

Manage your vSphere infrastructure like a rock star with PowerCLI

Automate. Delegate. Relax.

Heiko Brenn | @HeikoBrenn

PowerShell Enthusiast & Product Expert
Head of International Business

www.scriptrunner.com







ScriptRunner[®]

The #1 for PowerShell Management

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+49

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25

1924

Hundreds of free
and ready-to-use
PowerShell scripts.

github.com/scriptrunner/ActionPacks



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[github.com/scriptrunner/ActionPacks/tree/
master/VMware](https://github.com/scriptrunner/ActionPacks/tree/master/VMware)



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Let's get in touch



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Github.com/HeikoBrenn
Github.com/ScriptRunner



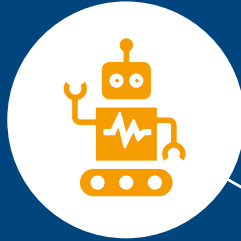
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STANDARDIZATION, AUTOMATION AND DELEGATION OF RECURRING TASKS



AUTO-CREATED
USER FRIENDLY
WEB FORMS



INTERACTIVE, SCHEDULED
AND EVENT-DRIVEN
SCRIPT EXECUTION

SECURE
CREDENTIAL
ADMINISTRATION



COMPREHENSIVE
MONITORING AND
REPORTING



CENTRALIZED SCRIPTS AND
MODULES MANAGEMENT

A perspective view of a server room aisle with rows of server racks on both sides, leading to a bright light at the end of the aisle under a blue sky with clouds.

Manage VMware
with PowerCLI

-
Use Cases and Challenges

Get rid of VMware
management tasks
with ScriptRunner

Automate VMware with PowerCLI



"...a powerful command-line tool that lets you automate all aspects of vSphere management, including network, storage, VM, guest OS and more..."

<https://blogs.vmware.com/PowerCLI>



Available for 10+ years

Automate and manage
VMware environments

Hundreds of Cmdlets

Windows PowerShell

PowerShell 7



Get-VM/New-VM

Start/Stop/Restart/Set VMs

Get-Snapshot/New-Snapshot

Move-VM

Creating reports



Demo

PowerCLI Use Cases





Automating and Managing VMware vSphere with PowerShell

9 MIN READ

MAY 10, 2022

By: Guy Leech

[SCRIPTRUNNER](#) [POWERSHELL](#) [POWERSHELL & SYSTEMS](#) [VMWARE](#)

Table of Contents

- [Installing & Upgrading PowerCLI](#)
- [Connecting](#)
- [Conclusion](#)
- [Good-to-Know: ScriptRunner](#)



Perhaps it is because I began my professional coding career writing device drivers for Unix systems in C, back in the 1980s on character based green screens (80 columns x 24 lines!), that I prefer managing IT systems from a command line over a GUI. I am not a masochist, I really do find a lot of operations easier and quicker from a PowerShell prompt than by using a (proprietary) user interface, even if it does run in a web browser.

About the author:

Guy Leech



Consultant, Software Developer, Troubleshooter, Current Citrix CTP, VMware vExpert, and Microsoft MVP. Inventor of AppSense Application Manager. PowerShell addict.

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Get rid of VMware
management tasks
with ScriptRunner



Two ways of using PowerShell



Let's face it.
Not everyone is a scripting expert

„De-centralized“ PowerShell landscape

How to enable support teams &
LOB users to use PowerShell?

