VMware vSphere PowerCLI 5.8 Release 1 Reference Poster

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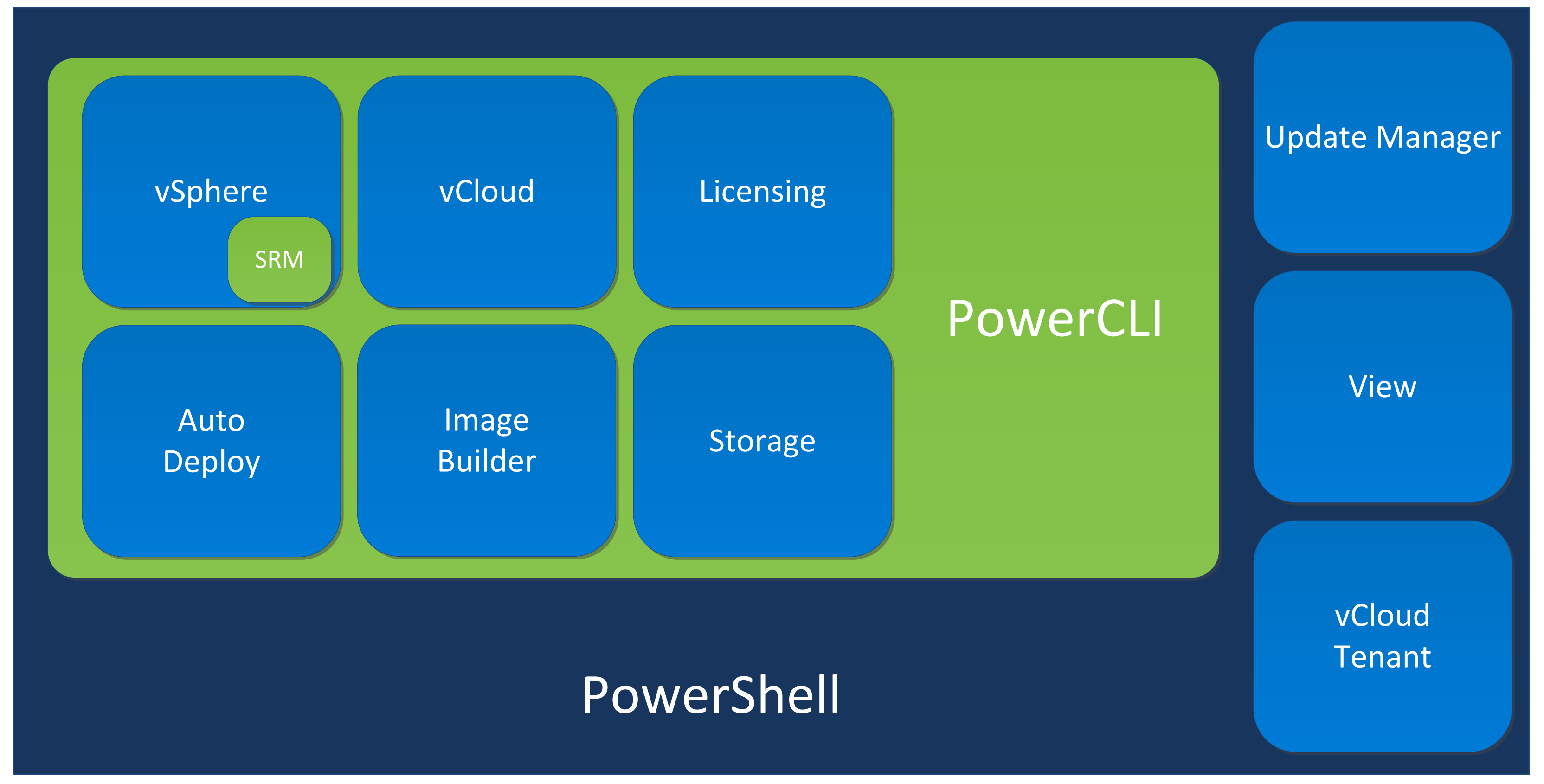

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- New-CIVM
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- Set-DeployRule
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- Repair-DeployRuleSetCompliance
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VMware vSphere PowerCLI Quick Reference Examples

Getting Started

VMware vSphere PowerCLI frequently asked questions (FAQs) link:
http://communities.vmware.com/docs/DOC-13700
To find out what cmdlets are available: **Get-VICommand**
To show documentation for all available cmdlets: **Get-PowerCLIDocumentation**

