperty

- Set-PnPGroupPermissions
- Add-PnPView
- Get-PnPField
- Restore-PnPRecycleBinItem
- Office 365 Groups
  - New-PnPMicrosoft365Group, Remove-PnPMicrosoft365Group
  - Get-PnPMicrosoft365Group, Set-PnPMicrosoft365Group
  - Get-PnPMicrosoft365GroupMember
  - Get-PnPMicrosoft365GroupOwner

PnP Authentication

```
Add-PnPStoredCredential -Name "https://tenant.sharepoint.com" -
Username yourname@tenant.onmicrosoft.com

Connect-PnPOnline -Url "https://tenant.sharepoint.com"

Connect-PnPOnline -Url "https://tenant.sharepoint.com/sites/hr"


$Credentials = Get-PnPStoredCredential -Name
"https://tenant.sharepoint.com"

Connect-SPOService -Url https://tenant-admin.sharepoint.com -
Credentials $ Credentials
```

But my Boss HATES PnP PowerShell!

- Your boss is misinformed ☺
- Vesa Juvonen, Senior Program Manager from SharePoint Engineering and MCM for SharePoint, is one of the main project owners
- Is scanned the same as any PowerShell Gallery Module (not at all)
- Erwin van Hunen used to work at RenCore
  - Exceptions are approved by SharePoint Engineering team
- Signed with Microsoft's key starting November 2017
- Uses the same API as web parts and other SharePoint code
- It's Open Source
- Respects SharePoint security
  - Can be more secure, as it can be more fine grained
- PnP PowerShell hits the Office 365 API a billion times a month

PnP Vs. SPO

- SPO

- Tenant Wide tasks
- Basic tasks
- New functionality that hasn't made it into SharePoint Admin Center
- New functionality that hasn't made it into PnP yet

- PNP

- Everything SPO can do
- Tasks by site owners
- Tasks by users
- Site specific settings
- More specific tasks
- Want to be cooler
- Working on an object smaller than a site
- Working on an object other than a site

Azure Function

- Great serverless automation
- Can be trigger from Flow
  - Http
  - Azure Queue
- PowerShell 7 environment (PnP)
- Use Certificate authentication
- Can publish with VS Code
- Use Console to troubleshoot
- Turn on logging to save console

Multiple versions of the same Module?

- Find-Module –AllowPrerelease -AllVersions
- Install-Module –RequiredVersion
- Install-Module –AllowClobber