Know-how bottlenecks
Security concerns

PowerShell is only used by IT experts
PowerShell potential remains untapped



Unlock the power of PowerCLI and more in 5 steps



Centralized script and
module management

Secure credential and
permission management

Great user experience
Easy-to-use interface

Flexible & secure delegation

Comprehensive monitoring and reporting



Centralized script and module management

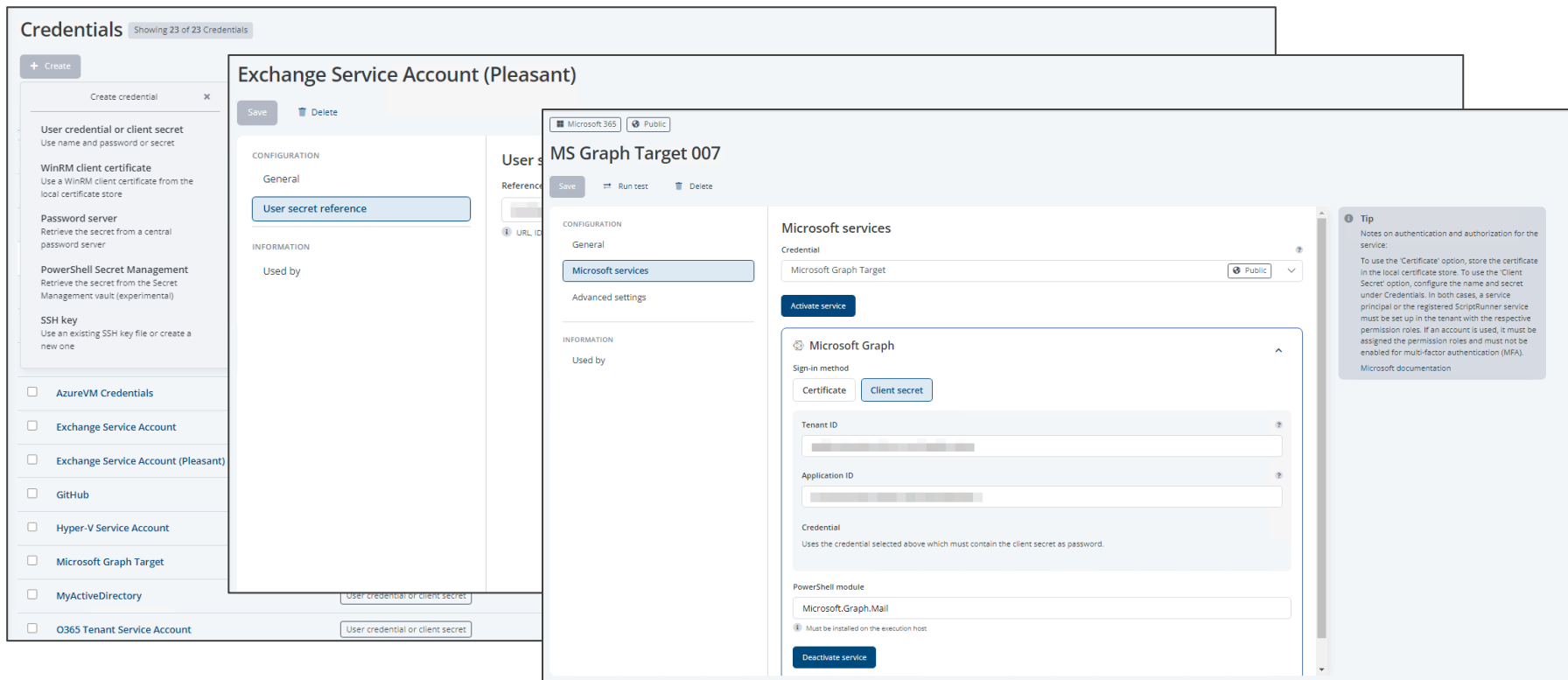


The screenshot displays the ScriptRunner web interface. On the left is a navigation sidebar with options: Dashboard, Run, Authorize & Delegate, Monitoring, Configuration, Actions, Queries, Targets, Scripts (highlighted), and Credentials. The main area shows a list of scripts under the heading "Scripts" (Showing 9 of 1282 Scripts). The list includes scripts like "Get-EOOutOfOffice.ps1", "Set-EOOutOfOffice - Copy (2).ps1", "Set-EOOutOfOffice - Copy.ps1", "Set-EOOutOfOffice.ps1", "Set-EOOutOfOffice.ps1", "Set-EOOutOfOffice_orig.ps1", "TeamsWithOutOwner-Scheduled.ps1", "TeamsWithOutOwner.ps1", and "Webinar_Set-ExOutOfOffice.ps1".

The right pane shows a detailed view of the "Set-EOOutOfOffice.ps1" script, which is "Checked out by me". It features a "Code editor" tab and a "Code editor" section containing PowerShell code. The code includes parameter definitions for Mandatory, EndDate, Disable Auto Reply, Enable Auto Reply, and Schedule Auto Reply, along with logic for generating reports and handling cmdlet parameters.

```
62 [Parameter(Mandatory = $true,ParameterSetName="Schedule Auto Reply")]
63 [datetime]$EndDate,
64 [Parameter(ParameterSetName="Disable Auto Reply")]
65 [Parameter(ParameterSetName="Enable Auto Reply")]
66 [Parameter(ParameterSetName="Schedule Auto Reply")]
67 [switch]$GenerateReport
68 }
69
70
71 try{
72     [string[]]$Properties = @('Identity','AutoReplyState','StartTime','EndTime','ExternalAudience',
73     [string[]]$ResultMessage = @()
74     [string]$Msg = "Mailbox (0) "
75     [string]$ReplyType = 'All'
76
77     [hashtable]$CmdArgs = @{ 'ErrorAction' = 'Stop'
78                             'Confirm' = $false
79     }
80
81     if($SPSCmdlet.ParameterSetName -eq "Disable Auto Reply"){
82         $CmdArgs.add('AutoReplyState', 'Disabled')
83         $Msg += "disabled"
84     }
85     else{
86         if($AutoReplyType -eq 'Only contact list members'){
87             $ReplyType = 'Known'
88         }
89         if($AutoReplyType -eq 'Internal only'){
90             $ReplyType = 'None'
91         }
92     }
93 }
```


