

# Instructions

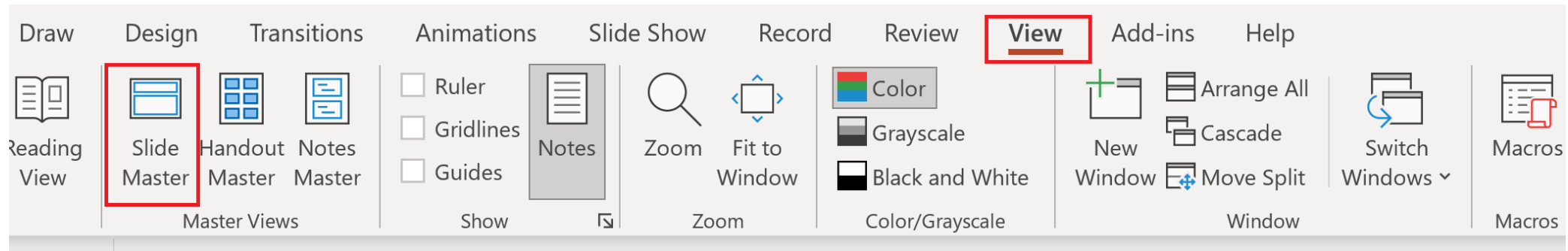
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- Please make sure our sponsors are mentioned on your first slide after the title.
- Do not amend the ratio or the colours of the sponsors' logo and background.
- Update your twitter handle through the master page (see next slides).

# Instruction (Continued)

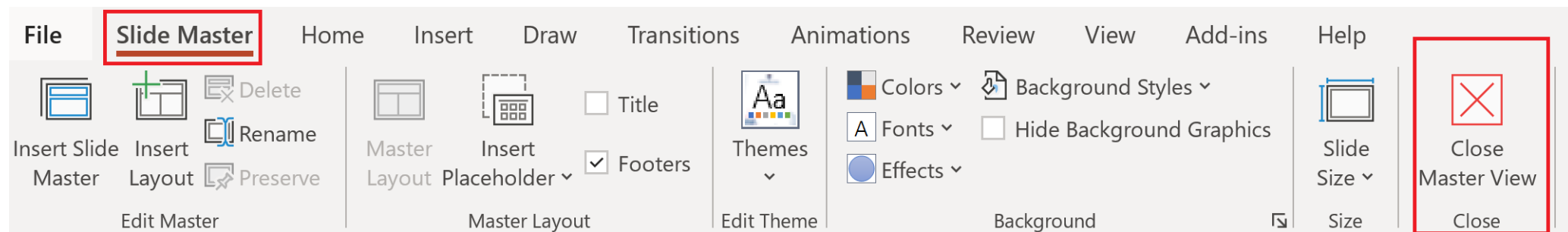
- The session is 30 min.
- Then 15min Q&A.
- At the end of your 45 min, please leave the room to the next speaker.
- You're welcome to continue the discussion in the Foyer area.

# Update the twitter handle on the master slide

To open the slide master:



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If you need any help, do not hesitate to email us at [psconf.eu@syndgy.com](mailto:psconf.eu@syndgy.com)



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## PowerShell Conference Europe

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Next Up:

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3

2

**1**



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**PowerShell Conference Europe**

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# AI Shell

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*Steven Bucher*



## Many thanks to our sponsors:



**Jane Street**



**IRONMAN SOFTWARE**

KNOWLEDGE  
FACTORY



**SynEdgy**



**PSCONF EU SPEAKER**

# Steven Bucher

- Product Manager at Microsoft
- Maintain AI Shell, PSReadLine, Microsoft Updates for PowerShell and lately server management
- Fourth PSConfEU!