For help with a cmdlet: **Get-Help** cmdlet-name *–Full*

How to Connect to vCenter Server or ESXi

To connect to a VMware vSphere server. Start a new session or reestablish a previous session with a VMware vSphere server.

```
$srv = Connect-VIServer –Server 192.168.0.10 -User Admin -Password Pass01
```

To disconnect from the connected vSphere server:

```
Disconnect-VIServer -Server $srv -Confirm:$false
```

How to Connect to SRM

Connect to vCenter Server first

```
Connect-SrmServer -SrmServerAddress 10.144.99.6 -User "administrator" -Password "myPassword"
Disconnect-SrmServer -Server 10.144.99.6
```

How to Store vCenter Credentials

Method to not have to input credentials every time you connect to vCenter:

```
New-VICredentialStoreItem -Host vCSA.lab.local -User Root -Password "VMware1!"
```

To remove credentials:

```
Remove-VICredentialStoreItem -Host vCSA.lab.local -Confirm
```

Virtual Switch Operations

To list all virtual switches attached to a VM and some of their properties, use:

```
Get-VirtualSwitch -VM (Get-VM -Name "Lync-Edge-03")
```

To create a new virtual switch:

```
New-VirtualSwitch -VMHost (Get-VMHost -Name 192.168.0.10) -Name Switch02
```

To remove a virtual switch:

```
$vs = Get-VirtualSwitch -VMHost 192.168.0.10 -Name VS23
Remove-VirtualSwitch -VirtualSwitch $vs
```

To change the configuration of a virtual switch:

```
$vs = New-VirtualSwitch -Host 192.168.0.10 -Name VirtSwitch
Set-VirtualSwitch -VirtualSwitch $vs -MTU 500
```

Resource Pool Operations

To list all resource pools on the connected VMware vSphere server and some of their properties: **Get-ResourcePool**

To create a new resource pool:

```
$clusterRootRP = Get-ResourcePool -Location
(Get-Cluster ResearchAndDevelopmentCluster ) -Name Resources
New-ResourcePool -Location $clusterRootRP -Name DevelopmentResources
-CpuExpandableReservation $true -CpuReservationMhz
500 -CpuSharesLevel high -MemExpandableReservation $true
-MemReservationMB 500 -MemSharesLevel high
```

Other resource pool cmdlets:
Move-ResourcePool
Remove-ResourcePool
Set-ResourcePool

Copy Files To/From VM

Files can be copied between user's local machine and a VM
Copy from a VM to the Local Machine:

```
Copy-VMGuestFile -VM LABTEST1 -GuestUser Administrator -GuestPassword
"VMware1!" -GuestToLocal -Source c:\temp\logfile.txt -Destination c:\temp\
```

Task Information

To list all tasks for a VMware vSphere server and some of their properties:
Get-Task
To stop a task (example: stops the task of removing the VM):

```
Stop-Task -Task (Remove-VM -VM "Lync-Edge-03" -Confirm -RunAsync)
```

To wait until a task is completed before continuing:

```
Wait-Task -Task (Remove-VM -VM "Lync-Edge-03" -Confirm -RunAsync)
```

Tag Operations

Create a tag category:

```
New-TagCategory -Name "Owner" -Cardinality Single -EntityType
VirtualMachine
Remove-TagCategory "Owner"
```

Create a tag:

```
$myTag = New-Tag -Name "jSmith" -Category "Owner"
```

Assign a tag:

```
Get-VM -Name "Lync-Edge-*" | New-TagAssignment -Tag $myTag
Get-VM -Tag "jSmith"
```

API Operations

Returns a VMware vSphere.Net view object by specified search criteria.

```
$vm = Get-View -ViewType VirtualMachine -Filter @{"Name" = "MS
Win XP SP2"}
$hostView = Get-View -ID $vm.Runtime.Host
$hostView.Summary.Runtime
```

Another example:

```
(Get-View (Get-VMHost 'ESX1' | get-view).ConfigManager
.VmotionSystem).SelectVnc('vmk0')
```

API Reference:
https://www.vmware.com/support/developer/vc-sdk/

vApp Operations

The following is a list of vApp cmdlets; use the Get-Help function for example uses:

```
New-vApp -Name MyvApp -CpuLimitMhz 4000 -CpuReservationMhz 1000 -Location
(Get-VMHost MyHost)
```

Other vApp cmdlets: **Export-vApp**, **Get-vApp**, **Import-vApp**, **Remove-vApp**, **Set-vApp**, **Start-vApp**, **Stop-vApp**

OVF Configuration

Using OVFConfiguration to deploy vApps:

```
$ovfconfig = get-OvfConfiguration "myOvfTemplate.ovf"
$ovfconfig.ToHashtable()
```