Centralized credential management



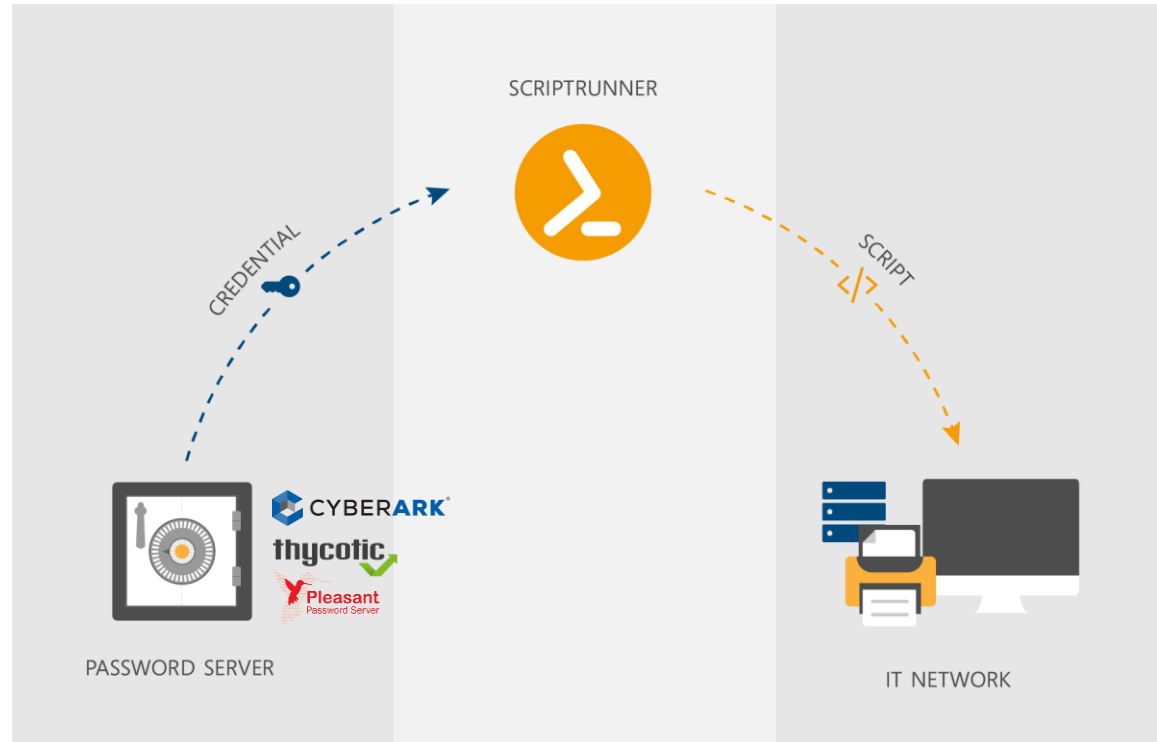
The screenshot displays the ScriptRunner interface for managing credentials. On the left, a sidebar titled "Credentials" shows a list of 23 credentials, including "Exchange Service Account (Pleasant)", "Microsoft Graph Target", and "O365 Tenant Service Account".

The main area is divided into two panels:

- Exchange Service Account (Pleasant):** This panel shows the configuration for an Exchange Service Account. It includes a "General" section with a "User secret reference" button and an "Information" section with a "Used by" field.
- Microsoft Graph Target 007:** This panel shows the configuration for a Microsoft Graph Target. It includes a "Microsoft services" section with a "Credential" dropdown set to "Public" and an "Activate service" button. Below this is a "Microsoft Graph" section with a "Sign-in method" dropdown set to "Client secret", and fields for "Tenant ID" and "Application ID". A "Credential" field is also present, with a note: "Uses the credential selected above which must contain the client secret as password." At the bottom, there is a "PowerShell module" field set to "Microsoft.Graph.Mail" and a "Deactivate service" button.

A "Tip" box on the right side of the interface provides additional information: "Notes on authentication and authorization for the service. To use the 'Certificate' option, store the certificate in the local certificate store. To use the 'Client Secret' option, configure the name and secret under Credentials. In both cases, a service principal or the registered ScriptRunner service must be set up in the tenant with the respective permission roles. If an account is used, it must be assigned the permission roles and must not be enabled for multi-factor authentication (MFA). Microsoft documentation".

- Centralized password safes
 - CyberArk Password Vault
 - Pleasant Password Server
 - Thycotic Secret Server
- No credentials are stored locally
- Automatic password rotation
- One single secure password repository for multiple ScriptRunner instances



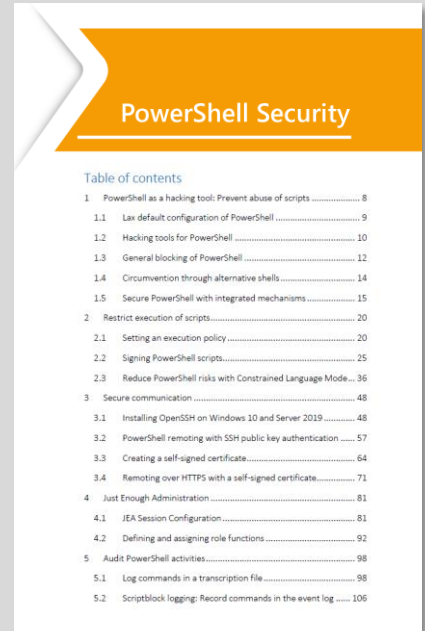
Don't store credentials in PowerShell scripts!
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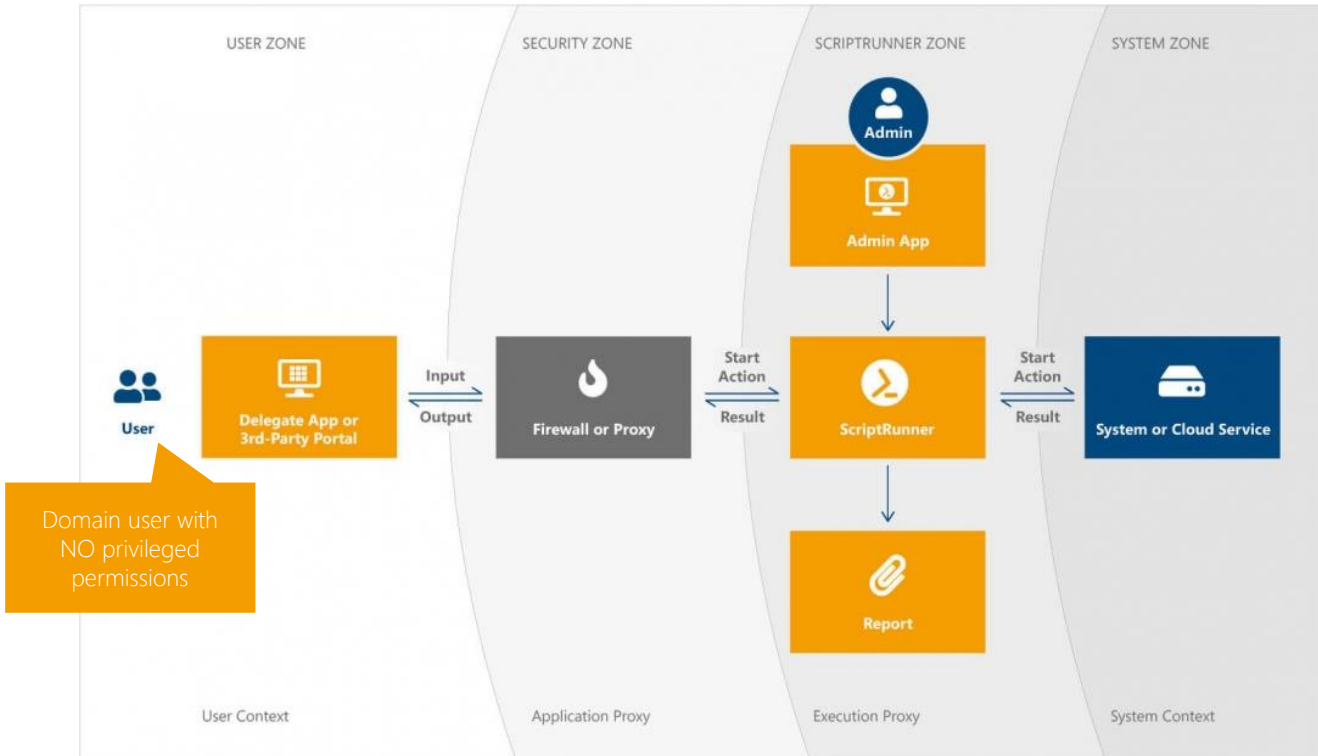
MATT GROENING ©

