Office 365 & PowerShell : A match made in heaven

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Who’s Sébastien Levert !?

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Agenda

- Introduction to PowerShell in Office 365
- Using PowerShell with SharePoint Online
- Using PowerShell with the Office 365 APIs
- DevOps with PowerShell in Office 365
Introduction to PowerShell in Office 365
Getting started

- Announced at Ignite 2015
- [http://powershell.office.com](http://powershell.office.com)
- Sets of samples, scenarios, guides, ...
What do you need?

- An Office 365 tenant
- Administrator privileges on your Office 365 tenant
- Administrator privileges on your machine running PowerShell

Administration modules
- Microsoft Online Services Sign-in Assistant
- Azure Active Directory Module
- SharePoint Online Module
- Skype for Business Online Module
Using PowerShell with SharePoint Online
Connecting to SharePoint Online

- With the SharePoint Online Module
- With the SharePoint Client Side Object Model
- With the OfficeDev PowerShell Commands
- With the SharePoint REST APIs
Connecting to SharePoint Online
With SharePoint Online Module
Getting all your Site Collections
Getting all your Site Collection

Get-SPOSite

Get-SPOSite -Detailed

Get-SPOSite -Detailed -Filter { Url -like "*term*" }
Connecting to SharePoint Online
With SharePoint Client Side Object Model
Connecting to SharePoint Online

With SharePoint Client Side Object Model
Using SharePoint CSOM in PowerShell

- You have to manually get the CSOM Assemblies
- You have to manually load the CSOM Assemblies in your PowerShell Sessions
- Ensure to have the latest bits of the CSOM Assemblies

```powershell
[AppDomain]::CurrentDomain.GetAssemblies() | Where-Object {
    $_.FullName -like "*SharePoint*" -or $_.FullName -like "*Office*"
} | Select FullName
```
Tips & Tricks

- Do not use SharePoint Online Management Shell
- Import the SharePoint Online PowerShell module from a regular PowerShell session
- Load the required CSOM Assemblies before loading the SharePoint Online Module
- Use Gary Lapointe’s Load-CSOMProperties Cmdlet. Everyday.
Demo

Getting the CSOM Assemblies
Working with the CSOM Assemblies

Import-Module C:\Path\PTC.0365.PowerShell.psm1

Get-ClientAssemblies -Version 16 -TargetDirectory C:\assemblies

Add-ClientAssemblies -AssembliesDirectory C:\assemblies

[AppDomain]::CurrentDomain.GetAssemblies() | Where-Object {$_ .FullName -like "*SharePoint*" -or $_.FullName -like "*Office*" } | Select FullName
Mixing CSOM and SPO Cmdlets

- You can easily use CSOM with the SPO Cmdlets
- Use the Cmdlets to get to the Site Collection level
- Use CSOM to get into the Webs level
Demo

Getting all the Sites of every Site Collection
Get all the Sites of every Site Collection

```powershell
Import-Module C:\Path\PTC.O365.PowerShell.psm1
Import-Module Microsoft.Online.SharePoint.PowerShell
Connect-SPOService -Url https://tenant-admin.sharepoint.com

$credentials = Get-SharePointOnlineCredentials

Get-SPOSite | Where-Object { $_.Template -notlike "*EHS#0" } | ForEach-Object {
    $context = Get-Context -Url $_.Url -Credentials $credentials
    Get-Webs -Context $context | Select Url
}
```
Demo

Export the content of a SharePoint list
Export the content of a SharePoint list

```powershell
$credentials = Get-SharePointOnlineCredentials
$context = Get-Context -Url "https://tenant.sharepoint.com" -Credentials $credentials
$web = Get-Web -Context $context
$list = Get-List -Web $web -Title "Tasks"
$items = Get-ListContent -List $list -Fields @("ID", "Title", "DueDate")
$items | Select @{ Name = "ID"; Expression = { $_["ID"] } },
    @{ Name = "Title"; Expression = { $_["Title"] } },
    @{ Name = "DueDate"; Expression = { $_["DueDate"] } } | Export-CSV -Path C:\Tasks.csv -NoTypeInformation -Encoding UTF8
```
Connecting to SharePoint Online
With OfficeDev PnP PowerShell Commands
Working with PowerShell.Commands

- 123 new Cmdlets Delivered by Office Dev Patterns & Practices
- Set of Cmdlets used to execute CSOM against SharePoint Online & On-Premises
- Uses the OfficeDevPnP.Core framework
- Needs to be installed on your machine (more complex than a simple module)
- The real power of PowerShell with the PnP enhanced power of CSOM
Demo

Adding and setting a new theme to a site
Adding and setting a new theme to a site

Connect-SPOnline -Url https://tenant.sharepoint.com
Add-SPOFile -Path C:\theme.spcolor -Folder "_catalogs/theme/15"
Add-SPOFile -Path C:\image.jpg -Folder "SiteAssets"

Set-SPOTheme `
  -ColorPaletteUrl "/_catalogs/theme/15/theme.spcolor " `
  -BackgroundImageUrl "/SiteAssets/image.jpg"`
Connecting to SharePoint Online

With SharePoint REST APIs
Working with REST and SharePoint Online

- Awesome series of articles by Gary Lapointe
- Magic Function provided ➔ `Invoke-SPORestMethod`
- Easily use "typed" objects in your PowerShell scripts
- Remember to escape your $
Demo

