

Automation with SQL, PowerShell, & Interactive Notebooks

Mike Nelson

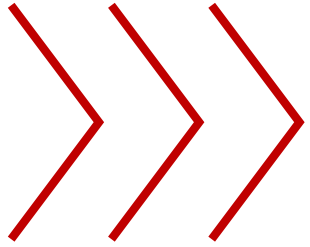
Solutions Architect

Pure Storage

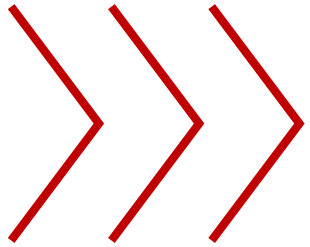


Accelerating Data-Driven Success





APIs and SDKs



Interactive Notebooks & Snippets

OPEN STANDARDS

API DRIVEN ARCHITECTURE TO SUPPORT SIMPLIFIED INTEGRATION AND MACHINE BASED MANAGEMENT



API Driven

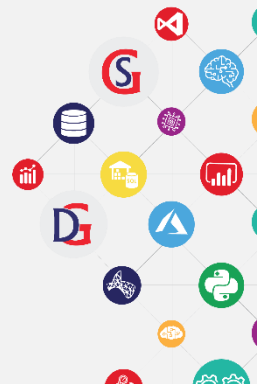
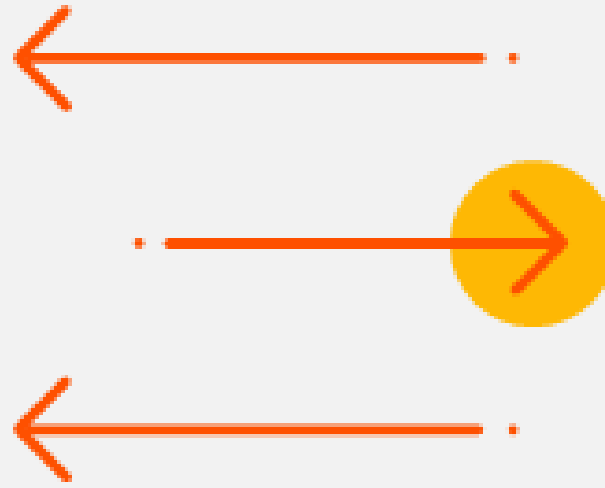


DevOps Integrated



THE APIs

FlashArray
FlashBlade
Pure1
...



In-product, online, & docker container



Select a definition

Pure1 Public REST API 1.latest



Pure1 Public REST API ^{1.latest}

[Base URL: api.pure1.purestorage.com]

<https://static.pure1.purestorage.com/api-swagger/Pure1-1.latest.spec.yaml>

Pure1 Public REST API, developed by [Pure Storage, Inc.](#)

The Pure1 REST API 1.latest offers one single form of authentication: OAuth 2.0 via the [Token Exchange protocol](#).

OAuth 2.0 is an open protocol to allow secure authorization in a simple and standard method from web, mobile, desktop and background applications.

Note that the [Authentication](#) section below mentions 'API Key' as the security scheme type. This is solely for the purpose of allowing testing this API with [Swagger UI](#).

[Knowledge base reference documentation](#)

Schemes

HTTPS



Authorize



Authorization Handles authorization access to other API endpoints through OAuth 2.0 Token Exchange.



POST

/oauth2/1.0/token Get access token

Alerts Provides access to capacity, health, and hardware related array alerts.