Free ebook: PowerShell Security

ip.scriptrunner.com/en/powershell-security-guide

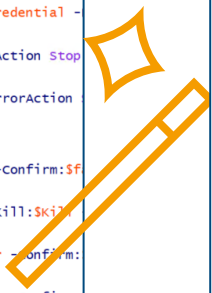


ScriptRunner – Secure Delegation



The Script

```
Administrator: Windows PowerShell ISE
File Edit View Tools Debug Add-ons Help
PowerShell 1 PowerShell 2 X
Invoke-VMHVVirtualMachineCommand.ps1 X
67 Import-Module VMware.PowerCLI
68
69 try{
70     $Script:vmServer = Connect-VIServer -Server $VIServer -Credential $VICredential -
71
72     if($SPSCmdlet.ParameterSetName -eq "byID"){
73         $Script:machine = Get-VM -Server $Script:vmServer -Id $VMId -ErrorAction Stop
74     }
75     elseif($SPSCmdlet.ParameterSetName -eq "byName"){
76         $Script:machine = Get-VM -Server $Script:vmServer -Name $VMName -ErrorAction
77     }
78
79     switch($Command){
80         "start"{
81             $null = Start-VM -VM $Script:machine -Server $Script:vmServer -Confirm:$f
82         }
83         "stop"{
84             $null = Stop-VM -VM $Script:machine -Server $Script:vmServer -Kill:$ki
85         }
86         "suspend"{
87             $null = Suspend-VM -VM $Script:machine -Server $Script:vmServer -Confir
88         }
89         "restart"{
90             $null = Restart-VM -VM $Script:machine -Server $Script:vmServer -Confir
91         }
92     }
93
94     if($SRXEnv) {
95         $SRXEnv.ResultMessage = "Command -> $($Command) <- successfully executed on t
96         $SRXEnv.ResultHTML = $SRXEnv.ResultMessage | ConvertTo-Html -Body $SRXEnv.Res
97     }
98     else{
99         Write-Output "Command $($Command) successfully executed on the virtual machi
100     }
101 }
102 catch{
103     throw
104 }
PS C:\Users\administrator.COMPANY>
```



Manage VMs

Manage VMs

Note the reason you run this action now.


