

# Mastering PowerShell for Exchange Online

@ThinkBaseTech



Mike Crowley  
Baseline Technologies



#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 3<sup>rd</sup> 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\*

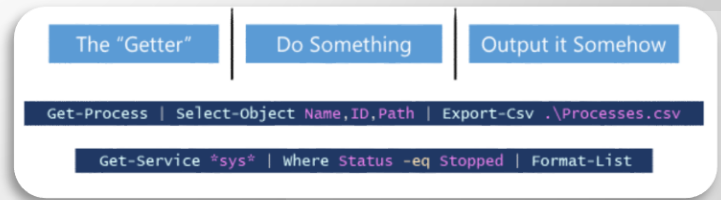
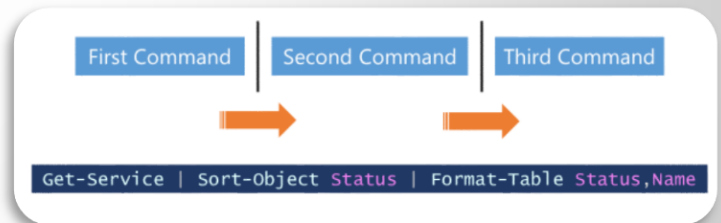


# Introduction

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

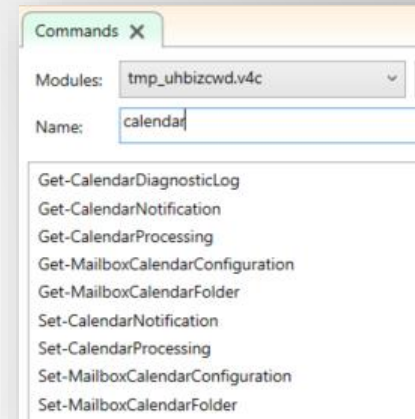
```
PS C:\>
PS C:\> DoWhat-withWhat -Param1 "Carefully"
PS C:\>
```

- 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_uhbizc wd.v4c
Get-Module -ListAvailable

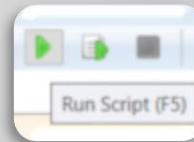
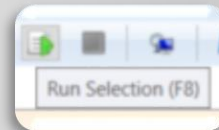
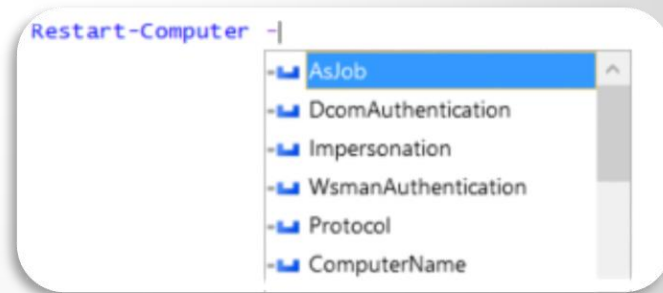
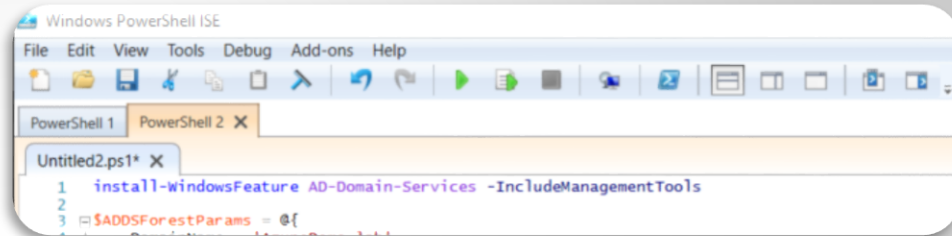
Get-Help Get-User -Online
```

# 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
```

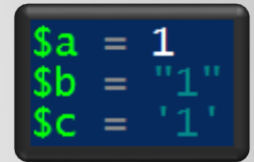


# Connecting to ExO & AAD

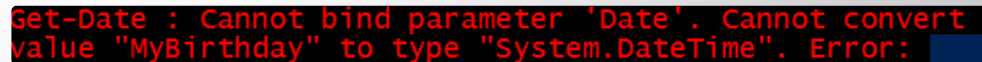
- A few tweaks:
  - Credential Handling
  - Splatting
  - Session Prefixes
- ExO & AAD Multi-factor Authentication
  - “Coming soon”

# PowerShell Techniques

- Comments & Comment-Based Help
- Variables
  - Leverage environmental variables
  - Be careful with object type mismatches
  - Variable scopes
    - [technet.microsoft.com/hh847849](http://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)
```

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