THE SDKs

PowerShell

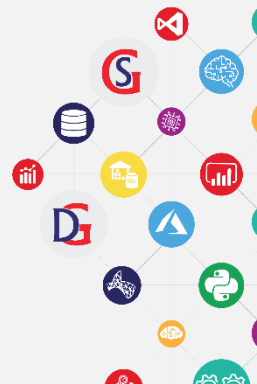
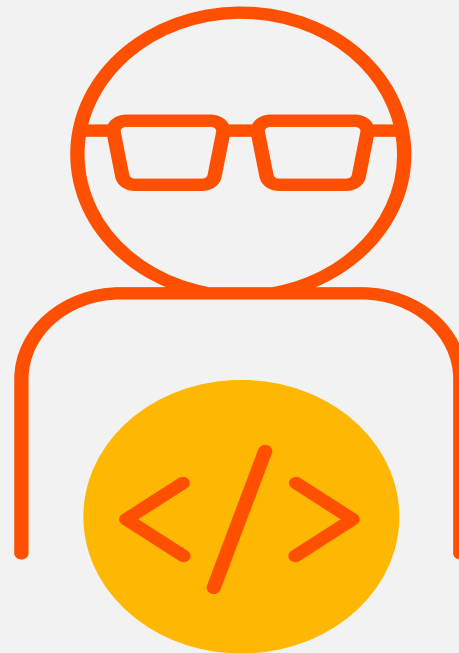
Python