Select the virtual machine

DC0_H0_VM1 - -PoweredOn

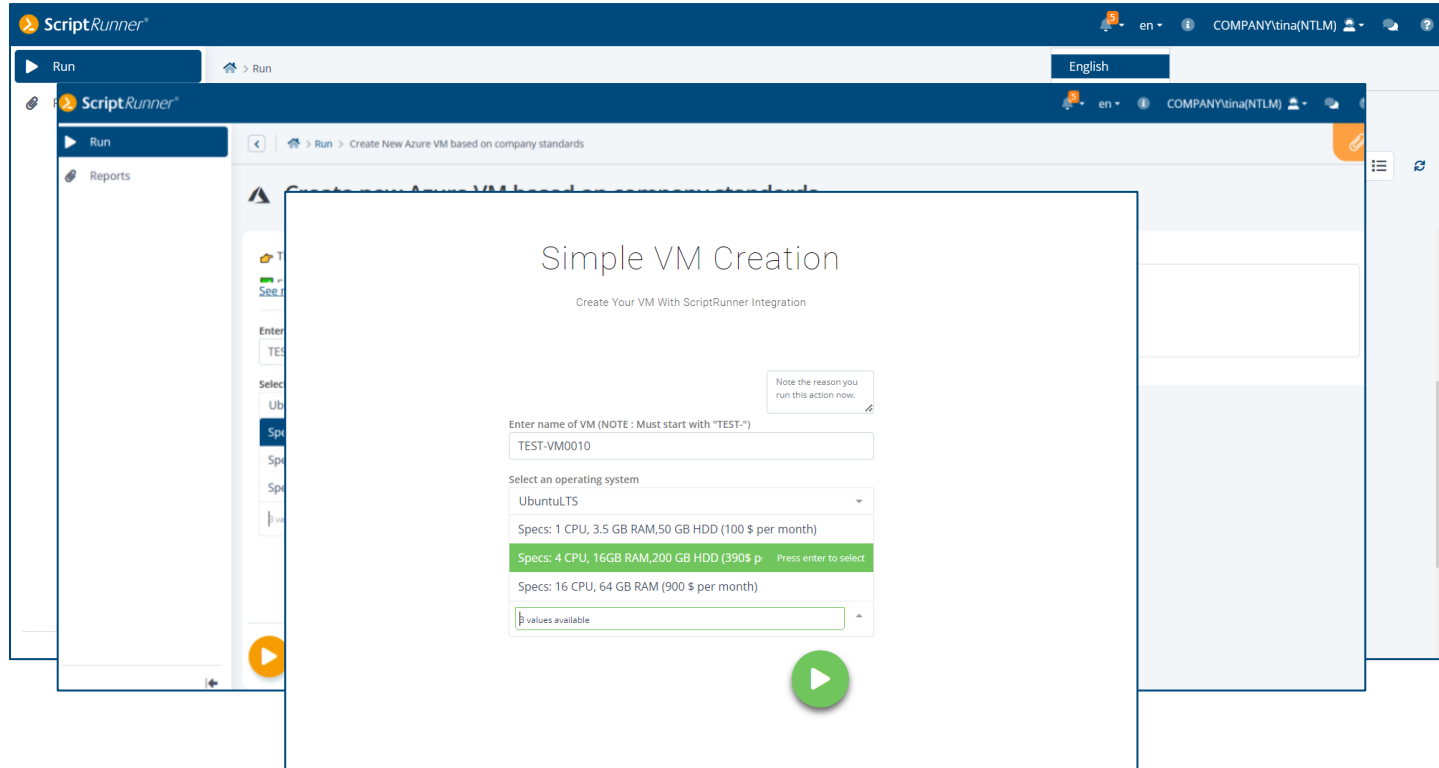
Select the command you want to execute

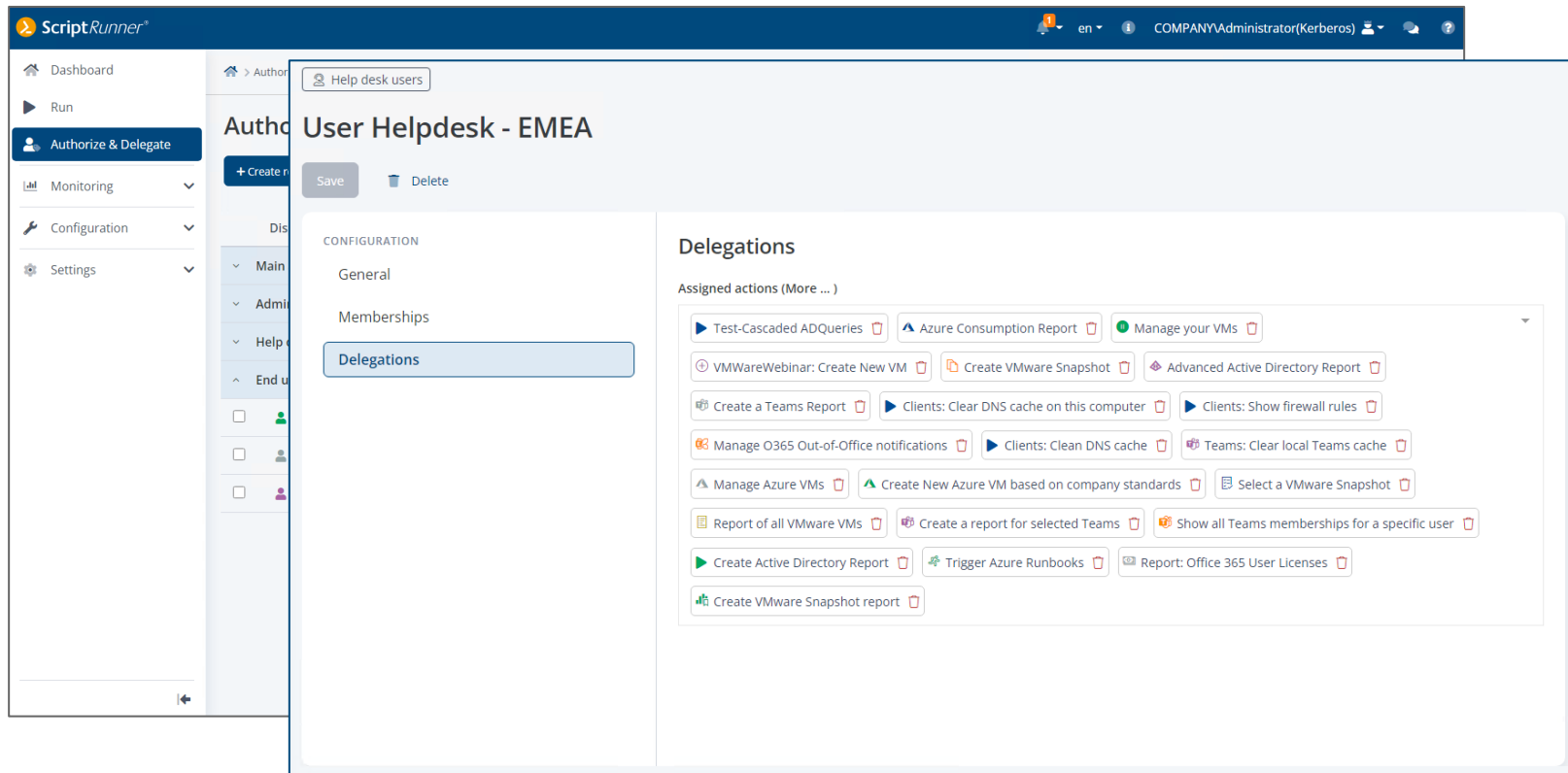
4 values available

- Start
- Stop
- Suspend** Press enter to select
- Restart



The User Experience





ScriptRunner | en | COMPANY\Administrator(Kerberos)

