VEEAMON2018

Automate yourself out of a (backup) job

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What can automation do for you?

Veeam can be fully automated to deploy, manage and report on all of your backup / backup copy / file copy / VM copy and replication jobs FOR FREE!! **

"Working with Veeam PowerShell cmdlets and scripts in many respects depends on your imagination, skills and expertise in Windows PowerShell."

***(Caveats on some new features)*

Is backup automation for you?

- Should your backups be manual or automated? How about the testing of your backups — manual or automated?
- How are your backups being created currently? Is this sufficient for your needs?
- How are your backups being tested currently? Is this sufficient for your needs?

Ask yourself – How do I maintain control?

- How do you make changes to jobs?
- How do you handle advanced job options?
- How do you make changes to your backup infrastructure?

Testing changes

- Now, how are you testing these changes to your environment?
- How are you **tracking** changes to your configurations?
- Do you need better control or standard "policy-style" settings to be applied?

Have this need? Automation can provide standardization and ensure more robust Availability for your organization.

Defining success of backups & Availability

Before starting with code, define a goal. Think about the task and desired result.

Are you turning to automation for the benefit of the business?

In this context, automation isn't solely about speed or performance.

Focus on standardization, validation and efficiencies gained with the enhanced productivity.


Veeam & PowerShell basics

PowerShell basics for starting out

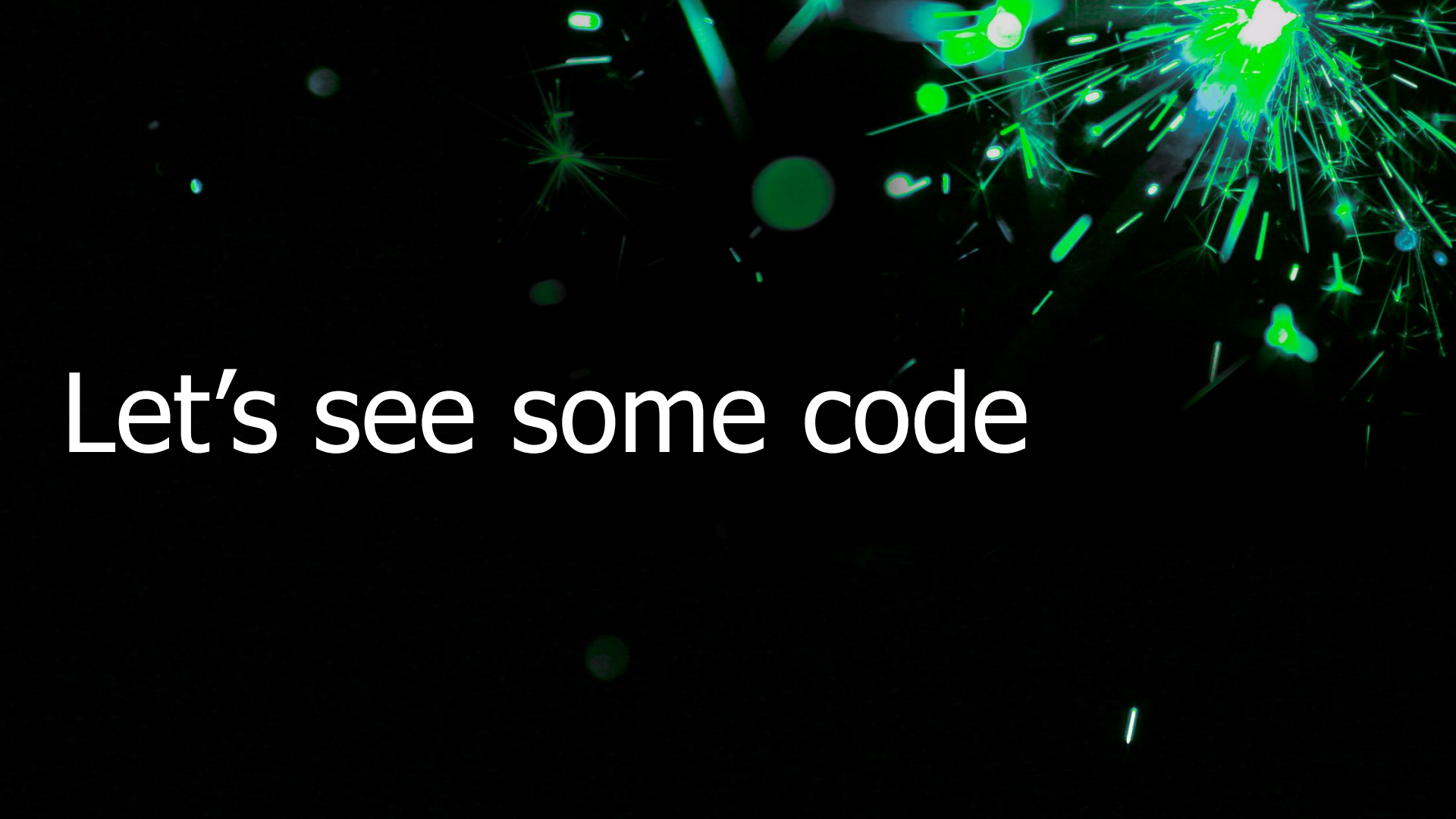
- Never be afraid to ask for help. Get-Help is not just your friend, it's intended to make your life easier.
- PowerShell is built for pipeline, embrace it and leverage it.
- Stack your cmdlets and results like Legos. Buy yourself a set if you're outdated on this concept.
- Forget what your teachers told you: Cheat and / or look up the answer whenever possible.

