

Mastering PowerShell for Exchange Online

@ThinkBaseTech



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#ITDEVCON



Session Agenda

- Introduction
- Environment Setup
- Connecting to Exchange Online & Azure Active Directory
- PowerShell Techniques
- Exchange Online Reporting

Introduction

- Background
 - PowerShell 1.0 used by Exchange 2007
 - Built on .NET Framework
 - All of Microsoft's enterprise products support it
 - Many GUIs literally use PS behind the scenes.
 - Broad 3rd party support and use (AWS, VMware, KEMP, etc.)
- Great for
 - Recipient Management & Bulk Automation
 - Ensuring consistent configurations
 - Reporting
 - Hidden Configurations
 - Documentation
 - Custom Tooling
 - Deeper understanding of the service
 - Getting the status of your Dominos pizza order*

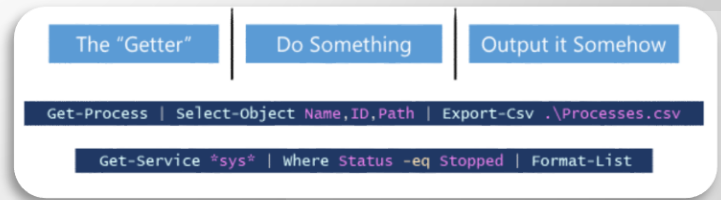
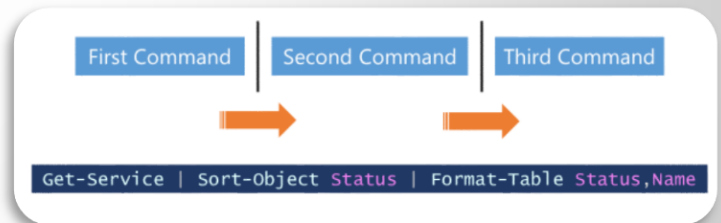


Introduction

- CMDlets
 - Performs an action and return an **object**(s)
 - Verb-Noun
 - Named and Positional Parameters

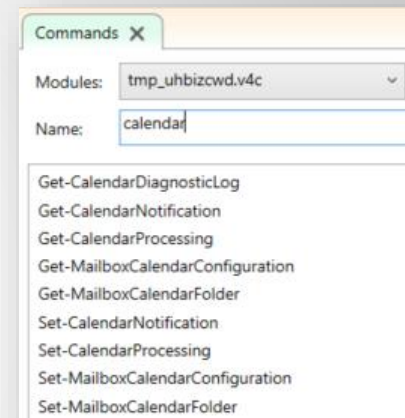
```
PS C:\>
PS C:\> DoWhat-withWhat -Param1 "Carefully"
PS C:\>
```

- The Pipeline
 - I prefer: “conveyer belt”
 - Objects placed to the left come out the right



Introduction

- Exploring
 - Tab to auto-complete
 - Get-Help -Online
 - *Get-whatever | select **
 - *To explore possible fields*
 - ISE Commands Add-On
- Common Objects
 - Strings
 - “Just a line of text”
 - Arrays
 - @{"a group of"
“multiple objects”}
 - Hash Tables
 - @{Maryland = “Annapolis”
Nevada = “Carson City”
Alaska = “Juneau”}
- Common Functions
 - Where-Object
 - -EQ -NE -GE -GT -LE -LT -LIKE
 - ForEach-Object



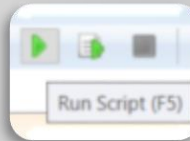
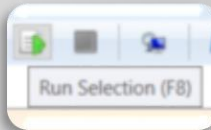
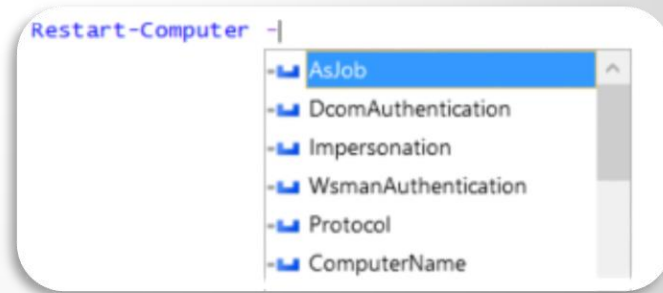
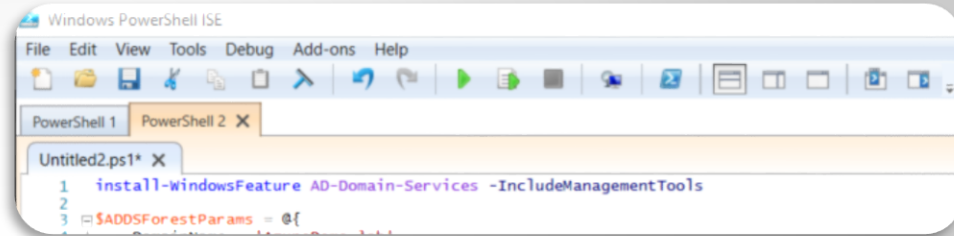
```
#Explore!
Get-Command
Get-Module
Get-Command -Verb Get -Module tmp_uhbizcwd.v4c
Get-Module -ListAvailable
Get-Help Get-User -Online
```

