



PowerShell
Usergroup **Austria**

Intro und PowerShell Ökosystem

Roman Stadlmair

Gründer – PS UserGroup Austria

PowerShell MVP (5x)

Intro

<https://Powershell.co.at>

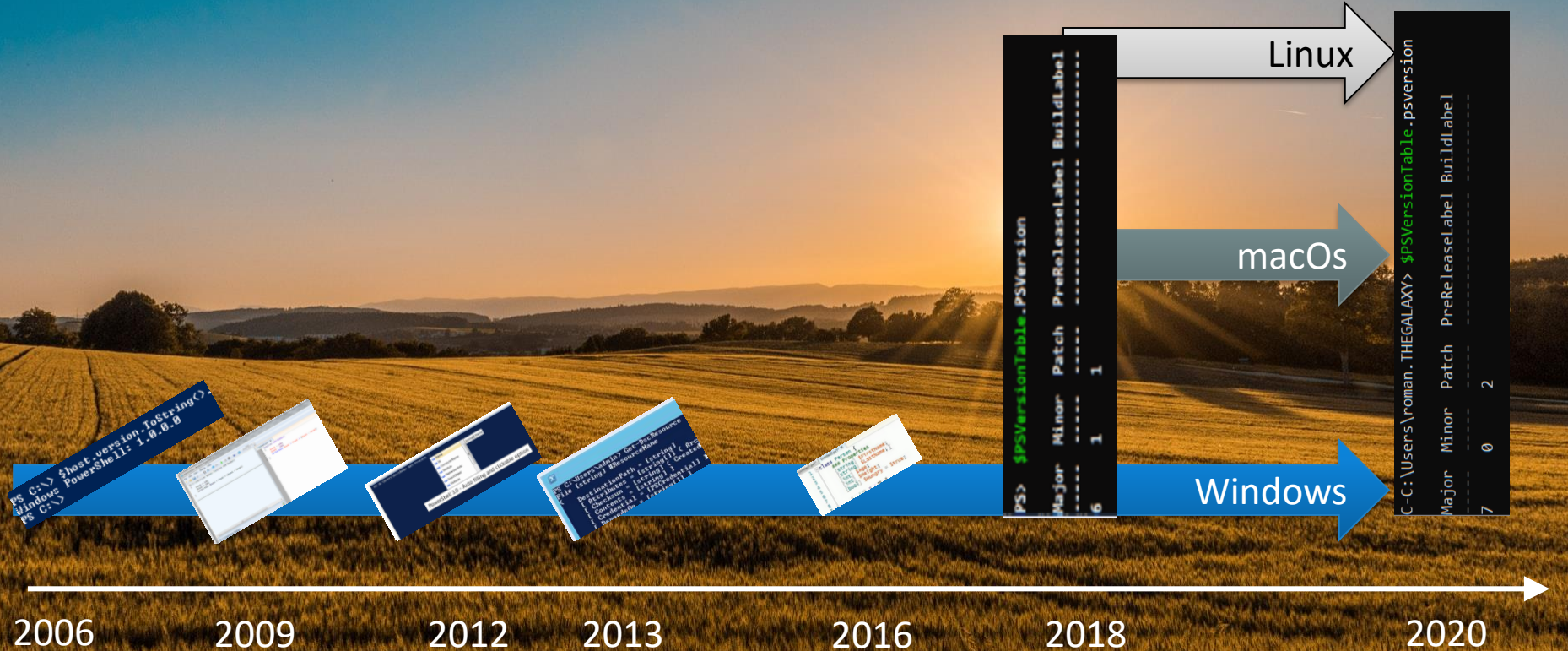
<https://expertslive.at>

Fragen an Steve Lee ==> Flipchart

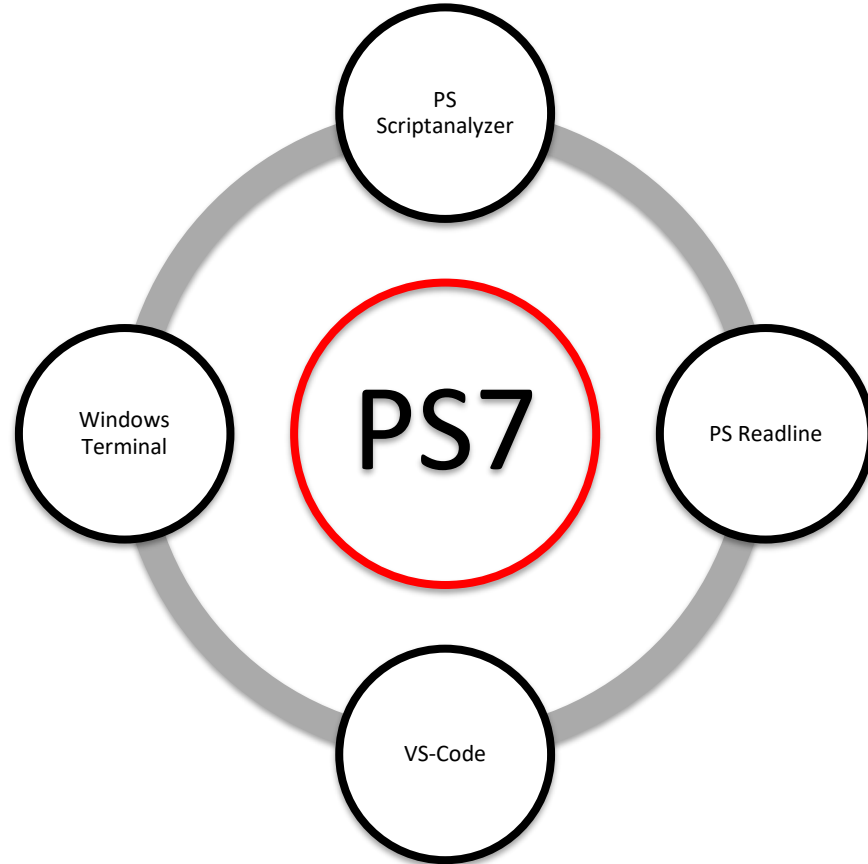
Agenda

- | | |
|---------------|--|
| 18:45 – 18:50 | Willkommen und Intro. |
| 18:50 – 19:10 | Das Powershell 7 Ökosystem
Roman Stadlmair |
| 19:10 – 19:30 | PS 5.1 und PS 7 im Praxiseinsatz side-by-side.
Möglichkeiten und Grenzen – Patrick Grünauer |
| 19:30 – 19:40 | Pause |
| 19:40 – 20:00 | Neue Features die es bei PowerShell noch nie gab!
Patrick Wahlmüller |
| 20:00 – 20:30 | Q&A an das PowerShell Engineering Team
mit Steve Lee (Microsoft) in der Session |

Eine neue Ära ist angebrochen



PowerShell 7 Ökosystem



PS Scriptanalyzer

<https://github.com/PowerShell/PSScriptAnalyzer>

- Community maintained (Christoph Bergmeister MVP)
- Unterstützt Win PS >3.0, PS Core > 6.0, Docker
- Verwendet von VS-Code PS Extension
- Analyse und Korrektur

Demo



PS Readline

<https://github.com/PowerShell/PSReadLine>

- Microsoft maintained
- Some features:
 - Farbig Syntax
 - Custom Key Bindings
 - History über Live sessions hinweg
- Desk und Core Support

Windows Terminal

<https://github.com/microsoft/terminal>

- Microsoft maintained
- Multi-Shell
- Remote-Shell
- Anpassungen
 - Themen/Fonts
 - Ränder
 - Icons
 - Logos

VS-Code

<https://github.com/microsoft/vscode>

- PLUS
 - Gliederung
 - Multi-Sprach-Support
 - Erweiterungen
 - Arbeitsbereiche
- Minus
 - Debugging
 - Eigendynamik



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PS 5.1 und PS 7 im Praxiseinsatz side-by-side. Möglichkeiten und Grenzen

Patrick Grünauer

Author of sid-500.com

Co-Author of «The PowerShell Conference Book»