Veeam-specific PowerShell tips

- Search Veeam cmdlets specific to your version:
  Get-VBRCommand [-V95] [-V90] [-V80]
- What is your type? What are your members?
- Now that you know your type, where can it be used?
  Get-Command -ParameterType *TypeName*
- A little bit of validation… Understand the allowed values of parameters:
  Look up the Veeam PowerShell enumerations

Starting at the beginning

- Step 1: Start-VBRConfigurationBackupJob
- Step 2: What are you trying to accomplish? Think MVP.
- Step 3: Add-PSSnapIn VeeamPSSnapIn


Let’s see some code

Basic infrastructure deployment

You can fully deploy Veeam infrastructure by adding Windows and Linux servers, proxies, repositories (including SOBR) and credentials, plus virtual hosts / clusters / entities — all from a fresh Veeam install without opening the console.

Steps for a VERY basic Veeam deployment post-installation:
(Assumes Veeam Backup & Replication admin role, shared proxy / repository Windows server, 'D:\Backups' as repository folder)

Basic deployment – User input

```
$VeeamVBRServerName = Read-Host -Prompt "Veeam B&R Server Name"

$VeeamProxyServerName = Read-Host -Prompt "Veeam Proxy Name"

$VeeamVirtualServerName = Read-Host -Prompt "vCenter Server or ESXi Host Name"

$VeeamProxyCreds = Get-Credential -Message "Veeam Proxy Credentials"

$VeeamvCenterCreds = Get-Credential -Message "Veeam vCenter Credentials"
```

Basic deployment – Connect / creds

```
#Veeam VBR Setup:
Add-PSSnapIn -Name VeeamPSSnapIn

Connect-VBRServer -Server $VeeamVBRServerName

$VBRProxyCred = Add-VBRCredentials -Credential $VeeamProxyCreds
-Description "Veeam Proxy Credentials"

$VBRVirtualCred = Add-VBRCredentials -Credential $VeeamvCenterCreds
-Description "Veeam vCenter Credentials"
```

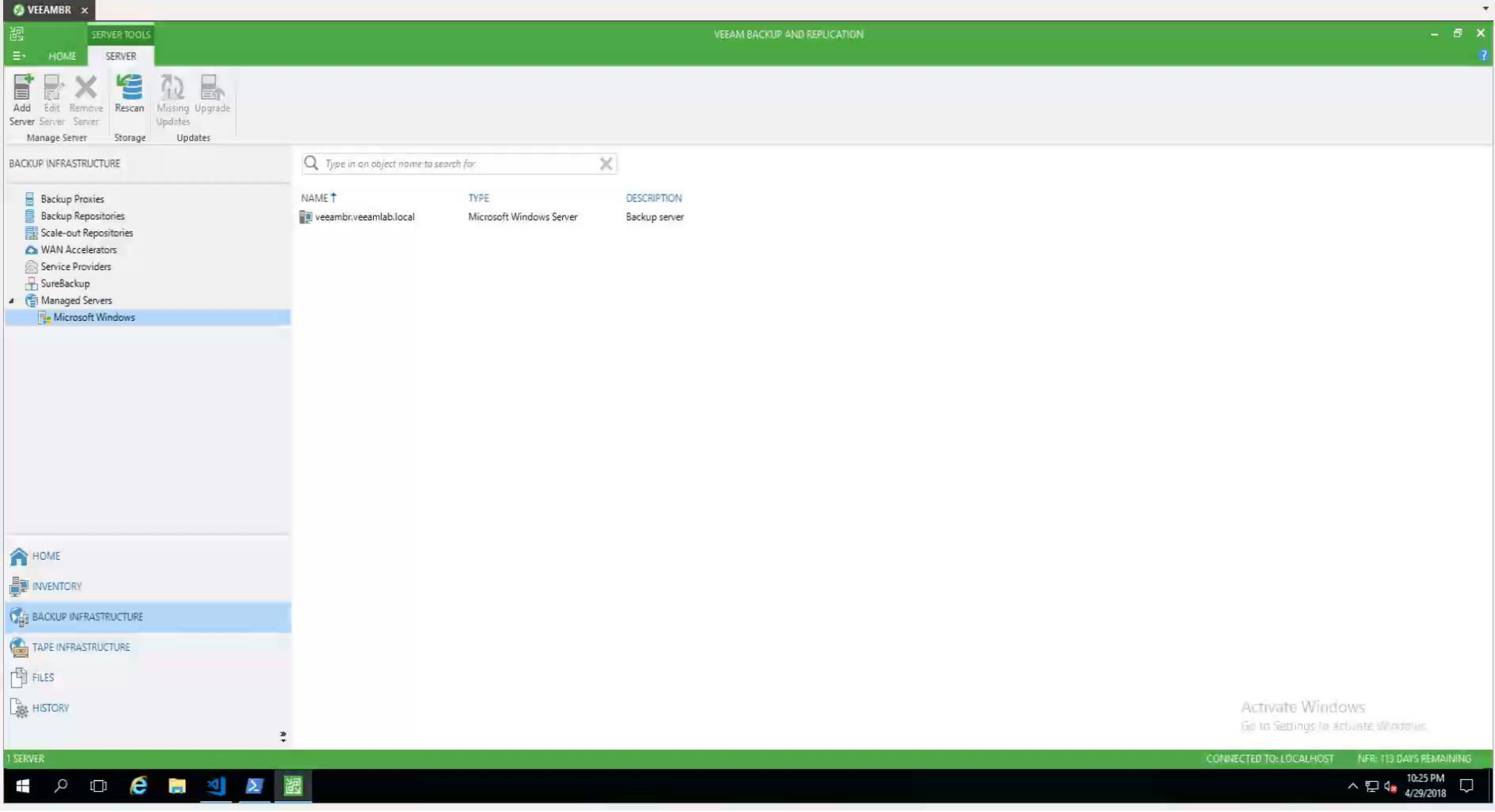
Basic deployment – Servers

```
#Veeam Managed Server Setup:

$VeeamVirtualServer = Add-VBRvCenter -Name
$VeeamVirtualServerName -Description "vCenter Server" -Credentials
$VBRVirtualCred

$VeeamWinServer = Add-VBRWinServer -Name $VeeamProxyServerName
-Description "Veeam Proxy #1" -Credentials $VBRProxyCred
```