Ruby

Go

Unified

... more coming



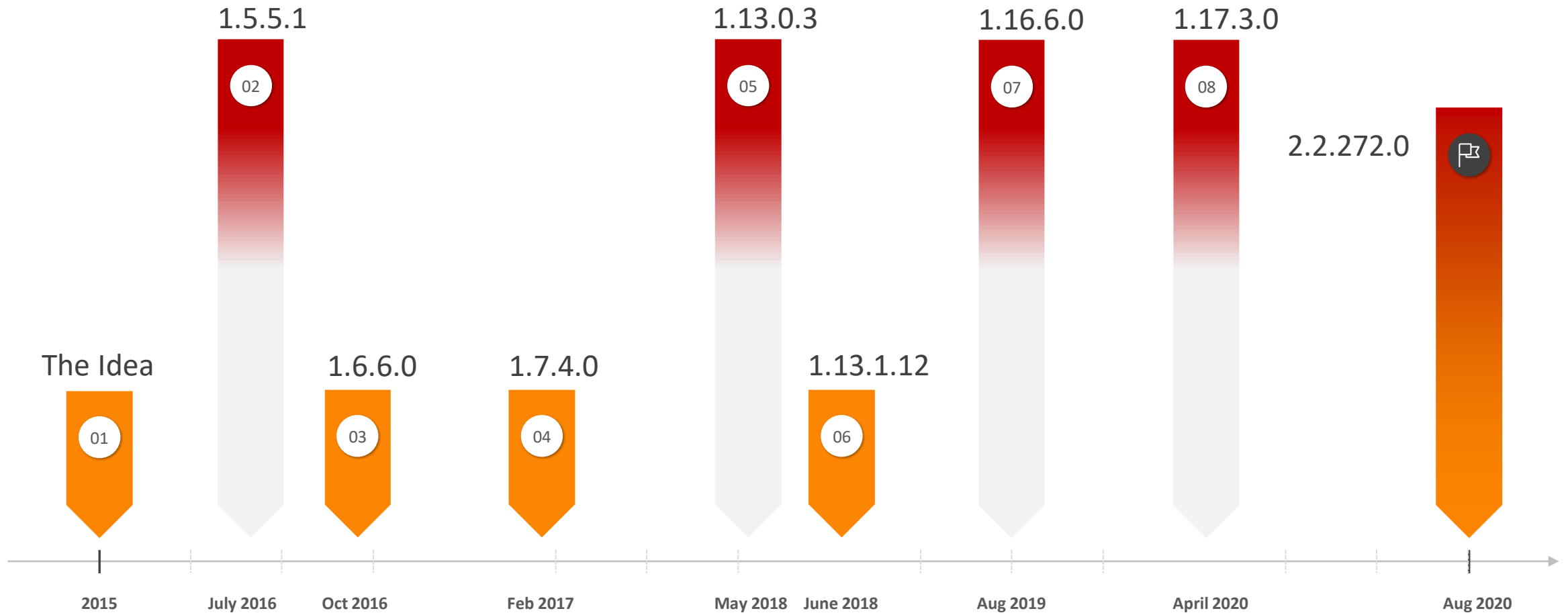
PS C:\> Get-Module -Name *pure*

ModuleType	Version	PreRelease	Name	ExportedCommands
Script	3.0		purefbmodule	{Add-PfbAlertWatcher, Add-PfbArrayConnections, Add-PfbArrayConnection...
Manifest	2.2.1.0		purestorage.flasharray.vmware	
Script	2.0.0.2		PureStorage.FlashArray.VMware.Conf...	{Get-PfaConnectionFromArrayId, Get-PfaConnectionOfDatastore, Get-PfaD...
Script	2.0.1.0		PureStorage.FlashArray.VMware.RDM	{Convert-PfaRdmToVvol, Copy-PfaSnapshotToRdm, Get-PfaConnectionFromRd...
Script	2.0.0.2		PureStorage.FlashArray.VMware.Soft...	{Deploy-PfaAppliance, Get-PfaAppliance, Get-PfaVspherePlugin, Install...
Script	2.0.0.2		PureStorage.FlashArray.VMware.VCF	{Get-PfaVcfVasaProvider, Initialize-PfaVcfWorkloadDomain, New-PfaVcfV...
Script	2.0.0.1		PureStorage.FlashArray.VMware.VMFS	{Add-PfaVmfsToCluster, Get-PfaVmfsSnapshot, Get-PfaVmfsVol, New-PfaVm...
Script	2.0.0.2		PureStorage.FlashArray.VMware.Vvol	{Add-EntityDefaultKeyProvider, Add-KeyManagementServer, Add-Passthrou...
Script	1.0.0.1		PureStorage.FlashArray.VMware.Vvol...	{Get-PfaVvolFaultDomain, Get-PfaVvolReplicationGroup, Get-PfavVolRepl...
Script	1.0.0.1		PureStorage.FlashArray.VMware.Vvol...	{Build-PfaVvolStoragePolicyConfig, Edit-PfaVvolStoragePolicy, Get-Pfa...
Script	1.4.4.1		PureStorage.Pure1	{Get-PureOneAlert, Get-PureOneArray, Get-PureOneArrayLoadMeter, Get-P...
Script	0.0		PureStorageBackupSDK	{Add-PfaBackupCred, Add-PfaBackupJob, Connect-PfaVMHardDisk, Dismount...
Binary	1.17.16.0		PureStoragePowerShellSDK	{Add-PfaArrayToPod, Add-PfaHostGroupsToProtectionGroup, Add-PfaHostIq...
Binary	2.2.272.0		PureStoragePowerShellSDK2	{Connect-Pfa2Array, Disconnect-Pfa2Array, Get-Pfa2Admin, Get-Pfa2Admi...
Script	2.0.2.0		PureStoragePowerShellToolkit	{Get-AllHostVolumeInfo, Get-FlashArrayConfig, Get-FlashArrayDisconnec...

PS C:\> Get-Command -Module PureStoragePowerShellSDK2

CommandType	Name	Version	Source
Cmdlet	Connect-Pfa2Array	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Disconnect-Pfa2Array	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2Admin	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2AdminApiToken	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2AdminCache	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2AdminSetting	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2Alert	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2AlertEvent	2.2.272.0	PureStoragePowerShellSDK2
Cmdlet	Get-Pfa2ApiClient	2.2.272.0	PureStoragePowerShellSDK2