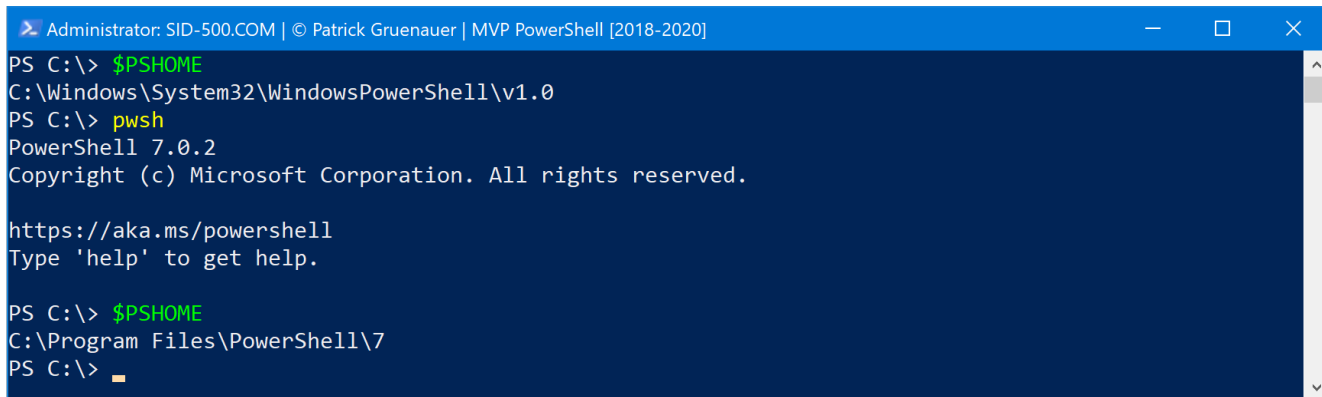
Microsoft MVP [2018-2021]

Agenda

- Side-by-Side Installation
- Klassen und Module in PS7
- Möglichkeiten und Grenzen
- Cmdlet Verbesserungen
- Hilfe? Hilfe !!!

PS 5.1 and PS 7 Side by Side ...

- Installation Path and Executable
- Module Path
- Separate Profiles
- Remoting
- Event Logs




```
Administrator: SID-500.COM | © Patrick Gruenauer | MVP PowerShell [2018-2020]
PS C:\> $PSHOME
C:\Windows\System32\WindowsPowerShell\v1.0
PS C:\> pwsh
PowerShell 7.0.2
Copyright (c) Microsoft Corporation. All rights reserved.















https://aka.ms/powershell
Type 'help' to get help.

PS C:\> $PSHOME
C:\Program Files\PowerShell\7
PS C:\>
```

Demo: Side-by-Side

 Event Viewer (Local)

- > Custom Views
- > Windows Logs
- ▼ Applications and Services Logs
 - Active Directory Web Services
 - DFS Replication
 - Directory Service
 - DNS Server
 - Hardware Events
 - Internet Explorer
 - Key Management Service
 - > Microsoft
 - > OpenSSH
 - ▼ PowerShellCore
 - Operational**
 - Windows Azure
 - Windows PowerShell
 - Subscriptions

Operational		Number of events: 7,286			
Level	Date and Time	Source	Even...	Task Category	
 Warning	3/3/2020 12:53:05 PM	PowerShellCore	4104	Execute a Remote Command	
 Warning	3/3/2020 12:53:05 PM	PowerShellCore	4104	Execute a Remote Command	
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 Warning	3/3/2020 12:53:06 PM	PowerShellCore	4104	Execute a Remote Command	

side-by-side.ps1

Klassen und Module

Module list

Module name	Status	Supported OS
ActiveDirectory	Natively Compatible	Windows Server 1809+ with RSAT-AD-PowerShell Windows 10 1809+ with Rsat.ActiveDirectory.DS-LDS.Tools
ADDSDeployment	Works with Compatibility Layer	Windows Server 2019 1809+
ADFS	Untested with Compatibility Layer	
AppBackgroundTask	Natively Compatible	Windows 10 1903+
AppLocker	Untested with Compatibility Layer	
AppvClient	Untested with Compatibility Layer	
Appx	Natively Compatible	Windows Server 1809+ Windows 10 1809+

Start-Process <https://docs.microsoft.com/en-us/powershell/scripting/whats-new/module-compatibility?view=powershell-7>

Klassen und Module

 SID-500.COM | Patrick Gruenauer | MVP PowerShell [2018-2020]

```
PS C:\> Import-Module AzureAD -UseWindowsPowerShell
WARNING: Module AzureAD is loaded in Windows PowerShell using WinPSCompat
input and output of commands from this module will be deserialized object
ell Core please use 'Import-Module -SkipEditionCheck' syntax.
PS C:\> Connect-AzureAD
Connect-AzureAD: One or more errors occurred.: The handle is invalid
Connect-AzureAD: One or more errors occurred.
Connect-AzureAD: The handle is invalid
Connect-AzureAD: One or more errors occurred.: The handle is invalid
PS C:\>
```

ⓘ Note

For the Azure Active Directory PowerShell for Graph module, you must use PowerShell version 5.1 or later. For the Microsoft Azure Active Directory Module for Windows PowerShell module, you must use PowerShell version 5.1 or later up to PowerShell version 6. You cannot use PowerShell version 7. For Windows 8.1, Windows 8, Windows 7 Service Pack 1 (SP1), Windows Server 2012 R2, Windows Server 2012, and Windows Server 2008 R2 SP1, download and install the [Windows Management Framework 5.1](https://docs.microsoft.com/en-us/office365/enterprise/powershell/connect-to-office-365-powershell).