Dashboard | Run | **Authorize & Delegate** | Monitoring | Configuration | Settings

Help desk users

Autho User Helpdesk - EMEA

+ Create new | Save | Delete

CONFIGURATION

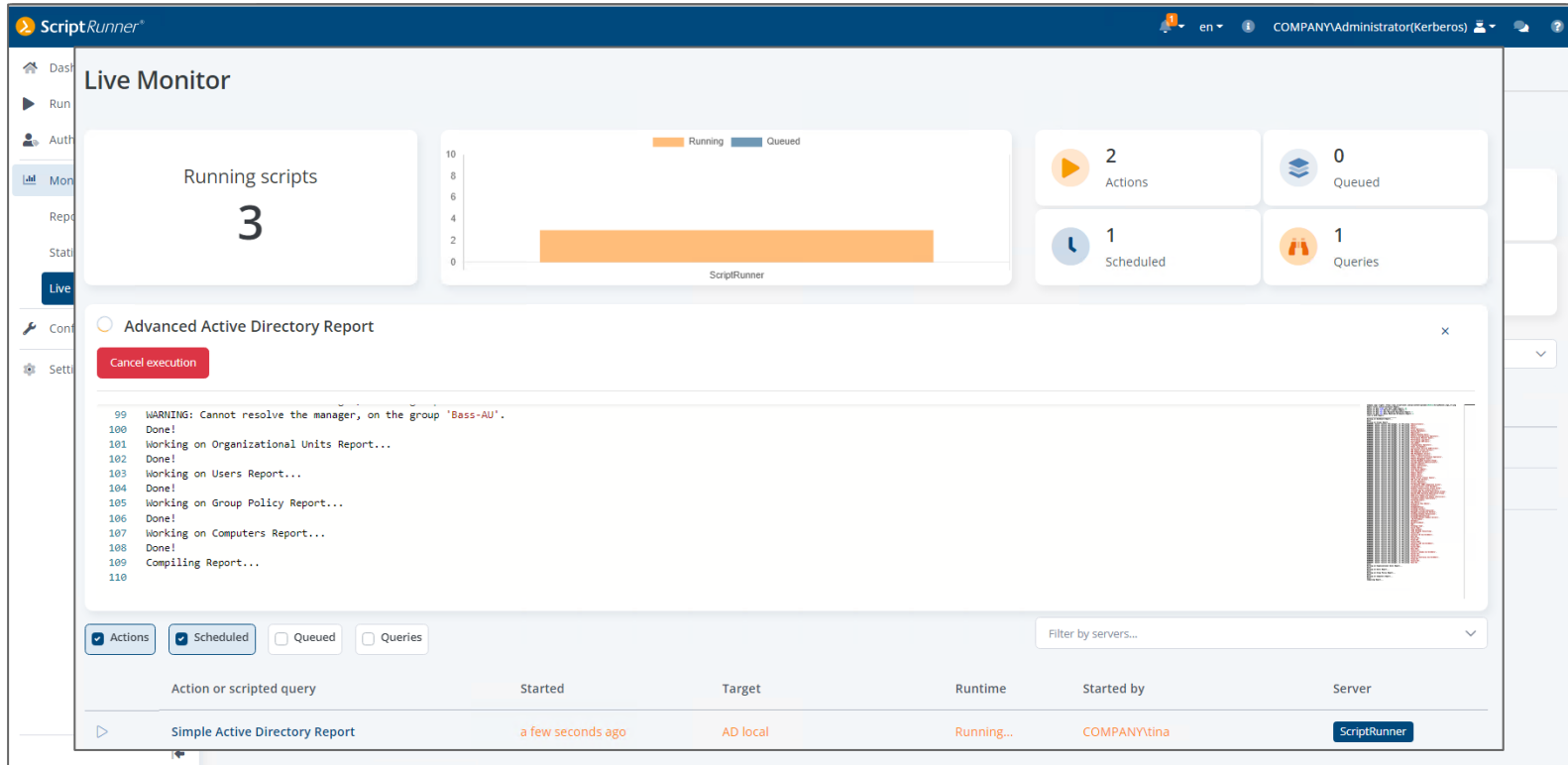
- General
- Memberships
- Delegations**

Delegations

Assigned actions (More ...)

- ▶ Test-Cascaded ADQueries
- ▲ Azure Consumption Report
- Manage your VMs
- ⌚ VMWareWebinar: Create New VM
- 📄 Create VMware Snapshot
- 🔍 Advanced Active Directory Report
- 🗂️ Create a Teams Report
- ▶ Clients: Clear DNS cache on this computer
- ▶ Clients: Show firewall rules
- 📅 Manage O365 Out-of-Office notifications
- ▶ Clients: Clean DNS cache
- 🗂️ Teams: Clear local Teams cache
- ▲ Manage Azure VMs
- ▲ Create New Azure VM based on company standards
- 📄 Select a VMware Snapshot
- 📄 Report of all VMware VMs
- 🗂️ Create a report for selected Teams
- 🗂️ Show all Teams memberships for a specific user
- ▶ Create Active Directory Report
- ⚙️ Trigger Azure Runbooks
- 📄 Report: Office 365 User Licenses
- 📄 Create VMware Snapshot report