Environment Setup

- Download the latest version
 - 4.0
 - <http://www.microsoft.com/en-us/download/details.aspx?id=40855>
 - 5.0 (Production preview)
 - <http://blogs.msdn.com/b/powershell/archive/2015/08/06/windows-management-framework-wmf-5-0-roadmap.aspx>
- Download modules as necessary
 - Azure AD: <http://msdn.microsoft.com/jj151815>
 - Remote Server Administration Tools: Search for (RSAT + YourOS)
 - **No module necessary for Exchange Online**
- Execution Policy
 - “Class III Authenticode Code-Signing Certificate”
 - AD CS
 - Internet CA
 - Self-signed (limited use)
 - Set-ExecutionPolicy -ExecutionPolicy Unrestricted
 - Don't forget to reinstate once done
 - Powershell.exe -executionpolicy bypass -file myfile.ps1
- Profiles
 - Automatically load frequently-used functions, modules, settings etc.

Environment Setup

- PowerShell Integrated Scripting Environment (ISE)
 - You really need to use this!
 - Kinda stunk before 3.0
 - Might not be installed by default on your workstation
 - Helps keep track of commands you've run
 - Facilitates script debugging
 - Preserves formatting for professional looking and easy to read documentation



Connecting to ExO & AAD

- Exchange Online / EOP
 - Remote PowerShell (2.0 and later)
- Azure Active Directory
 - Requires MSOnline module

```
$UserCredential = Get-Credential

#Exchange Online
$Session = New-PSSession -ConfigurationName Microsoft.Exchange -ConnectionUri https://outlook.office365.com/powershell-liveid/ -Credential $UserCredential -Authentication Basic -AllowRedirection

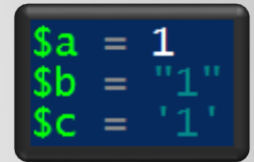
#EOP Standalone
$Session = New-PSSession -ConfigurationName Microsoft.Exchange -ConnectionUri https://ps.protection.outlook.com/powershell-liveid/ -Credential $UserCredential -Authentication Basic -AllowRedirection
Import-PSSession $Session
```


Connecting to ExO & AAD

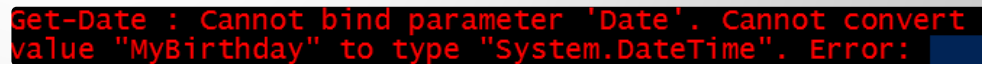
- A few tweaks:
 - Credential Handling
 - Splatting
 - Session Prefixes
- ExO & AAD Multi-factor Authentication
 - “Coming soon”

PowerShell Techniques

- Comments & Comment-Based Help
- Variables
 - Leverage environmental variables
 - Be careful with object type mismatches
 - Variable scopes
 - technet.microsoft.com/hh847849
- Functions
 - Function Get-Beer {Signal-Bartender; Place-Order -Id Killians }
- Dates and Date Spans
- XML
 - Surprisingly easy to work with in later PS versions
 - Be aware of CLIXML's depth



```
$a = 1
$b = "1"
$c = '1'
```



```
Get-Date : Cannot bind parameter 'Date'. Cannot convert
value "MyBirthday" to type "System.DateTime". Error:
```

PowerShell Techniques

- Formatting

- Out-Default
- Format-List (meh)
- Format-Table
 - -Auto
 - -wrap
- Select-Object

- Outputs

- Out-File
- Export-csv
- Export-Clixml
- Out-GridView

Get-Mailbox | select name, windowsemailaddress, maxsendsize | Out-GridView

Filter

and WindowsEmailAddress contains com

Name	WindowsEmailAddress	MaxSendSize
demoadmin	demoadmin@demo84384.onmicrosoft.com	35 MB (36,700,160 bytes)
DiscoverySearchMailbox[D9198A05-46A6-415f-80AD-7E093348B852]	DiscoverySearchMailbox[D9198A05-46A6-415f-80AD-7E093348B852]@demo84384.onmicrosoft.com	100 MB (104,857,600 bytes)
UserA	UserA@demo84384.onmicrosoft.com	35 MB (36,700,160 bytes)
UserB	UserB@demo84384.onmicrosoft.com	35 MB (36,700,160 bytes)

```
PS C:\> Get-Mailbox BillC | Select-Object MaxSendSize, @{Name="MailboxSize"; Expression = { (Get-MailboxStatistics $_.Identity).TotalItemSize } }
MaxSendSize      MailboxSize
-----
35 MB (36,700,160 bytes) 5.487 GB (5,891,356,833 bytes)
```