# Shells ... how many can you recognize ?



```
PS C:\> Get-Childitem 'MediaCenter\Music' -rec !
>> where < -not $_.PSIsContainer -and $_.Extension -match 'wma|mp3' > |
>> Measure-Object -property length -sum -min -max -ave

Count      : 1307
Average    : 5491276.09563887
Sum        : 7127097857
Maximum    : 22905267
Minimum    : 3235
Property   : Length
```

```
-zsh
dcara@Damiens-MacBook-Pro / % uname -a
Darwin Damiens-MacBook-Pro.local 24.1.0 Darwin Kernel Version 24.1.0: Thu Oct 10 21:03:15 PDT 2024; root:xnu-11215.41.3~2/RELEASE_ARM64_T6000
arm64
dcara@Damiens-MacBook-Pro / % ls -l
total 10
drwxr-xr-x  54 root  admin   1728 Nov 14 09:18 Applications
drwxr-xr-x  72 root  wheel   2304 Nov  4 01:06 Library
drwxr-xr-x@ 10 root  wheel   320 Oct 22 00:49 System
drwxr-xr-x  5 root  admin   160 Nov  4 01:05 Users
drwxr-xr-x  3 root  wheel    96 Nov 14 23:28 Volumes
drwxr-xr-x@ 39 root  wheel  1248 Oct 22 00:49 bin
drwxr-xr-x  2 root  wheel    64 Jul 14 2022 cores
dr-xr-xr-x  4 root  wheel   4724 Nov  4 01:04 dev
lrwxr-xr-x@ 1 root  wheel    11 Oct 22 00:49 etc -> private/etc
lrwxr-xr-x  1 root  wheel    25 Nov  4 01:06 home -> /System/Volumes/Data/home
drwxr-xr-x  4 root  wheel   128 Aug 28 22:22 opt
drwxr-xr-x  6 root  wheel   192 Nov  4 01:06 private
drwxr-xr-x@ 77 root  wheel  2464 Oct 22 00:49/sbin
lrwxr-xr-x@ 1 root  wheel    11 Oct 22 00:49 tmp -> private/tmp
drwxr-xr-x@ 11 root  wheel   352 Oct 22 00:49 usr
lrwxr-xr-x@ 1 root  wheel    11 Oct 22 00:49 var -> private/var
dcara@Damiens-MacBook-Pro / %
```

```
# uname -a
OpenBSD berkeley
# pwd
/tmp
# cd ~
# ls -l
total 2112
-rw-r--r--  1 r
-rw-r--r--  1 r
-rw-r--r--  1 root wheel 310 Mar 13 2013 .cshrc
drwxr-xr-x  3 root wheel 512 Jun 24 2013 .gem
-rw-r--r--  1 root wheel 125 Mar 13 2013 .klogin
-rw-r--r--  1 root wheel 328 Mar 13 2013 .login
-rw-r--r--  1 root wheel 552 Jun 24 2013 .profile
-rw-r--r--  1 root wheel 63 Jun 20 2013 .serverauth.18088
-rw-r--r--  1 root wheel 1044692 Jun 28 2013 mbox
# whoami
root
# ls -l $(which vi)
-r-xr-xr-x  3 root  bin  361496 Mar 13 2013 /usr/bin/vi
# echo $SHELL
/bin/ksh
#
```

```
Current date is Tue 1-01-1980
Enter new date:
time is 7:48:27.13
time:
```

```
Personal Computer DOS
1.10 (C)Copyright IBM Corp 1981, 1982
```

```
MS-DOS Prompt
Auto
Microsoft(R) Windows 95
(C)Copyright Microsoft Corp 1981-1996.
C:\WINDOWS>command.com /?
Starts a new copy of the Windows Command Interpreter.
File
COMMAND [[drive:]path] [/E:nnnnn] [/L:nnnnn] [/U:nnnn] [/P] [/MSG]
[drive:]path Specifies the directory containing COMMAND.COM.
[/L:nnnn] [/U:nnnn] Specifies the device to use for command input and output.
device Sets the initial environment size to nnnnn bytes.
/E:nnnnn (nnnnn should be between 256 and 32,768).
/L:nnnnn Specifies internal buffers length (requires /P as well).
(nnnnn should be between 128 and 1,024).
/U:nnnn Specifies the input buffer length (requires /P as well).
(nnnn should be between 128 and 255).
-
TNT$UTILITY.COM;1 USB$STARTUP.COM;1
UTC$CONFIGURE_TDF.COM;1
UTC$TIME_ZONE_SETUP.COM;1
VMS$AUDIT_SERVER.DAT;1
VMS$IMAGES_MASTER.DAT;1
WELCOME.TXT;1
WELCOME.TEMPLATE;1
Total of 118 files.
Grand total of 2 directories, 136 files.
$ SHOW SYSTEM
OpenVMS V8.4-2L1 on node AXP001 19-AUG-2020 23:59:16.22 Uptime 0 00:03:09
Pid Process Name State Pri I/O CPU Page flts Pages
00000081 SWAPPER HIB 16 0 0 00:00:03.03 0 4
00000084 LANACP HIB 14 70 0 00:00:00.06 111 137
00000086 IPCACP HIB 10 9 0 00:00:00.00 37 51
00000087 ERRFMT HIB 9 53 0 00:00:00.05 113 134
00000089 OPCOM HIB 6 41 0 00:00:00.03 64 73
0000008A AUDIT_SERVER HIB 9 56 0 00:00:00.07 125 160
0000008B JOB_CONTROL HIB 8 32 0 00:00:00.03 49 76
0000008D SECURITY_SERVER HIB 10 81 0 00:00:00.35 376 378
0000008E ACME_SERVER HIB 10 71 0 00:00:00.23 465 438 M
00000090 TP_SERVER HIB 10 21 0 00:00:00.05 80 104
00000096 SYSTEM CUR 4 328 0 00:00:00.46 568 123
$
```

```
owershell/rss.aspx'
t.Webclient>.DownloadS
file -first 3
```