Basic deployment – Big finish

```
#Veeam Proxy & Repository Setup
$VeeamProxy = Add-VBRViProxy -Server $VeeamWinServer -Description
"Veeam Proxy #1”

$VeeamRepository = Add-VBRBackupRepository -Name
$($VeeamProxyServerName + "_Repository") -Description "Veeam
Repository #1" -Server $VeeamWinServer -Folder "D:\Backups" -Type
WinLocal
```

True, this is a VERY basic Veeam infrastructure relying on some default parameters.



OK, so now what?

Now that Veeam is configured, you need a job to perform actual backup functions.
Creating jobs targeting objects are just as easy:

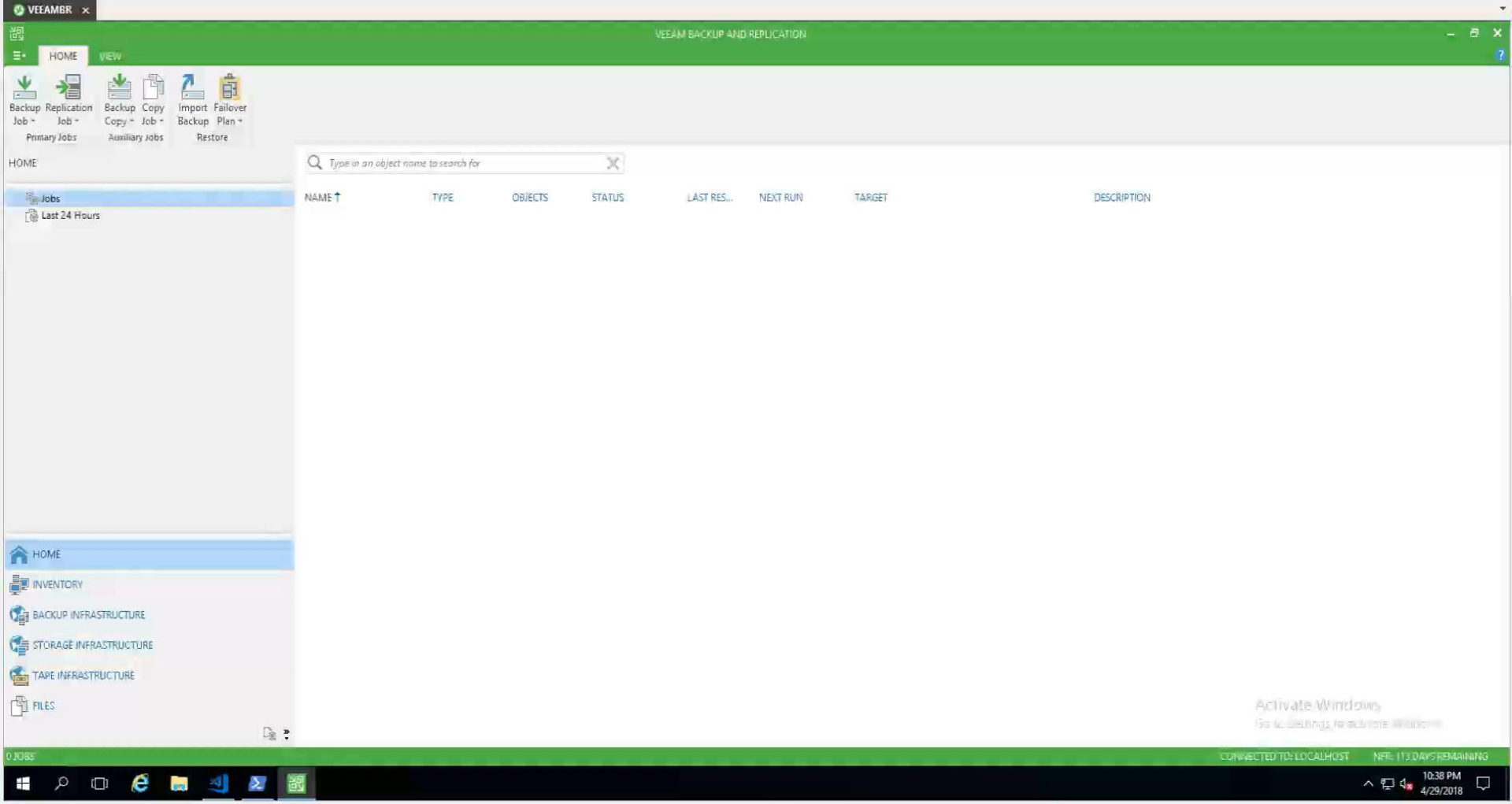
- Hosts / clusters / VMs / templates / datastores / res. pools / tags (VMware)
- Hosts / VMs / volumes (Hyper-V)

Pro tip: Leverage vSphere Tagging to drive selection for items to be automatically picked up into existing jobs and schedules — make your backups / backup copies run as a subscription model!