Mail		
Active and inactive mailboxes	New and deleted mailboxes	New and deleted groups
Mailbox usage	Types of mailbox connections	
Usage		
Operating system used	Browser used	Operating system used
Licensing vs Active Usage		
Skype for Business		
Active users	Peer-to-peer sessions	Conferences
Audio minutes and video minutes	Client devices	Client devices per user
User activities		
SharePoint		
Tenant storage metrics	Team sites deployed	Team site storage
OneDrive for Business		
OneDrive for Business sites deployed	OneDrive for Business storage	
Auditing		
Mailbox access by non-owners	Role group changes	Mailbox content search and hold
Mailbox litigation holds	Azure AD reports (paid Office 365 subscription required)	
Protection		
Top senders and recipients	Top malware for mail	Malware detections
Spam detections	Sent and received mail	
Rules		
Top rule matches for mail	Rule matches for mail	
DLP		
Top DLP policy matches for mail	Top DLP rule matches for mail	DLP policy matches by severity for mail
DLP policy matches, overrides, and false positives for mail		

ExO Reporting

- EAC Reports Web Dashboard
 - Also available as Excel workbook
 - <http://www.microsoft.com/en-us/download/details.aspx?id=30716>

ExO Reporting

- Reporting CMDlets
 - technet.microsoft.com/dn641232
- Web Service API
 - <http://blogs.technet.com/b/heyscriptingguy/archive/2014/08/06/use-powershell-for-office-365-reporting.aspx>

Exchange Online reporting cmdlets		
Export-MailboxDiagnosticLogs	Get-MailDetailDlpPolicyReport	Get-MailTrafficTopReport
Get-ConnectionByClientTypeDetailReport	Get-MailDetailMalwareReport	Get-MxRecordReport
Get-ConnectionByClientTypeReport	Get-MailDetailSpamReport	Get-OutboundConnectorReport
Get-FfoMigrationReport	Get-MailDetailTransportRuleReport	Get-RecipientStatisticsReport
Get-GroupActivityReport	Get-MailFilterListReport	Get-ServiceDeliveryReport
Get-MailboxActivityReport	Get-MailTrafficPolicyReport	Get-StaleMailboxDetailReport
Get-MailboxUsageDetailReport	Get-MailTrafficReport	Get-StaleMailboxReport
Get-MailboxUsageReport	Get-MailTrafficSummaryReport	
Message Trace cmdlets		
Get-HistoricalSearch	Get-MessageTraceDetail	Stop-HistoricalSearch
Get-MessageTrace	Start-HistoricalSearch	
Office 365 cmdlets		
Get-LicenseVsUsageSummaryReport	Get-O365ClientBrowserReport	Get-O365ClientOSReport
Get-O365ClientBrowserDetailReport	Get-O365ClientOSDetailReport	
Lync Online Reporting cmdlets		
Get-CsActiveUserReport	Get-CsClientDeviceReport	Get-CsP2PAVTimeReport
Get-CsAVConferenceTimeReport	Get-CsConferenceReport	Get-CsP2PSessionReport
SharePoint Online reporting cmdlets		
Get-SPOActiveUserReport	Get-SPOSkyDriveProStorageReport	Get-SPOTeamSiteStorageReport
Get-SPOSkyDriveProDeployedReport	Get-SPOTeamSiteDeployedReport	Get-SPOTenantStorageMetricReport

```
PS C:\> Get-MailDetailMalwareReport -MalwareName JS/Phish.C | select date, s*

Date                Subject                SenderAddress
----                -
9/8/2015 5:44:57 AM  Spam Confirm your account information  aexp@memberser
9/8/2015 2:55:17 PM  Confirm your account information      ealerts@norepl
9/10/2015 6:01:50 AM  Recent suspicious activity on your online account  ealerts@norepl
9/10/2015 9:11:19 AM  Recent suspicious activity on your online account  ealerts@norepl
9/11/2015 12:44:57 AM  **SPAM** Confirm your account information  aexp@memberser
9/11/2015 11:15:37 AM  Recent suspicious activity on your online account  aexp@memberser
```

Additional Resources

- Getting Started Stuff

- A Windows PowerShell Tutorial
 - <http://www.computerperformance.co.uk/powershell>
- CMDlet Reference
 - Windows: <https://technet.microsoft.com/en-us/library/mt156946>
 - Exchange Online: <https://technet.microsoft.com/en-us/library/jj200780>
 - Azure AD <https://msdn.microsoft.com/en-us/library/azure/JJ554330>
- Windows PowerShell Best Practices and Patterns (Webcast)
 - <https://channel9.msdn.com/Events/TechEd/NorthAmerica/2014/DCIM-B418>

- Repositories

- TechNet Gallery
 - <https://gallery.technet.microsoft.com>
- GitHub
 - <https://github.com/powershell>
- PowerShell Gallery
 - <https://www.powershellgallery.com>
- Scripts for Your Exchange Server Toolkit
 - <https://exchangeserverpro.com/powershell-scripts-exchange-server-toolkit>
- PoshCode
 - <http://poshcode.org>
- Power Tips (& Tip of the day)
 - <http://powershell.com/cs/blogs/tips>

- Blogs

- Windows PowerShell Blog
 - <http://blogs.msdn.com/b/powershell>
- Hey, Scripting Guy! Blog
 - <http://blogs.technet.com/b/heyscriptingguy>
- Mike Crowley's Whiteboard (**Demo Scripts Here**)
 - <http://MikeCrowley.us>

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