SDK Timeline



SQL BackupSDK

- PureStorageBackupSDK

PowerShell Script button

Restore

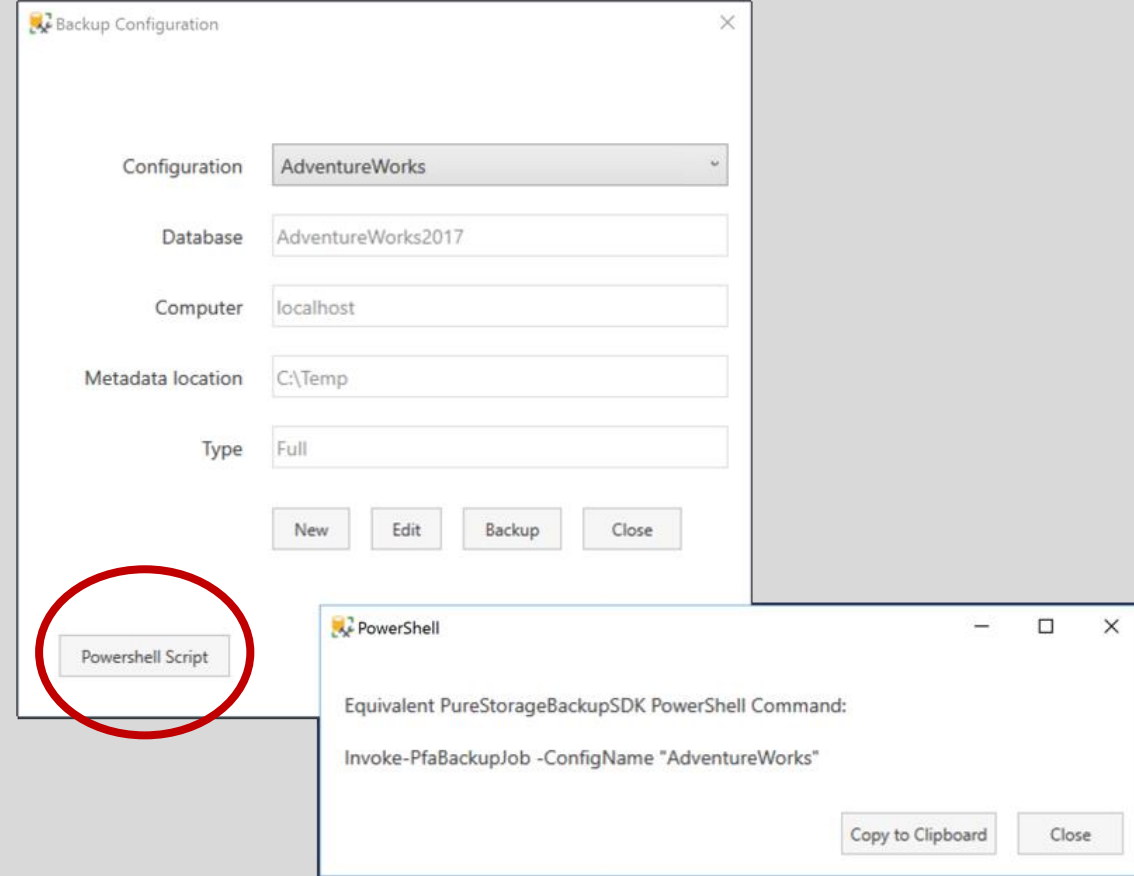
```
Restore-PfaBackupJob -HistoryId 1
```

Dismount

```
Dismount-PfaBackupJob -HistoryId 1
```

Remove

```
Remove-PfaBackupHistory -HistoryId 1
```



Creating new backup configurations

```
Add-PfaBackupJob -ConfigName "<ConfigName>" `
  -Component "<DBName>" -MetadataDir "C:\Temp" `
  -ComputerName "localhost" -FAName `
  "<FlashArrayName>"
```

FlashArray Python SDK

🏠 Pure Storage REST Client

stable

Installation Guide

Quick Start Guide

API Glossary

Indices and tables

Change Log

[Docs](#) » Pure Storage FlashArray REST Client Documentation

[Edit on GitHub](#)

Pure Storage FlashArray REST Client Documentation

Overview

The **Pure Storage FlashArray REST Client** is a python module that simplifies integration with the Pure Storage FlashArray REST interface.



Pure/Code()

PureStorage-Connect

PureStorage-OpenConnect

PureStorage-PartnerConnect

PURESTORAGE®

GETTING STARTED ▾ COMMUNITY  

IMPORTANT NOTIFICATION
Python SDK support for Python 2.x is being deprecated, more info [here](#).


PURE

CODE()

DEVELOPER COMMUNITY

☐ MICROSOFT☐ DEVOPS☐ CONTAINERS☐ DATABASE☐ VIRTUALIZATION

FEATURED




Terraform

**TERRAFORM
PROVIDER FOR PURE
CLOUD BLOCK STORE**

Terraform provider for Pure Cloud Block Store.