Automated job creation

Create a simple Veeam job to target a VMware Tag:

```
#Veeam User Input for VMware Tag
$VMwareTag = Read-Host -Prompt "VMware tag to be targeted for backup job"

#Veeam Backup Job Setup
$VeeamTag = Find-VBRViEntity -Name $VMwareTag -Tags -Server
$VeeamVirtualServer

$VeeamBackupJob = Add-VBRViBackupJob -Name 'Demo Backup Job' -Description
'Demo backup job created via script' -BackupRepository $VeeamRepository -Entity
$VeeamTag
```



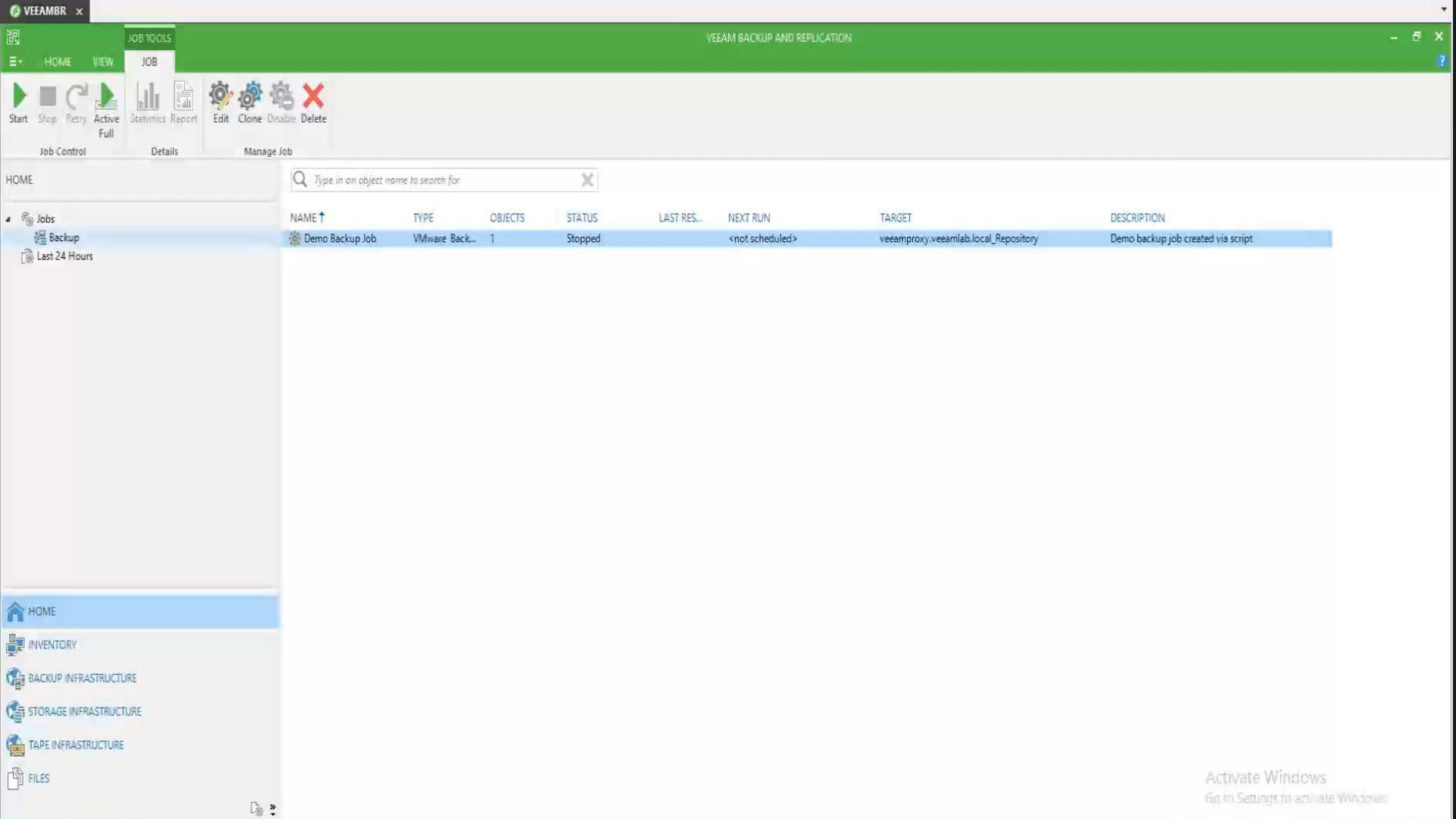
I don't want to run that manually

Simple job scheduling examples:

```
Set-VBRJobSchedule -Job $VeeamBackupJob -Daily -At "20:00" -DailyKind Everyday
```

```
Set-VBRJobSchedule -Job $VeeamBackupJob -Monthly -At "21:00" -NumberInMonth Last -Days Friday
```

```
Set-VBRJobSchedule -Job $VeeamBackupJob -Periodically -FullPeriod 4 -PeriodicallyKind Hours
```


VEEAMBR
JOB TOOLS
VEEAM BACKUP AND REPLICATION
HOME
VIEW
JOB
Start
Stop
Retry
Active Full
Statistics
Report
Edit
Clone
Disable
Delete
Job Control
Details
Manage Job
HOME
Type in an object name to search for
Jobs
Backup
Last 24 Hours
NAME
TYPE
OBJECTS
STATUS
LAST RES...
NEXT RUN
TARGET
DESCRIPTION
Demo Backup Job
VMware Back...
1
Stopped
<not scheduled>
veeamproxy.veeamlab.local_Repository
Demo backup job created via script
HOME
INVENTORY
BACKUP INFRASTRUCTURE
STORAGE INFRASTRUCTURE
TAPE INFRASTRUCTURE
FILES
Activate Windows
Go to Settings to activate Windows.