- Import-Module -Name PnP.PowerShell -RequiredVersion 1.9.0 -Prefix Old

```
Administrator: C:\Program Files\PowerShell\7\pwsh.exe                              —  □  ✕

PS C:\Windows\System32> d:
PS D:\> cd .\Code\
PS D:\Code> Get-Module -ListAvailable -Name "*pnp*"

    Directory: C:\Program Files\PowerShell\Modules

ModuleType Version     PreRelease Name                              PSEdition ExportedCommands
---------- -------     ---------- ----                              --------- ----------------
Manifest   2.1.1                  PnP.PowerShell                    Desk      {Add-PnPAdaptiveScopeProperty, Add-PnPP…
Manifest   1.12.0                 PnP.PowerShell                    Core,Desk {Add-PnPAdaptiveScopeProperty, Add-PnPP…
Manifest   1.11.0                 PnP.PowerShell                    Core,Desk {Add-PnPAdaptiveScopeProperty, Add-PnPP…
Manifest   1.9.0                  PnP.PowerShell                    Core,Desk {Add-PnPClientSidePageSection, Add-PnPC…

    Directory: C:\Program Files\WindowsPowerShell\Modules

ModuleType Version     PreRelease Name                              PSEdition ExportedCommands
---------- -------     ---------- ----                              --------- ----------------
Binary     3.29.2101…             SharePointPnPPowerShellOnline     Desk      {Add-PnPAlert, Add-PnPApp, Add-PnPAppli…

    Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules

ModuleType Version     PreRelease Name                              PSEdition ExportedCommands
---------- -------     ---------- ----                              --------- ----------------
Manifest   1.0.0.0                PnpDevice                         Core,Desk {Get-PnpDevice, Get-PnpDeviceProperty, …

PS D:\Code> _
```

```
Script      1.17.0              Microsoft.Graph.Users            Core,Desk {Get-MgUser, Get-MgUserCreatedObject, G…
Script      1.27.0              Microsoft.Graph.Users.Actions    Core,Desk {Add-MgUserChatMember, Add-MgUserDriveL…
Script      1.25.0              Microsoft.Graph.Users.Actions    Core,Desk {Add-MgUserChatMember, Add-MgUserDriveL…
Script      1.21.0              Microsoft.Graph.Users.Actions    Core,Desk {Add-MgUserChatMember, Add-MgUserDriveL…
Script      1.17.0              Microsoft.Graph.Users.Actions    Core,Desk {Add-MgUserChatMember, Add-MgUserDriveL…
Script      1.27.0              Microsoft.Graph.Users.Functions  Core,Desk {Export-MgUserDeviceAndAppManagementDat…
Script      1.25.0              Microsoft.Graph.Users.Functions  Core,Desk {Export-MgUserDeviceAndAppManagementDat…
Script      1.21.0              Microsoft.Graph.Users.Functions  Core,Desk {Export-MgUserDeviceAndAppManagementDat…
Script      1.17.0              Microsoft.Graph.Users.Functions  Core,Desk {Export-MgUserDeviceAndAppManagementDat…
Script      1.27.0              Microsoft.Graph.WindowsUpdates   Core,Desk {Add-MgWindowsUpdatesDeploymentAudience…
Script      1.25.0              Microsoft.Graph.WindowsUpdates   Core,Desk {Add-MgWindowsUpdatesDeploymentAudience…
Script      1.21.0              Microsoft.Graph.WindowsUpdates   Core,Desk {Add-MgWindowsUpdatesDeploymentAudience…
Script      1.17.0              Microsoft.Graph.WindowsUpdates   Core,Desk {Add-MgWindowsUpdatesDeploymentAudience…

PS D:\Code> Get-Module -ListAvailable -Name "Microsoft.Graph"

    Directory: C:\Program Files\PowerShell\Modules

ModuleType Version    PreRelease Name                           PSEdition ExportedCommands
---------- -------    ---------- ----                           --------- ----------------
Manifest   1.27.0                Microsoft.Graph                Core,Desk
Manifest   1.25.0                Microsoft.Graph                Core,Desk
Manifest   1.21.0                Microsoft.Graph                Core,Desk

PS D:\Code> Get-Module -ListAvailable

    Directory: C:\Users\todd_\OneDrive\Documents\PowerShell\Modules

ModuleType Version    PreRelease Name                           PSEdition ExportedCommands
---------- -------    ---------- ----                           --------- ----------------
Script     3.1.0                 ExchangeOnlineManagement       Desk      {Get-ConnectionInformation, Get-EXOCasM…
Script     3.0.0                 ExchangeOnlineManagement       Desk      {Get-ConnectionInformation, Get-EXOCasM…

    Directory: C:\Users\todd_\OneDrive\Documents\PowerShell\Modules\Azure\5.3.1

ModuleType Version    PreRelease Name                           PSEdition ExportedCommands
---------- -------    ---------- ----                           --------- ----------------
Binary     1.0.2                 ExpressRoute                   Desk

    Directory: C:\Users\todd_\OneDrive\Documents\PowerShell\Modules

ModuleType Version    PreRelease Name                           PSEdition ExportedCommands
---------- -------    ---------- ----                           --------- ----------------
Script     2.0.155               Microsoft.PowerApps.Administration… Desk {New-AdminPowerAppCdsDatabase, Get-Admi…
Script     1.0.26                Microsoft.PowerApps.PowerShell  Desk      {Get-PowerAppEnvironment, Get-PowerAppC…
Script     2.2.6                 PSReadLine                      Desk      {Get-PSReadLineKeyHandler, Set-PSReadLi…
Script     2.2.0      beta4      PSReadLine                      Desk      {Get-PSReadLineKeyHandler, Set-PSReadLi…
Script     0.0.1                 restore                         Desk      {Restore-Terminal, Clear-TerminalCheckp…

    Directory: C:\Program Files\PowerShell\Modules

ModuleType Version    PreRelease Name                           PSEdition ExportedCommands
---------- -------    ---------- ----                           --------- ----------------
Script     7.8.4                 ImportExcel                    Desk      {Add-ConditionalFormatting, Add-ExcelCh…
Manifest   1.27.0                Microsoft.Graph                Core,Desk
Manifest   1.25.0                Microsoft.Graph                Core,Desk
Manifest   1.21.0                Microsoft.Graph                Core,Desk
Script     1.27.0                Microsoft.Graph.Applications   Core,Desk {Add-MgApplicationKey, Add-MgApplicatio…
```

Module Paths

- -Scope

Examples

(Show them how cool VS Code is)

Using AI

What can AI do?

- Help you do things you can already do faster
- Help you do things you can already do better

- What can't it do?
- Help you do things you can't do

GREAT**AMERICAN**
INSURANCE GROUP

Demo!

Do AI stuff

Fun Links to Click

- https://www.toddklindt.com/posh
- https://www.sharepointdiary.com
- https://office365itpros.com
- https://pnp.github.io/script-samples
- https://aka.ms/m365pnp
- https://aka.ms/m365/devprogram

Questions?

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www.toddklindt.com/sef2023