logies

'Windows PowerShell:

# Observations

```
Azure CLI Copy
az vm create --name
  --resource-group
  [--accelerated-networking {false, true}]
  [--accept-term]
  [--admin-password]
  [--admin-username]
  [--asgs]
  [--assign-identity]
  [--attach-data-disks]
  [--attach-os-disk]
  [--authentication-type {all, password, ssh}]
  [--availability-set]
  [--boot-diagnostics-storage]
  [--capacity-reservation-group]
  [--computer-name]
  [--count]
  [--custom-data]
  [--data-disk-caching]
  [--data-disk-delete-option]
  [--data-disk-encryption-sets]
  [--data-disk-sizes-gb]
  [--disable-integrity-monitoring]
  [--disable-integrity-monitoring-autoupgrade]
  [--disk-controller-type {NVMe, SCSI}]
  [--edge-zone]
  [--enable-agent {false, true}]
  [--enable-auto-update {false, true}]
  [--enable-hibernation {false, true}]
  [--enable-hotpatching {false, true}]
  [--enable-integrity-monitoring]
  [--enable-proxy-agent {false, true}]
  [--enable-secure-boot {false, true}]
  [--enable-vtpm {false, true}]
  [--encryption-at-host {false, true}]
  [--ephemeral-os-disk {false, true}]
  [--ephemeral-os-disk-placement {CacheDisk, NvmeDisk, ResourceDisk}]
  [--eviction-policy {Deallocate, Delete}]
  [--generate-ssh-keys]
  [--host]
  [--host-group]
  [--image]
  [--license-type {None, RHEL_BASE, RHEL_BASESAPAPPS, RHEL_BASESAPHA, RHEL_BYOS, RHEL_EL
  [--location]
  [--max-price]
```

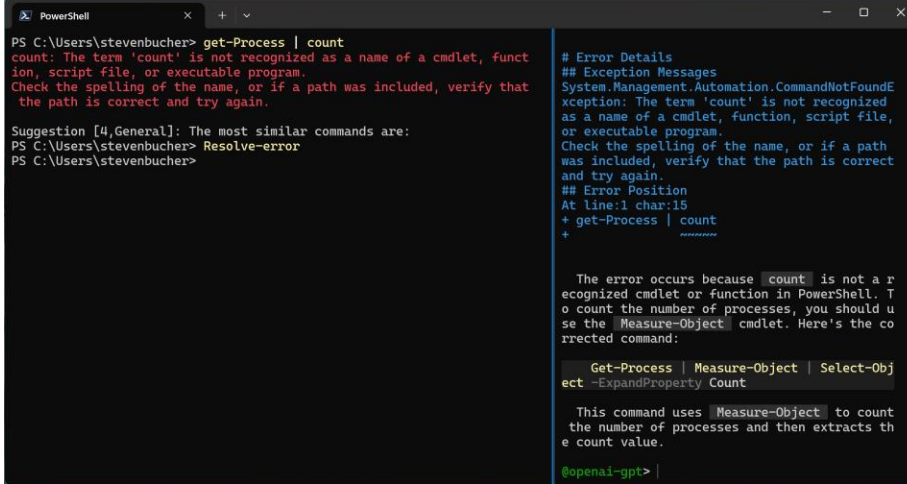
- The prompt is intimidating
- Exponential growth of command due to cloud
  - Azure PowerShell: 6,000+ cmdlets
  - Azure CLI: 10,000+ commands
  - Microsoft Graph: 50,000+ cmdlets
- Tab completion is not always useful / helpful
  - Parameters require complex objects
  - Too many commands with the same beginning
- Combinations of parameters too complex
  - Optional vs required parameters
  - Difficult to identify value types