Veeam Tech Support can help!

Matt Fonner
from Veeam Support

What to expect

1

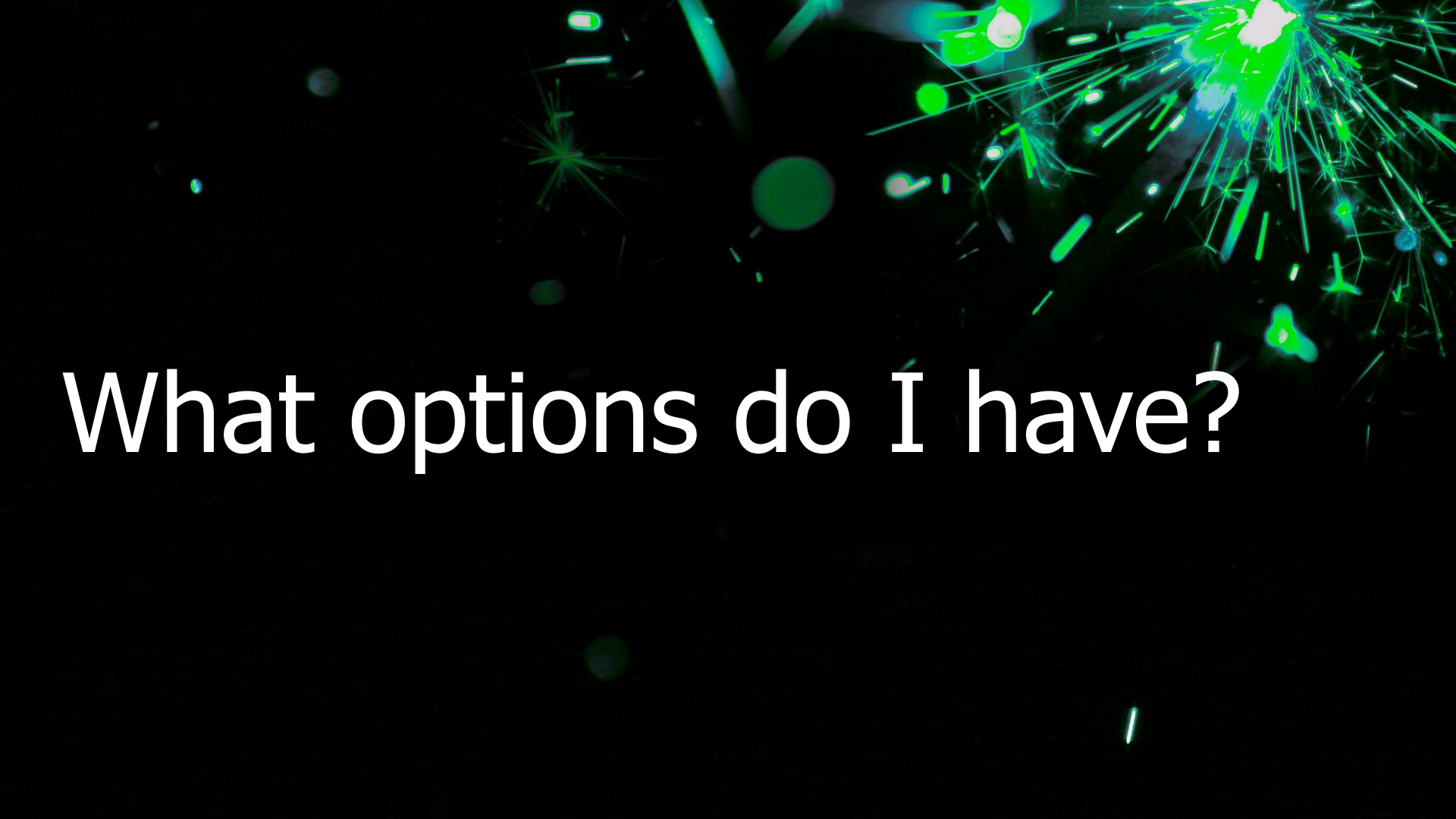
How does Veeam support automation and scripting with PowerShell?

2

What are good resources to test and learn about Veeam PowerShell?

3

What are some areas to check if a script is not working?


What options do I have?