Use a hashtable:

```
$ovfconfig = @{
"vami.DNS.VMware_vCenter_Log_Insight" = "10.144.99.5";
"vami.gateway.VMware_vCenter_Log_Insight" = "10.144.99.1";
"vami.ip0.VMware_vCenter_Log_Insight" = "10.144.99.30";
"vami.netmask0.VMware_vCenter_Log_Insight" = "255.255.255.0";
"vm.rootpw" = "VMware1!";}
```

Or populate an object:

```
$ovfconfig.NetworkMapping.Network.Value = "Network 1"
$ovfconfig.vami.VM_1.ip0.Value = "10.144.99.30"
$ovfPath = "c:\temp\myOvfTemplate.ovf"

Import-Vapp $ovfPath -OvfConfiguration $ovfConfig -VMHost $vmHost -Name "VM_OVF"
```

Invoke Commands In Virtual Machines

Invoke-VMScript allows BIN, BASH, and Powershell Commands to be invoked remotely

```
Invoke-VMScript -VM LABTEST1 -ScriptText "dir" -GU Administrator -GP "VMware1!"
```

ESXTOP through PowerCLI

```
Get-EsxTop –Counter
# View the fields available for vCPU counter:
(Get-EsxTop –Counter –CounterName VCPU).Fields
Get-EsxTop –TopologyInfo
# View the entries of a specific topology:
(Get-EsxTop –TopologyInfo –Topology SchedGroup).Entries | FT
# Retrieve the counter values for "VCPU" and "SchedGroup" counters:
Get-EsxTop –CounterName VCPU | FT * -AutoSize
Get-EsxTop –CounterName SchedGroup | FT * -AutoSize
```

Port Group Operations

To list all the port groups and some of their properties:

```
$vs = Get-VirtualSwitch -VMHost 192.168.0.10 -Name Switch02
Get-VirtualPortGroup -VirtualSwitch $vs
```

To add a new port group to a virtual switch:

```
$vs = Get-VirtualSwitch -VMHost 192.168.0.10 -Name Switch02
$vpg = New-VirtualPortGroup -VirtualSwitch $vs -Name VPG1
```

Other cmdlets include:
Remove-VirtualPortGroup
Set-VirtualPortGroup

Managing Events Alarms

Get-AlarmDefinition # Returns all the defined alarms on the servers you're connected to.
Get-AlarmDefinition *-Name "virtual machine*"* -Enabled $false
Returns all the disabled alarm definitions with names starting with "virtual machine."
Get-VMHost hostname | **Get-AlarmDefinition** # Returns all alarms that apply to the host "hostname". Includes alarms defined on this host and alarms inherited from the parent entity, or from any ancestors in the inventory hierarchy.
Modify an alarm definition: **Get-AlarmDefinition** "Host memory status" | **Set-AlarmDefinition** *-Name "Host memory"* -Enabled $false

This will rename the alarm to "Host memory" and disable it.

Quick Helpful Commands

Top 5 VM memory allocation:

```
Get-VM | Sort-Object -Property MemoryGB -Descending | Select -
First 5
```

Total memory available on all ESXi:

```
Get-VMHost | Measure-Object -Property MemoryTotalGB -Sum |
Select -ExpandProperty Sum
```

Report on NumCPU and number of VM:

```
Get-VM | Group-Object -Property NumCpu |
Select @{N="NumCpu";E={$_.Name}},@{N="Number of
VM";E={$_.Count}}
```

Most API methods require parameters.
You create those with **New-Object**:

```
$vm = Get-VM -Name MyVM
$spec = New-Object VMware.Vim.VirtualMachineConfigSpec
$spec.latencySensitivity = New-Object
VMware.Vim.LatencySensitivity
$spec.LatencySensitivity.Level =
[VMware.Vim.LatencySensitivitySensitivityLevel]::high
$vm.ExtensionData.reReconfigVM($spec)
```

Datastore Operations

For a list of datastores and other properties:
Get-Datastore

Other datastore cmdlets include:
New-Datastore
Remove-Datastore

Folder Operations

The following is a list of all folder-related cmdlets:
Get-Folder
Move-Folder
New-Folder
Remove-Folder
Set-Folder

Leverage Jobs for Multi-threaded Operations

Jobs allow users to run scripts in parallel.
Create a script that will be run in a job:

```
$jobscript = {
# Add PowerCLI Snapin
Add-PSSnapin VMware.VimAutomation.core
# Connect to vCenter
Connect-VIserver vcsa.lab.local -User root -Password "VMware1!"
# Create Snapshots of all LabTest VM's
Get-VM "LABTEST*" | New-Snapshot -Name InitialSnapshot}
```