Query list items with OData
$url = "https://tenant.sharepoint.com/_api/lists/GetByTitle('Tasks')/items?$select=Id,Title,DueDate,PercentComplete&$filter=PercentComplete gt 0.5"

$items = Invoke-SPORestMethod -Url $url

$items.results | Out-GridView
Demo

Use the search REST API to query the Graph
Using the REST API to query Office Graph

$url = "https://tenant.sharepoint.com/_api/search/query?Querytext='*'&Properties='GraphQuery:ACTOR(ME)'&RowLimit=100"

$results = Invoke-SPORestMethod -Url $url

$results = Get-RestSearchResults -Results $results | Out-GridView
Using PowerShell with the Office 365 APIs
Office 365 APIs

- Set of APIs delivered to unify the workloads APIs
- Built on top of Azure Active Directory Applications
- Uses OAuth and JWT for every API call
- Enables delegated permissions & App-Only permissions
- Give permissions on the needed workloads
- When the plumbing is done, it becomes very easy to use
Steps to Office 365 API with PowerShell

1. Create an Azure Active Directory Application
2. Create a local certificate
3. Import the certificate data into your Azure AD Application configuration
4. Use the certificate with its password in your PowerShell code
5. Connect to the Office 365 API
6. Play with your data!
Demo

Getting ready
Getting ready

```bash
makecert -r -pe -n "CN=PowerShell Office 365 API Application" -b 1/01/2015 -e 12/31/2016 -ss my -len 2048

$keyCredentals = Get-KeyCredentalsManifest -Path C:\Certificate.cer
```
Demo

Get an Access Token
Get an Access Token

$global:AzureADApplicationTenantId = “TENANTID”
$global:AzureADApplicationClientId = “APPLICATIONID”
$global:AzureADApplicationCertificatePassword = “Passw0rd”
$exchangeResourceUri = “https://outlook.office365.com/”

$token = Get-AccessToken -ResourceUri $exchangeResourceUri
Demo

Get the content of your Mailbox
Get the content of your Mailbox

$url = $exchangeResourceUri + ‘/api/v1.0/users(‘email’)/folders/inbox/messages?$top=50″
$response = Invoke-SecuredRestMethod -Method "GET" -AccessToken $token -EndpointUri $url

$hasMore = $true
$messages = @()  
while($hasMore) {
    $response = Invoke-SecuredRestMethod -Method "GET" -AccessToken $token -EndpointUri $url
    $response.value | ForEach-Object { $messages += $_ }  
    $hasMore = $response.’@odata.nextLink’ -ne $null
    $url = $response.’@odata.nextLink’
}

$messages | Select Subject | Out-GridView
Demo

Send an Email
Prepare the body

$body = @{
    "Message" = @{
        "Subject" = "This is a test email from PowerShell!"
        "Body" = @{ "ContentType" = "Text"; "Content" = "This email was sent from PowerShell using the Office 365 API." }
        "ToRecipients" = @(  
            @{ "EmailAddress" = @{ "Address" = "slevert@sebastienlevert.com" } }  
        )
    }
}  
$body.SaveToSentItems = $false
Send an Email

$url = $exchangeResourceUri + "/api/v1.0/users('email')/sendmail"

$response = Invoke-SecuredRestMethod -Method "POST" -AccessToken $token -EndpointUri $url -Body ($body | ConvertTo-Json $body -Depth 4)
DevOps with PowerShell in Office 365
First... What is DevOps?

DevOps (a clipped compound of “development” and “operations”) is a software development method that stresses communication, collaboration, integration, automation and measurement of cooperation between software developers and other information-technology (IT) professionals.
What it means to me...

- Automate everything you can (developers can help!)
- Ensure that every configuration can be replicated anywhere at any time
- Gain a maximum of control over your deployments
- Are you scared of your users?
In the Office 365 world, it means...

- Every artifact that is created needs to be scripted or automatically provisioned
  - Users
  - Mailboxes
  - SharePoint
    - Sites
    - Columns
    - Content Types
    - Lists
    - ...
    - ...
    - ...

Demo

Export SharePoint site configuration
Export SharePoint site configuration

Connect-SPOnline -Url https://tenant.sharepoint.com

Get-SPOProvisioningTemplate -Out C:\template.xml - PersistComposedLookFiles
Demo

Import SharePoint site configuration
Import SharePoint site configuration

Connect-SPOnline -Url https://tenant.sharepoint.com

Apply-SPOProvisioningTemplate -Path C:\template.xml
PowerShell for Office 365 Resources
PowerShell for Office 365 Resources

- PowerShell for Office 365
  - [http://powershell.office.com](http://powershell.office.com)

- Microsoft Online Services Sign-In Assistant for IT Professionals

- SharePoint Online Management Shell

- Windows PowerShell Module for Skype for Business Online
PowerShell for Office 365 Resources

- Azure Active Directory Module for Windows PowerShell
  - [http://go.microsoft.com/fwlink/p/?linkid=236297](http://go.microsoft.com/fwlink/p/?linkid=236297) (64-bit Version)

- OfficeDevPnP.PowerShell Commands

- PimpTheCloud PowerShell Office 365 Modules
PowerShell for Office 365 Resources

- Gary Lapointe “PowerShell and SharePoint Online REST” articles
  - [http://www.itunity.com/article/working-lists-list-items-sharepoint-rest-service-windows-powershell-2077](http://www.itunity.com/article/working-lists-list-items-sharepoint-rest-service-windows-powershell-2077)
Conclusion
Go to ESPC15 for less...

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