<https://docs.microsoft.com/en-us/office365/enterprise/powershell/connect-to-office-365-powershell>

Demo: Möglichkeiten und Grenzen

- Klassen
 - Cortana spricht (5.1) oder nicht (7)?



Demo: Möglichkeiten und Grenzen

- Module und Skripts
- Warum funktioniert mein Skript nicht mehr?

```
1  ### PowerShell 7 (Try-Catch removed)
2
3  ### Retrieve all enabled Member-Server by name
4
5  $servers = (Get-ADComputer -Properties operatingSystem `
6  -Filter 'operatingsystem -like "*server*" -and enabled -eq "true"').Name
7
8  ### Ping all Member-Server
9
10 foreach ($item in $servers) {
11
12
13     $test = Test-Connection $item -Count 1
14
15     If ($test.Status -eq 'TimedOut')
16     {
17         $date = Get-Date -Format 'dd-MM-yyyy HH:mm'
18         $username = 'alert@sid-500.com'
19         $password = '123user!' | ConvertTo-SecureString -AsPlainText -Force
20         $cred = New-Object -TypeName System.Management.Automation.PSCredential -ArgumentList $username, $password
```

unterschiede_bsp_ping.ps1

Demo: Cmdlet Verbesserungen

- Warum sollte ich PowerShell 7 Cmdlets verwenden?

```
SID-500.COM | © Patrick Gruenauer | MVP PowerShell [2018-2020]
PS C:\> Get-Content -Path $env:windir\Panther\setupact.log | Select-String "First Boot"

2020-05-02 17:17:11, Info          IBSLIB ModifyBootEntriesLegacy: Not in first boot. No actions to perform.
SetupPhase[2]
2020-05-02 17:17:52, Info          CBS      Running under Setup's First boot, setting idle time to 30 minutes
2020-05-02 17:18:47, Info          [0x0601e1] IBS      InstallWindows:First boot phase of setup done!!!!

PS C:\> _
```

```
SID-500.COM | © Patrick Gruenauer | MVP PowerShell [2018-2020]
PS C:\> Get-Content -Path $env:windir\Panther\setupact.log | Select-String "First Boot"

2020-05-02 17:17:11, Info          IBSLIB ModifyBootEntriesLegacy: Not in first boot. No actions to perform.
SetupPhase[2]
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2020-05-02 17:18:47, Info          [0x0601e1] IBS      InstallWindows:First boot phase of setup done!!!!

PS C:\>
```

Demo: Cmdlet Verbesserungen

- Warum sollte ich PowerShell 7 Cmdlets verwenden?

Cheat Cheats > ➤ Foreach-Object_parallel_Test-NetConnection.ps1

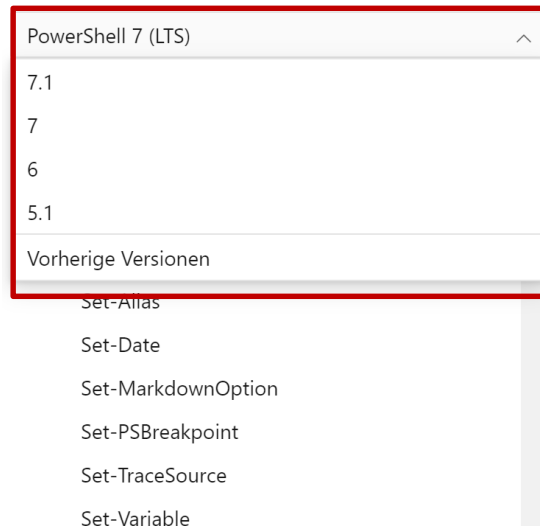
```
1  ### PowerShell 5 - Foreach-Object
2
3  Measure-Command {
4
5  $port = '443','80','53','88'
6
7  $port | ForEach-Object {Test-NetConnection -ComputerName 192.0.78.24 -Port $_ -WarningAction Ignore}
8
9  } | Select-Object Minutes,Seconds
10
11 ### PowerShell 7 - Foreach-Object -Parallel
12
13 Measure-Command {
14
15 $port = '443','80','53','88'
16
17 $port | ForEach-Object -Parallel
18
19 {Test-NetConnection -ComputerName 192.0.78.24 -Port $_ -WarningAction Ignore}
20
21 } | Select-Object Minutes,Seconds
22
```

Minutes	Seconds
-----	-----
1	18

Minutes	Seconds
-----	-----
0	31

Hilfe? Hilfe !!!