Comprehensive monitoring and reporting



The screenshot displays the ScriptRunner Live Monitor interface. The top navigation bar includes the ScriptRunner logo, language settings (en), and user information (COMPANY\Administrator(Kerberos)). The main dashboard is titled "Live Monitor" and features several key components:

- Running scripts:** A large white box displays the number "3".
- Bar chart:** A horizontal bar chart shows the status of scripts, with an orange bar representing "Running" and a blue bar representing "Queued". The x-axis is labeled "ScriptRunner".
- Summary cards:** Four cards provide counts for different actions: "2 Actions", "0 Queued", "1 Scheduled", and "1 Queries".
- Advanced Active Directory Report:** A detailed report window is open, showing a log of operations. It includes a "Cancel execution" button and a list of messages such as "WARNING: Cannot resolve the manager, on the group 'Bass-AU'", "Done!", "Working on Organizational Units Report...", "Working on Users Report...", "Working on Group Policy Report...", "Working on Computers Report...", and "Compiling Report...".
- Filtering and Selection:** Below the report, there are checkboxes for "Actions", "Scheduled", "Queued", and "Queries". A "Filter by servers..." dropdown menu is also present.
- Table:** A table at the bottom lists the execution details for the "Simple Active Directory Report".

Action or scripted query	Started	Target	Runtime	Started by	Server
Simple Active Directory Report	a few seconds ago	AD local	Running...	COMPANY\tina	ScriptRunner

Demo

Manage VMware with ScriptRunner





Admin



DevOps



Developer



Help Desk



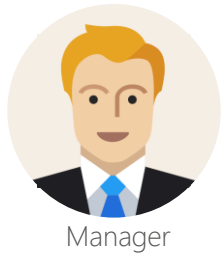
End User



 ScriptRunner®

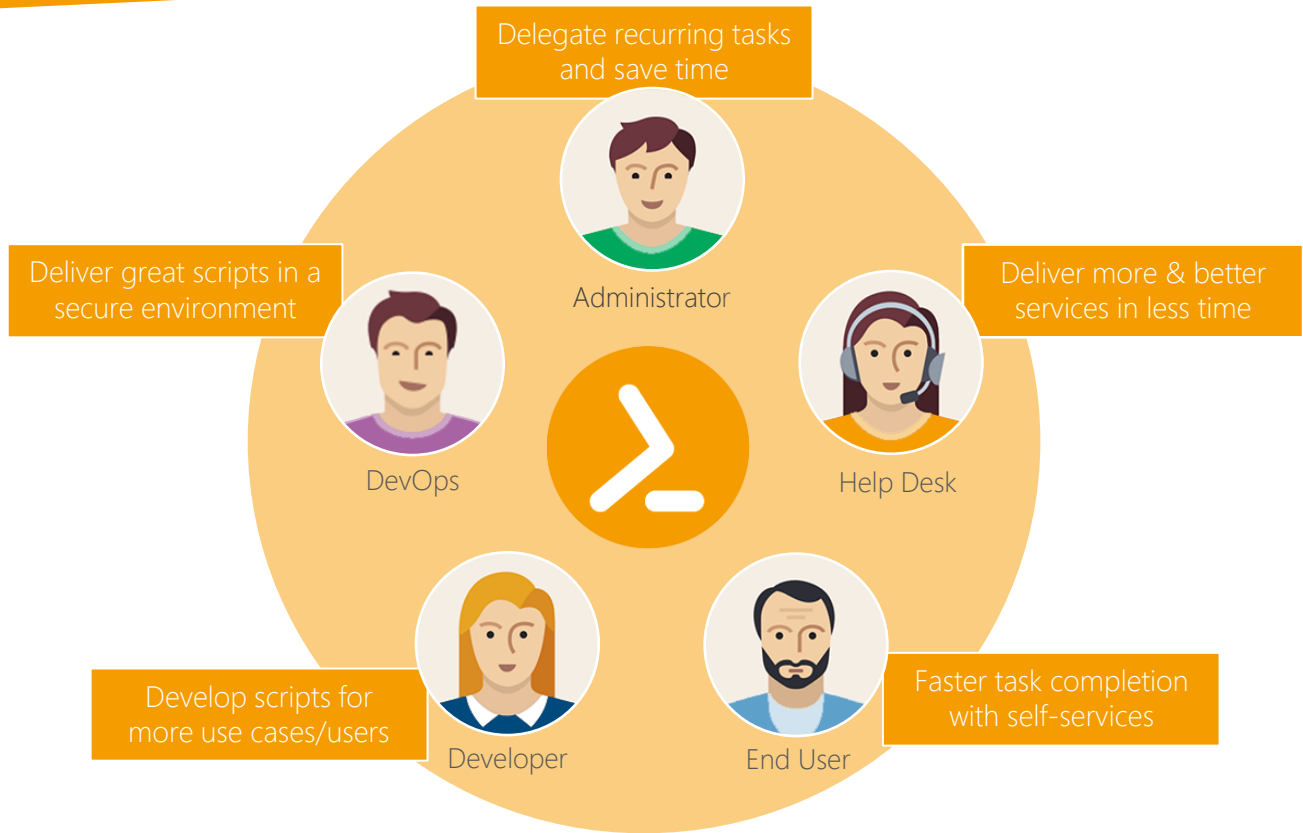


ScriptRunner: One Solution – Many Benefits



Manager

My teams become more productive





Trial Guide

SEARCH...