FEATURED




PSO Explorer

IT IS MY BUSINESS TO
KNOW WHAT OTHER
PEOPLE DON'T KNOW

PSO EXPLORER

PSO Explorer Helm Chart

FEATURED



ORCA

Oracle Rapid Clone Automation (ORCA)
is a sample Ansible playbook which can
be used to automate Oracle databases
cloning on Linux

[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

Pure Storage Open Connect

GitHub contributions from Pure Storage Customers, Architects, System Engineers, and Developers.

Mountain View, CA

<https://code.purestorage.com>

openconnect@purestorage.com

Part of Pure Storage

[Overview](#)[Repositories](#) 117[Packages](#)[People](#) 36[Teams](#) 19[Projects](#)[Insights](#)[Settings](#)

Pinned

[Customize your pins](#)[Code-of-Conduct](#)

Code of Conduct for all Pure Storage Open Connect projects

[powershell-toolkit](#)

The Pure Storage PowerShell Toolkit provides a number of different cmdlets ranging from core Windows Server, WMI, WSMAN, & .NET assemblies. The intention of the toolkit is to provide a library for ...

PowerShell ☆ 19 🍴 4

[PureStorage.FlashArray.VMware](#)

Pure Storage FlashArray VMware PowerShell Module

PowerShell ☆ 5 🍴 3

[zero-touch-provisioner](#)

FlashArray and FlashBlade Zero-Touch-Provisioner

Go ☆ 5 🍴 1

[rest-client](#)

Pure Storage FlashArray Python REST 1.X Client

Python ☆ 32 🍴 22

[pure-exporter](#)

Prometheus exporter for Pure Storage FlashArray and FlashBlade

Python ☆ 16 🍴 16

People

[View all](#)[Invite someone](#)

Top languages

Python PowerShell Shell Go
PLpgSQL



Repositories

Type ▾

Language ▾

Sort ▾

[New](#)

[pure1-unplugged](#)

An on-premises storage fleet management system leveraging Kibana

Most used topics

[Manage](#)

[purestorage](#) [flasharray](#) [powershell](#)
[python](#) [ansible](#)

PowerShell Toolkits





Learning the Pure Storage PowerShell SDK - .Net Interactive Notebook Series

Notebook #1 - Connecting to a FlashArray

This .NET Interactive Notebook for VSCode walks through how to connect to a Pure FlashArray using the Pure Storage PowerShell SDK 2.x.

For full details on the SDK please go to the [Microsoft Platform Guide](#).

More Interactive Notebooks can be found in [this Gitub Respository](#).

Install the Pure Storage PowerShell SDK module from the PowerShell Gallery

```
Install-Module -Name PureStoragePowerShellSDK2
```

PowerShell (.NET Interactive)

Import the SDK module.

```
Import-Module -Name PureStoragePowerShellSDK2 -Force
Get-Module -Name PureStoragePowerShellSDK2 -Verbose
```

PowerShell (.NET Interactive)

...

ModuleType	Version	PreRelease	Name	ExportedCommands
-----	-----	-----	----	-----
Binary	2.2.272.0		PureStoragePowerShellSDK2	{Connect-Pfa2Array, Disconnec...

Defining Notebook Variables

For the prupose of this notebook, we need to define a variable to have the code work seamelssly across all the code examples with a specific FlashArray. Please enter the IP address of your FlashArray below.

```
$array = 10.1.1.1 # Change Me --> IP address of the FlashArray
```

PowerShell (.NET Interactive)

code.purestorage

Threads

All DMs

Drafts

Mentions & reactions

Saved items

Slack Connect

More

Channels

ask-vvols

askmeanything

cli

connect

containers

docker

general

github

openconnect

partnerconnect

pfa-powershell

pfb-powershell

powercli

powershell-projects

pso-px

python

random

rest_api

rfe

ruby

Add channels

Direct messages

Slackbot

barkz you

Add teammates

Upgrade

pfa-powershell

Question for anyone: What was the reasoning behind removing the "Unit" parameter over to v2 from v1, I am slowing down with having to find drive sizes in bytes...