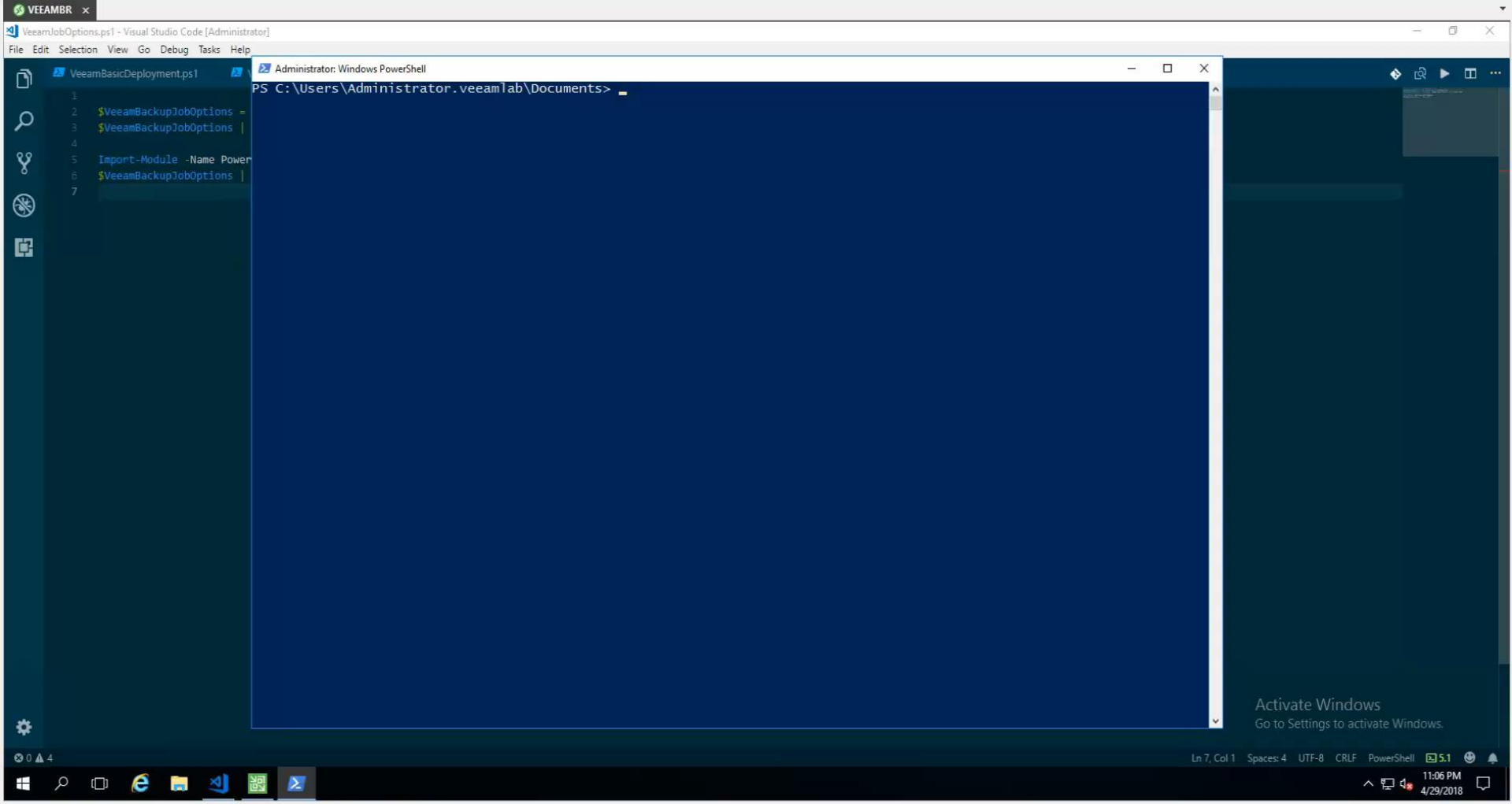
You've always got options

$VeeamBackupJobOptions = New-VBRJobOptions –ForBackupJob

$VeeamBackupJobOptions | Get-Member -MemberType Property | Sort-Object Name

$VeeamBackupJobOptions includes the following properties:

Options: This top-level property contains a root node, which will display all job options.
At a quick view, this property gives: manual / scheduled runs, backup chain mode, compression / deduplication, email notifications, retention, SAN snapshots / failback, VM deletion, VMware tools quiescence / CBT, etc.).



Backup job options

The other job options and a few samples of the most important properties contained within are:

BackupStorageOptions: Number of restore points, retention period for deleted VMs, compression / deduplication, enabling and scheduling of integrity checks, backup encryption
BackupTargetOptions: Backup chain mode, active full enabling and scheduling, synthetic full enabling and scheduling
FailoverPlanOptions: Scripts for pre- and post-failover plan enabled / disabled, script paths
JobOptions: Automatic proxy selection, manual / scheduled runs, WAN accelerator enabling, backup window / termination, backup throttling

Backup job options continued

JobScriptCommand: Scripts for pre- and post-job enabled / disabled, script paths, frequency to run scripts
NotificationOptions: SNMP notification enabling / disabling, email notification enabling / disabling, email settings for success / warning / error, suppress email until last retry, VM attribute to update upon success
SanIntegrationOptions: SAN snapshots enabling / disabling, VMs to back up per SAN snapshot, failback to VM snapshot, Hewlett Packard Enterprise / Nimble-specific SAN integration settings
SqlLogBackupOptions: SQL transaction backups enabling / disabling, log backup interval, log retention interval
ViSourceOptions: Encrypt LAN traffic, failover to NBD, CBT enabling / disabling, VMware tools quiescence enabling / disabling, VM template backup enabling / disabling, exclusion of swapfile / dirty blocks

Other options to be aware of

GenerationPolicy: (Backup copy jobs settings) Enabling and retention period for deleted VMs, backup copy interval (RPO definition), sync interval start time, GFS retention settings

EpPolicyOptions: (Backup agent settings) Authentication mode, agent / server controlled, backup system state / user folders / specific paths, include file system items, include / exclude masks, retention, backup target

CloudReplicaTargetOptions: Veeam Cloud Connect host and storage

ViCloudReplicaTargetOptions: Veeam Cloud Connect replica enabling / disabling, Veeam Cloud Connect replica host and storage

Replica & Hyper-V options

ReplicaSourceOptions: Option to replicate from backups
ReIPRulesOptions: Rules for re-IP of replica VMs
ViReplicaTargetOptions: (VMware) Replica name suffix / prefixes, replica target folder / resource pool / datastore, re-IP enabling / disabling, VM seeding options
ViNetworkMappingOptions: VMware replica job network mappings