To start the Job:

```
Start-Job -Name Snapshots -ScriptBlock $jobscript
```

When Jobs are running you can use **Get-Job** to see the status:

```
Get-Job
Get-Job -Name Snapshots
Get-Job -Id 1
```

You can stop a job manually:

```
Get-Job -Name Snapshots | Stop-Job
```

To see the results of the script you can receive the job use the *-Keep* parameter to allow this information to stay:

```
Get-Job -Name Snapshots | Receive-Job -Keep
```

When finished with a job you may remove it:

```
Get-Job -Name Snapshots | Remove-Job
```

Snapshot Operations

To list all the snapshots for all virtual machines:

```
Get-VM | Get-Snapshot
```

To snapshot a VM:

```
New-Snapshot -VM "XP SP2" -Name BeforePatch1
```

To remove a snapshot:

```
Remove-Snapshot -Snapshot $snapshot1 –
RemoveChildren
```

Other cmdlets include:
Set-Snapshot

PowerCLI Info

What is PowerCLI?

VMware vSphere PowerCLI is a powerful, easy-to-use scripting interface to manage the vSphere platform. Administrators can Leverage more than 360 cmdlets to simplify everyday tasks.

Image Builder

Connect to a depot:

```
Add-EsxSoftwareDepot https://hostupdate.vmware.com/software/VUM/PRODUCTION/main/vmw-depot-index.xml
```

Add a package by name to an image profile:

```
Add-EsxSoftwarePackage -ImageProfile "My custom profile" -SoftwarePackage net-bnx2
```

Clone an image profile, then add a package by name:

```
New-EsxImageProfile -CloneProfile "ESX-5.0-234567-standard" -Name "My custom profile" | Add-EsxSoftwarePackage net-bnx2
```

Export an ISO image

```
Export-EsxImageProfile -ImageProfile "Evan's Profile" -ExportToIso -FilePath c:\isos\evans-iso.iso
```

Clone an image profile, add a software package, then export to offline bundle.

```
New-EsxImageProfile -CloneProfile "ESXi-5.0.0-234567-standard" -Name "Evan's Profile"
Add-EsxSoftwarePackage -ImageProfile "Evan's Profile" -SoftwarePackage cisco-vem-v140
Export-EsxImageProfile -ImageProfile "Evan's Profile" -ExportToBundle -FilePath c:\isos\base-plus-vem.zip
```

Display all image profiles from depots and all image profiles the user created during this PowerCLI session:

```
Get-EsxImageProfile
```

List all the VIBs, sorted by date:

```
Get-EsxSoftwarePackage | Sort-Object ReleaseDate | Format-Table -Property Name,Version,Vendor
```

List all the VIBs from VMware and Cisco released after Jan 1, 2010:

```
Get-EsxSoftwarePackage -Vendor "VMware","Cisco" -ReleasedAfter 1/1/2010
```

List all the VIBs from vendors other than VMware

```
Get-EsxSoftwarePackage | ? {$_.Vendor -ne "VMware"}
```

Clone an image profile, give it a new name, and change the acceptance level.

```
New-EsxImageProfile -CloneProfile "ESX-5.0-234567-standard" -Name "My custom profile" -AcceptanceLevel CommunitySupported
```

Connect to a depot, then disconnect from it by URL.

```
Add-EsxSoftwareDepot https://hostupdate.vmware.com/software/VUM/PRODUCTION/main/vmw-depot-index.xml
```

Remove package foo from my custom profile:

```
Remove-EsxSoftwarePackage -ImageProfile "My custom profile" -SoftwarePackage foo
```

Modify the VIB list of an existing image profile

```
Set-EsxImageProfile -ImageProfile "Profile of a Fool" -SoftwarePackage esx-base,scsi-ips,esx-tboot
```

PowerCLI Sites

Official PowerCLI Blog - http://blogs.vmware.com/PowerCLI/
Documentation - http://vmware.com/support/developer/PowerCLI /index.html
VMware PowerCLI Community - http://vmware.com/go/powercli
Twitter - https://twitter.com/PowerCLI
LinkedIn - http://www.linkedin.com/groups/PowerCLI-Users-162324
Facebook - https://www.facebook.com/vmwarepowercli

Third-Party PowerCLI training from Pluralsight - http://www.pluralsight.com

PowerCLI Books

Learning PowerCLI

Managing VMware Infrastructure with Windows PowerShell TFM

PowerCLI Reference: Automating vSphere Administration