How to read this guide

- > Introduction
- > Installation and Basic Setup
- > User Configuration
- > Basic Examples
- ▾ Advanced Examples

Registering ScriptRunner with Azure AD

Setting up a VMware vSphere PowerCLI Module

Connecting to Exchange on-premise

Connecting to Exchange Online

Connecting to Microsoft Teams

Advanced Examples > Setting up a VMware vSphere PowerCLI Module

Updated on 10/20/2022

Setting up a VMware vSphere PowerCLI Module

In this chapter, you'll learn how to set up the VMware PowerCLI module.

First, you'll set up the VMware PowerCLI and establish a test connection to the VMware vCenter. Second, you'll create Credentials in ScriptRunner and im sample script from the library of ScriptRunner ActionPacks.

Install the VMware PowerCLI and set up a test connection

First, you need to install the PowerCLI module in the Scope AllUsers. The command is:

```
Code
Install-Module -Name "VMware.PowerCLI" -Scope AllUsers
```

```
Install-Module -Name "VMware.PowerCLI" -Scope AllUsers
```

Next, use the Import-Module Cmdlet to import the VMware.PowerCLI module.

```
PS C:\Users\jacob@victoria> Install-Module -Name VMware.PowerCLI
WARNING: PowerCLI is part of the VMware Customer Experience Improvement Program, so you can help us make PowerCLI a better product. You can turn off the following command:
Get-PowerCLIConfiguration -Scope User -ParticipateInCEIP $true
VMware's Customer Experience Improvement Program (CEIP) provides VMware with information that enables VMware to improve its products and services. To fix problems, you let us know you use the tools to analyze and use our products. As part of the CEIP, VMware collects technical information about your organization's use of VMware products and services on a regular basis in connection with your organization's VMware license key(s). This information does not personally identify any individual.
For more details, type 'help about_scripts' to see the related help article.
To disable this warning and set your preference use the following command and restart PowerShell:
Get-PowerCLIConfiguration -Scope User -ParticipateInCEIP $true or $false.
Welcome to VMware PowerCLI
Log in to a vCenter Server or ESX host:          Connect-viServer
To find out which commands are available, type: Get-Command
To show searchable help for all PowerCLI commands: Get-PowerCLIHelp
Should you be connected, display all related machines: Get-VM
If you need more help, visit the PowerCLI community: Get-PowerCLICommunity
Copyright (C) VMware, Inc. All rights reserved.
PS C:\Users\jacob@victoria>
```



STANDARDIZATION, AUTOMATION AND
DELEGATION OF RECURRING TASKS





VMware vSphere

Deploying new VMware VMs based on company guidelines

Creating a VMware virtual machine is a core functionality for VMware. Standardized virtual machines are rolled out by purpose in many organisations.

Additionally, various infrastructure and security settings need to be considered and, depending on enterprise standards, set properly.

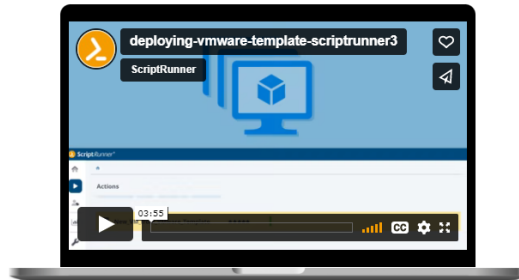
As a result, manually creating and maintaining VMs quickly becomes time-consuming and tedious.

Creating a new VM in VMware requires administrative rights in the respective VMware vCenter. That is why this task has been almost exclusively in the hands of IT administrators.

With PowerShell and the ScriptRunner software platform, you can effortlessly standardize the creation of new VMware. Plus, you can easily delegate the task to your help desk teams and departments via the ScriptRunner Portal.

[Request Demo](#)

Video: Deploy a new VMware VM from a template and delegate the task in ScriptRunner





Brandon Lee Wed, May 10 2023 powershell 0

ScriptRunner provides a centralized management interface for PowerShell scripts, allowing users, even with little or no scripting experience, to automate IT tasks. The most recent release, [ScriptRunner Portal Edition R5](#), introduces many new refinements to the platform, including the introduction of Query and Action configuration into the portal.

PowerShell Security eBook

- Restrict script execution
- Secure PowerShell remoting
- Delegate administrative tasks with Session Configurations and JEA
- Audit and evaluate PowerShell activities



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Contents

CLOSE

- 01 | New features in ScriptRunner Portal Edition R5
- 02 | Query configuration
- 03 | Action configuration
- 04 | Authentication of users via OpenID Connect, support for Okta
- 05 | IIS is no longer required, and a new web API
- 06 | Web API healthcheck URL
- 07 | Wrapping up



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Questions?

Let's talk about your
automation use cases.
Book a 30 minutes
online session.

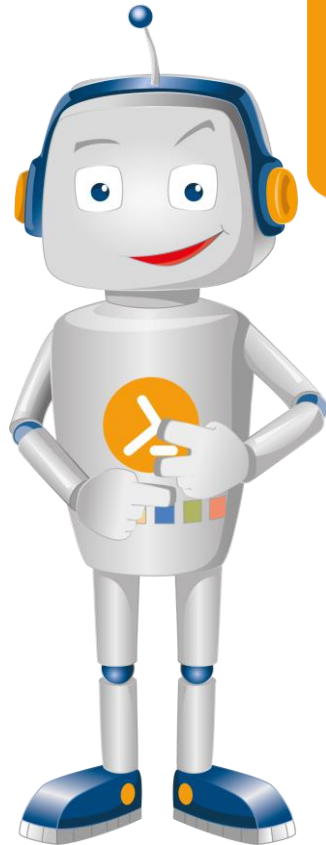
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Thank you!

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