HvSourceOptions: CBT enabled / disabled, Hyper-V quiescence, crash consistency, off-host backup, exclude swap files / dirty blocks
HvReplicaTargetOptions: (Hyper-V replicas) Seeding settings, target folder, re-IP on replica, use network mapping options, VM mapping options
HvNetworkMappingOptions: Networking mappings for Hyper-V host


Moving past the basics

Setting advanced options

Method 1 – Native Veeam cmdlets:

- Set-VBRJobAdvancedOptions
- Set-VBRJobAdvancedBackupOptions
- Set-VBRJobAdvancedStorageOptions
- Set-VBRJobAdvancedViOptions
- Set-VBRJobAdvancedNotificationOptions

Method 2 – No parameter for Set-VBRJobAdvanced* cmdlet…

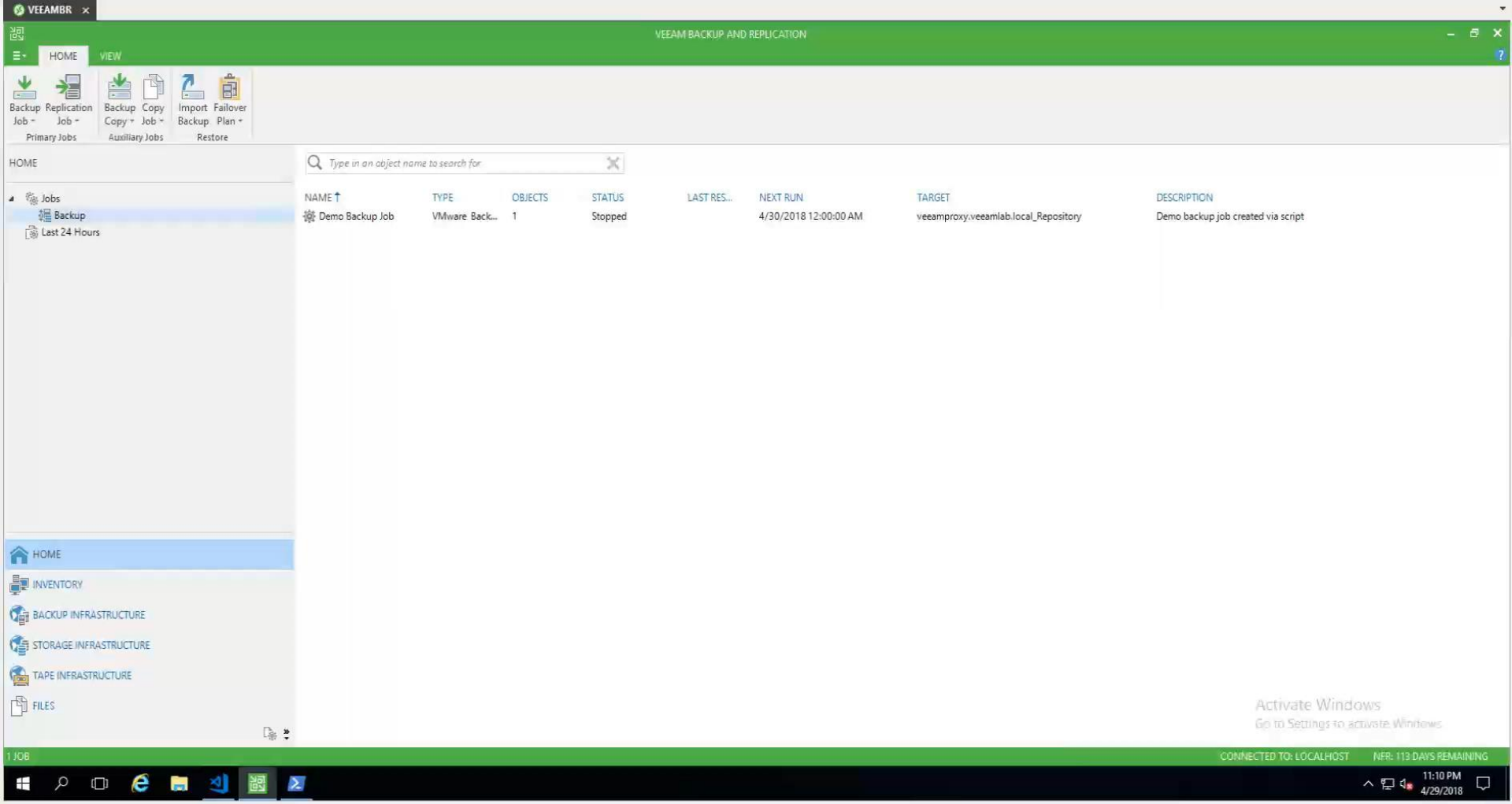
Time to kick it old school!

Set options – Direct property update

Some options cannot be set with parameters or built-in cmdlets, but Veeam still gives you a way to work.

Other options are noted as not possible to be enabled with Veeam PowerShell, but they're still job options:

```
$JobOptions = $VeeamBackupJob | Get-VBRJobOptions
$JobOptions.SanIntegrationOptions.UseSanSnapshots = $false
$JobOptions.BackupStorageOptions.RetainDays = '14'
$JobOptions.BackupStorageOptions.EnableDeletedVmDataRetention = $true
Set-VBRJobOptions -Job $VeeamBackupJob -Options $JobOptions
```



Cue the Clarkson – POWER!!!