# Demo



# AI Shell's Capabilities

- Cross platform
  - Windows and Mac OS
  - Linux not supported
- User experience
  - Sidecar meta language
  - Interactions between sidecar and primary shell
  - Sidecar can read errors from primary shell
  - Primary shell suggest commands returned for execution
- Client for various AI Agents/Providers
  - OpenAI-GPT
  - Azure
  - Extensible – learn more at <https://aka.ms/AIShell-Create-Agent>



```
PS C:\Users\stevenbucher> get-Process | count
count: The term 'count' is not recognized as a name of a cmdlet, function, script file, or executable program.
Check the spelling of the name, or if a path was included, verify that the path is correct and try again.

Suggestion [4,General]: The most similar commands are:
PS C:\Users\stevenbucher> Resolve-error
PS C:\Users\stevenbucher>

# Error Details
## Exception Messages
System.Management.Automation.CommandNotFoundException: The term 'count' is not recognized as a name of a cmdlet, function, script file, or executable program.
Check the spelling of the name, or if a path was included, verify that the path is correct and try again.
## Error Position
At line:1 char:15
+ get-Process | count
+ ~~~~~

The error occurs because 'count' is not a recognized cmdlet or function in PowerShell. To count the number of processes, you should use the 'Measure-Object' cmdlet. Here's the corrected command:

Get-Process | Measure-Object | Select-Object -ExpandProperty Count

This command uses 'Measure-Object' to count the number of processes and then extracts the count value.

@openai-gpt> |
```

## OpenAI Compatible Provider



AI Agent is the core selected tool in AI Shell

GPTs are another categorization

- Unique providers and prompts

- Generic AI assistance within the shell
- Connect the AI provider of your choice
  - OpenAI
  - AzureOpenAI
  - Gemini
  - Grok
  - Ollama
  - And more!



# Azure AI Foundry



- (also known as Azure OpenAI)
- Manageability
  - Selection of models
  - Content safety and security
  - Quota management
- Train the model with **your** data
- Ensure your data stays with you
- Key based OR EntraID based Auth

Set input filter

What are these categories ?

Content will be annotated by category and blocked according to the threshold you set. For the violence, hate, sexual, and self-harm categories, adjust the slider to block content of high, medium, and/or low severity.

Category	Media	Action	Threshold
Violence	<input type="checkbox"/> Text <input type="checkbox"/> Image	Annotate and block	Medium Allow Low / Block Medium and High
Hate	<input type="checkbox"/> Text <input type="checkbox"/> Image	Annotate and block	Medium Allow Low / Block Medium and High
Sexual	<input type="checkbox"/> Text <input type="checkbox"/> Image	Annotate and block	Medium Allow Low / Block Medium and High
Self-harm	<input type="checkbox"/> Text <input type="checkbox"/> Image	Annotate and block	Medium Allow Low / Block Medium and High
Prompt shields for jailbreak attacks	<input type="checkbox"/> Text	Annotate and block	Jailbreak attacks will be blocked
Prompt shields for indirect attacks	<input type="checkbox"/> Text	Off	Content will not be annotated at all

☒ Blocklist (Preview)

Select built-in or customized blocklist

CustomBlocklist-AIShell





# Copilot in Azure

Enabling Azure assistance directly in your shell

# Copilot in Azure

- Beyond search
  - Command and usage guidance
  - Set your parameter values (ex: location, resource. group)
  - Completers for retrievable values:
    - Locations
    - Resource group names
    - SKUs
  - Knowledge of end-to-end scenarios using best practices
- Responsible AI
  - No personal or company data is stored or reused with the @Azure agent
  - We only save data when you choose to share with Microsoft

@azure> How do I create a key vault ?

To create a Key Vault in Azure using the Azure CLI, you can use the following command:

```
az keyvault create --name <keyVaultName> --resource-group <resourceGroupName> --location <location>
```

Replace the placeholders with your specific values:

- <keyVaultName>** : The name you want to assign to your Key Vault.
- <resourceGroupName>** : The name of the resource group where the Key Vault will be created.
- <location>** : The Azure region where the Key Vault will be located.

Run **/replace** to get assistance in placeholder replacement.

## Input Values

- az keyvault create --name <keyVaultName>**  
The name you want to assign to your Key Vault.  
Recommended pattern: <prod>-kv[<env>][<id>]  
**<keyVaultName>**: prod-kv-1234
- az keyvault create --resource-group <resourceGroupName>**  
The name of the resource group where the Key Vault will be created.  
**<resourceGroupName>**: aishell-rd
- az keyvault create --location <location>**  
The Azure region where the Key Vault will be located.  
**<location>**: southcentralus  
**<2/50>** **<suggestion(2/50)>**
  - > eastus [suggestion]
  - > southcentralus [suggestion]
  - > westus2 [suggestion]
  - > westus3 [suggestion]
  - > australiaeast [suggestion]
  - > southeastasia [suggestion]
  - > northeurope [suggestion]
  - > swedencentral [suggestion]
  - > uksouth [suggestion]
  - > westeurope [suggestion]

## Summary

The following placeholders will be replaced:

```
<keyVaultName> : prod-kv-1234
<resourceGroupName> : aishell-rd
<location> : westus3
```

## Regenerate

Query: How do I create a key vault ?

To create a Key Vault in Azure using the Azure CLI, you can use the following command:

```
az keyvault create --name prod-kv-1234 --resource-group aishell-rd --location westus3
```

# What about helping generate longer scripts?

I want to develop larger CLI/PS Scripts not in the shell...

# GitHub Copilot For Azure!

- Graduating from single command to complex scripts
- @Azure questions related to CLI and AI Shell have **consistent** responses
- Compatible with Agent mode
- Learn more
  - <https://aka.ms/GitHubCopilotForAzureBlog>
- Try it
  - <https://aka.ms/GitHubCopilotForAzure>

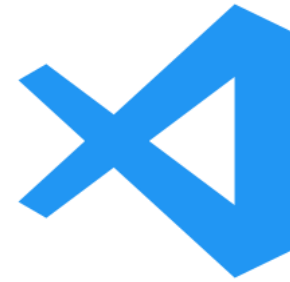
# The Power of *Copilot in Azure* wherever you work



- Azure Portal



- AI Shell



- GitHub Copilot for Azure

# What is AI Ops?

It's a strategy and definition changes a LOT

“Artificial intelligence for IT operations, or AIOps, is the application of artificial intelligence (AI) capabilities—such as natural language processing and machine learning models—to **automate, streamline and optimize IT service management and operational workflows.**” -IBM

# How you can use AI Shell or other AI tools to help you

- Auto-Remediate a Failed Service
- Check Disk Space and Log Warnings
- Log File Pattern Recognition
- Security Alert
- Dynamic Script Generation Based on AI Insights
- Automated Patch Compliance Checker



# Public preview

- Try it:
  - <https://aka.ms/AIShell>
- Open Source
  - <https://github.com/PowerShell/AIShell>
- Known limitations
  - Not supported in elevated mode on Windows Terminal
  - No side car support for Linux
  - It's a preview 😊 may be buggy



# What are we looking at next for AI Shell?

- MCP Support
- Exploration of how to better assist you when you need it
- Exploring agentic approach
- What else would help you?

# Q&A

15 minutes