Friday, July 16th

A2Volume" command in PowerShellSDKv2? This was super helpful and as I am converting

I can't speak to the motivation behind the change, but only recently discovered that PowerShell itself does some automatic conversion to bytes when you use labels such as "1TB" "42GB", etc. So, no need to specify a unit other than bytes as it will "just work". For example:

image.png

Devon Carr

Thank you for your quick response Julian! I just realized that when Pure says "1T" in the GUI, it actually is talking in TiB (not TB). Now at least I can use a calculator to get the correct byte size.

Scott Burningham

joined #pfa-powershell along with 8 others.

Sunday, August 1st

cadayton

Time to get cracking on SDK v2 all arrays are now 5.3 or better.

Monday, August 2nd

Chriss

joined #pfa-powershell.

Nate B

@codyhosterman, I'm getting ready to deploy the v3 VM Analytics collector in VMware environment. Does this article still work for v3 or is there a new CMD?
<https://www.codyhosterman.com/2019/10/deploying-the-pure1-vm-analytics-collector-ova-with-powershell/>

Cody Hosterman
Deploying the Pure1 VM Analytics Collector OVA with PowerShell
So I just posted on deploying the Pure1 VM Analytics Collector via manual methods. But how about PowerShell? Well you are in luck! I've built a new cmdlet to help you with this. For background...
Oct 4th, 2019 (65 kB)

David Stamen

@Nate B it may, i also updated it for v 3.2.0 which we just released too. <https://davidstamen.com/2021/07/29/using-powercli-to-deploy-the-pure-storage-vmw>

davidstamen.com
Using PowerCLI to Deploy the Pure Storage VMware Appliance
Now that the latest Pure Storage vSphere Client Plugin is available as a remote plugin is now deployed as an OVA. I have put together this

Message #pfa-powershell

Thread #rest_api

Rika

Aug 12th at 10:39 AM
Hello cool people!
I'm trying to determine if our vsphere plugin can be called via API once it's installed.

5 replies

codyhosterman

5 days ago
It cannot--it is entirely GUI driven. The vRO plugin has similar features though that can be driven via the vRO API

codyhosterman

5 days ago
Our PowerShell module has similar features to that can be driven programmatically

Rika

5 days ago
Ahh thank you Cody!

codyhosterman

5 days ago

barkz

5 days ago
@Rika For PowerShell examples check:

- Windows PowerShell on support site.
- GitHub Open Connect

Pure Storage Open Connect
GitHub contributions from Pure Storage Customers, Architects, System Engineers, and Developers.

Join code.purestorage on Slack.
1186 users are registered so far.

you@yourdomain.com

GET MY INVITE

or sign in.



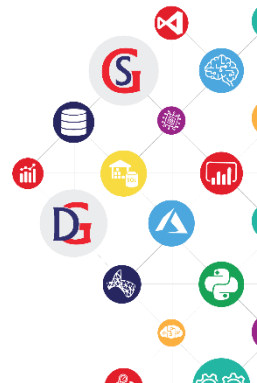
Demo

PowerShell & more...

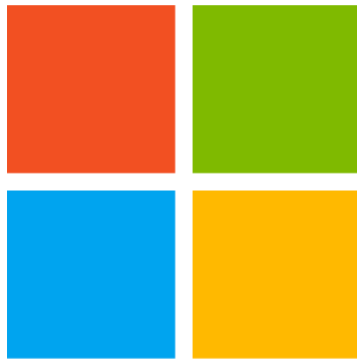


Contact Us!

codeinvite.purestorage.com
fasolutions@purestorage.com

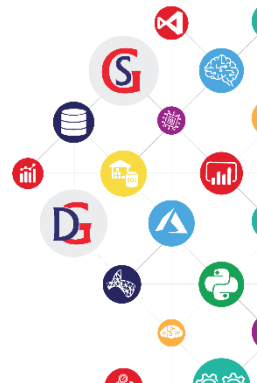


Special Thanks To



Microsoft

**for supporting
DataPlatformGeeks & SQLServerGeeks
Community Initiatives**



Thank You

Three Ways to Win Prizes

Post your selfie with hash tag **#DPS2021**

Give Session & Conference Feedback

Visit our Sponsors & Exhibitors

Follow us on Twitter **@TheDataGeeks @DataAISummit**