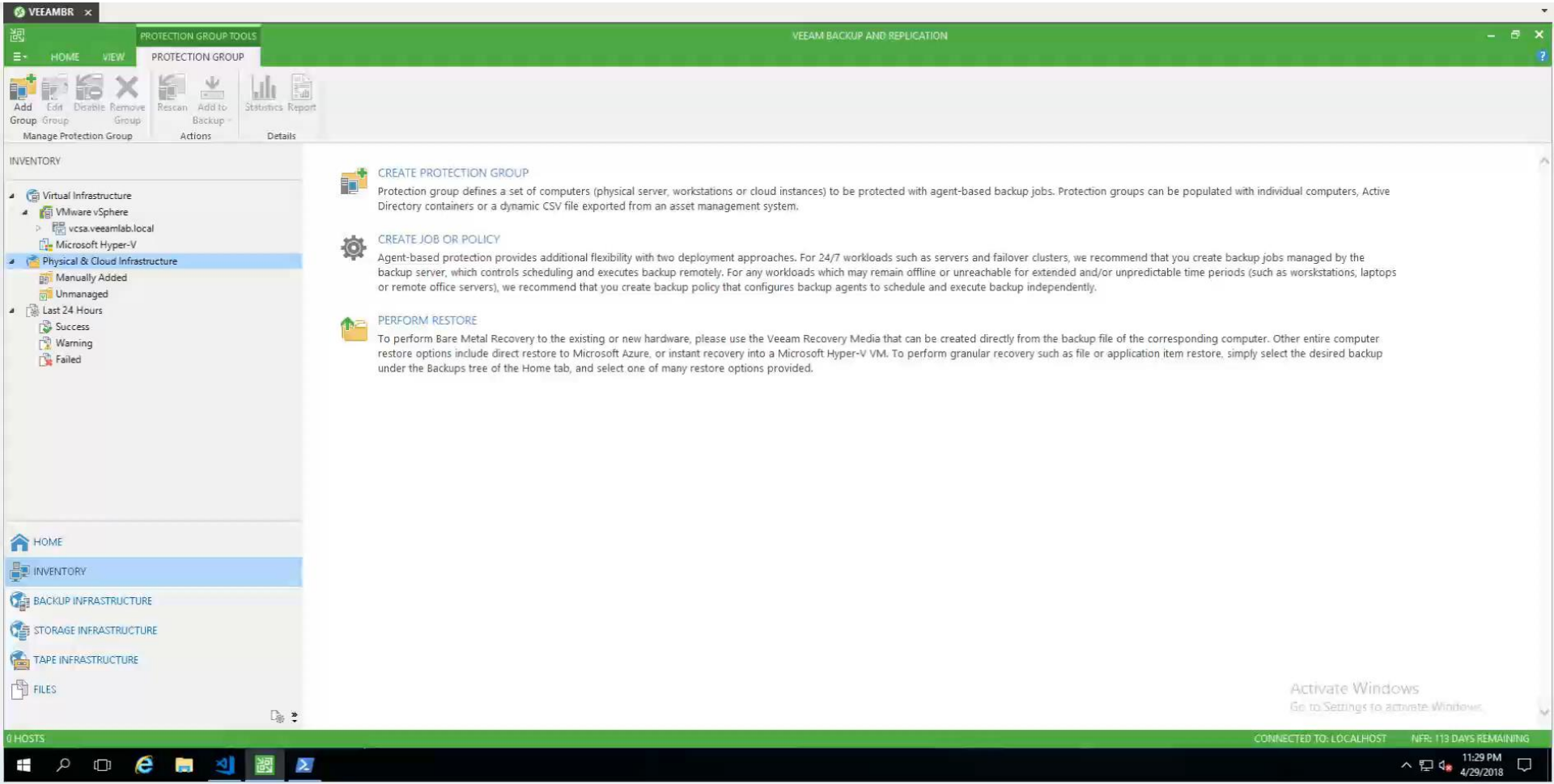
- When you use your imagination, as prompted in the “Understanding Veeam Cmdlets” page, you can perform some widescale advanced configuration
- This makes proxy / repository maintenance easier for your other scripting and tooling
- Perform functions that are feature requests — backup proxy groups:

```
$VeeamProxy1 = Get-VBRViProxy -Name 'proxy1'
$VeeamProxy2 = Get-VBRViProxy -Name 'proxy2'
$VeeamBackupJob | Set-VBRJobProxy -Proxy $VeeamProxy1, $VeeamProxy2
```

Let’s not forget the physicals/clusters

- Veeam Agents and protection groups can also be controlled in code*
  - (*Protection group jobs not possible with PowerShell yet)

```
$VeeamDomain = Get-VBRADDomain -ServerName 'dc2.veeamlab.local' -Credentials $VBRProxyCred

$VeeamDomainComputer = Find-VBRADEntity -Domain $VeeamDomain -Name 'dc.veeamlab.local’  -Recurse

$VeeamADScope = New-VBRADContainer -Domain $VeeamDomain -Entity $VeeamDomainComputer -
MasterCredentials $VBRProxyCred -ExcludeVMs:$false -ExcludeComputers:$false

$VeeamProtectionGroup = Add-VBRProtectionGroup -Name "AD Backup" -Description "Physical Server Agent"
-Container $VeeamADScope

Enable-VBRProtectionGroup -ProtectionGroup $VeeamProtectionGroup
```



Takeaways

PowerShell types:
https://helpcenter.veeam.com/docs/backup/powershell/veeam_powershell_types.html?ver=95

PowerShell enumerations:
https://helpcenter.veeam.com/docs/backup/powershell/enums.html?ver=95

Veeam unattended install:
https://github.com/VeeamHub/powershell/tree/master/BR-UnattendedInstall

Digging into PowerShell parameters:
https://richardspowershellblog.wordpress.com/2018/03/05/cmdlet-parameters/

Handy PowerShell scripts:
https://www.powershellgallery.com/packages/PowerShellCookbook/1.3.6


Thank you
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