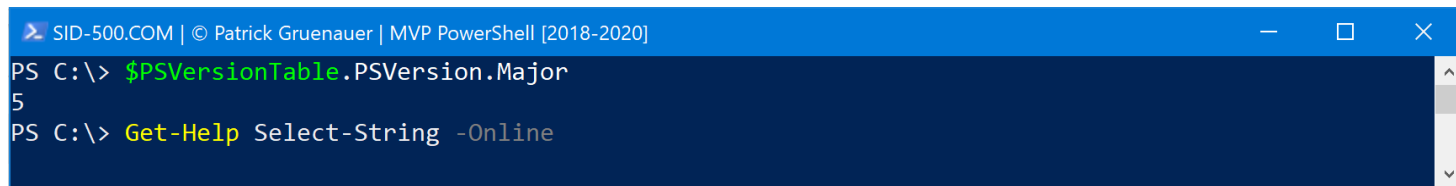
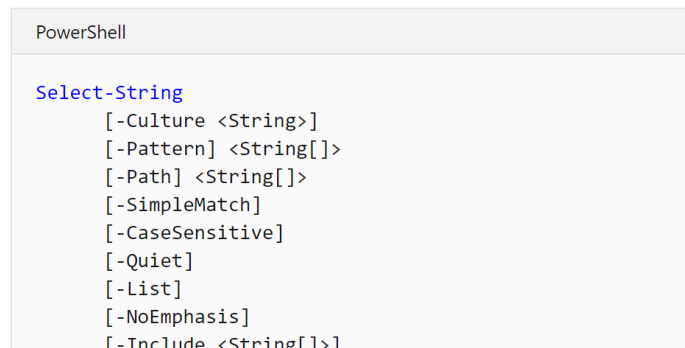
Version



Select-String

Module: [Microsoft.PowerShell.Utility](#)

Finds text in strings and files.





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PowerShell 7

Neue Features die es bei PowerShell noch nie gab!

Patrick Wahlmüller

PowerShell UserGroup Austria

ExpertsLiveAT

PowerShell MVP

@pwahlmueller

PowerShell 7



What is it?

PowerShell built on .NET Core 3.1

Long-term servicing for ~3 years

Improved performance



New scenarios

Secret / credential management

Invoke-DscResource
ForEach-Object -Parallel



Windows compatibility

Better backwards compatibility with Windows

Windows PowerShell wrapper for Import-Module

Group Policy support



Delighters

New error views and Get-Error

New version notification

Ternary operator (`a ? b : c`)

Pipeline chain operators (`||` and `&&`)

Null conditional operators (`??` and `??=`)

Neue Operatoren

- Ternary (**a ? b : c**)
- Pipeline chain (**&&** and **||**)
- Null-coalescing (**??** and **??=**)

ForEach-Object -Parallel

- Parallele Ausführung der Pipeline
 - Logs holen von unterschiedlichen Servern
 - Zugriff auf unterschiedliche Datenbanken
 - Synchroner REST Aufrufe parallelisieren
- -ThrottleLimit
- Verwendet ThreadJob

Windows Compatibility Update

- Module Kompatibilität bei Windows Server 2019 bei 85%
- Weitere Verbesserungen, sobald diese bei .Net dabei sind
- PKI, TLS und BitsTransfer sind schon kompatibel
- Legacy mode
 - Automatisch für 32 bit Module
 - Import-Module –UseWindowsPowerShell
 - Windows PowerShell Runspace für jede PS7 Instanz

VSCode

- Gedanken
- Debuggen
- Stabilität (Intellisense) und Ausblick

Demo

- Improved performance
- Operatoren
- ForEach-Object



PowerShell 7.1

- Release etwas nach .NET 5 Release (Winter 2020)
- Aktuell PS 7.1 Preview 5 (6. Juli)
 - PowerShell Get 3.0
 - Secret Management Module
 - VSCode-PowerShell, PSEditorServices, PSScriptAnalyzer 2.0
 - PowerShell Jupyter Kernel
 - platyPS vNext

Powershell 7.1 – Part 2

- Installation and Update
- (native) Shell Improvements
- Interactive User Experience
- Minimal PowerShell

Contribute

- Was hindert dich PS7 zu verwenden
- Community Calls



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End Slide

Patrick Wahlmueller